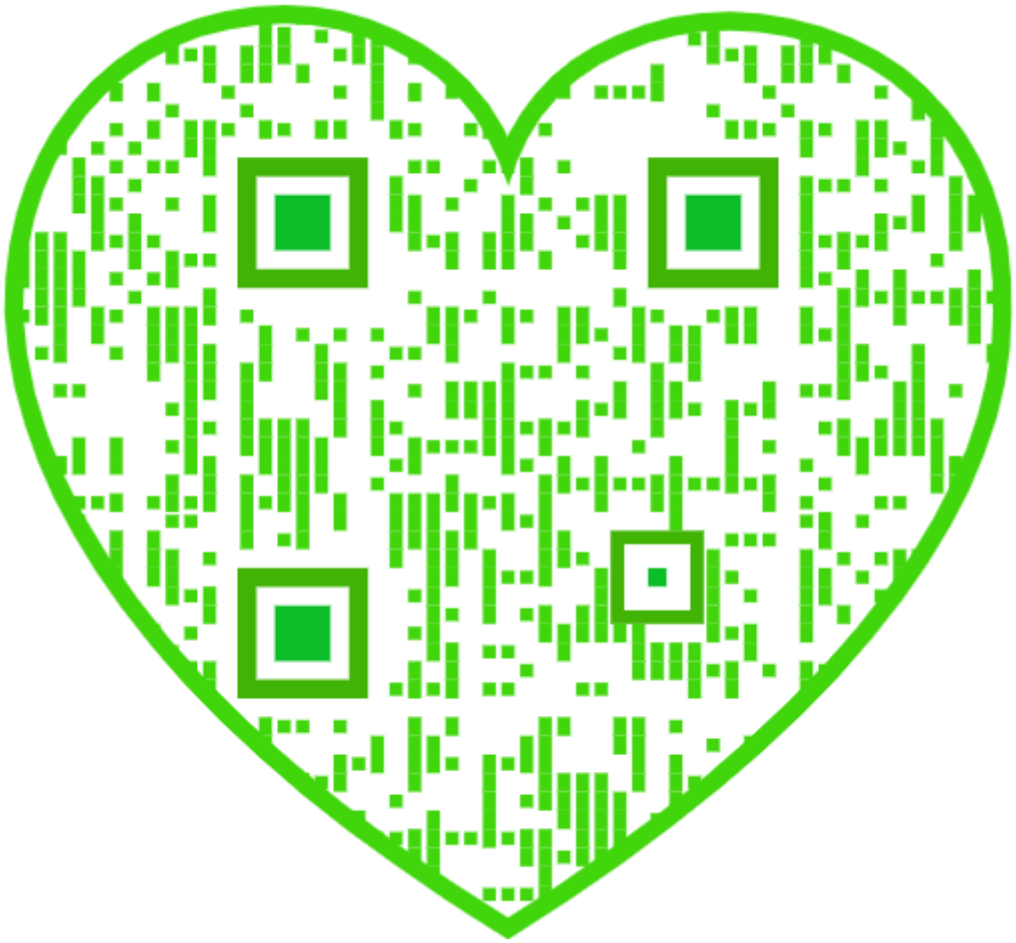
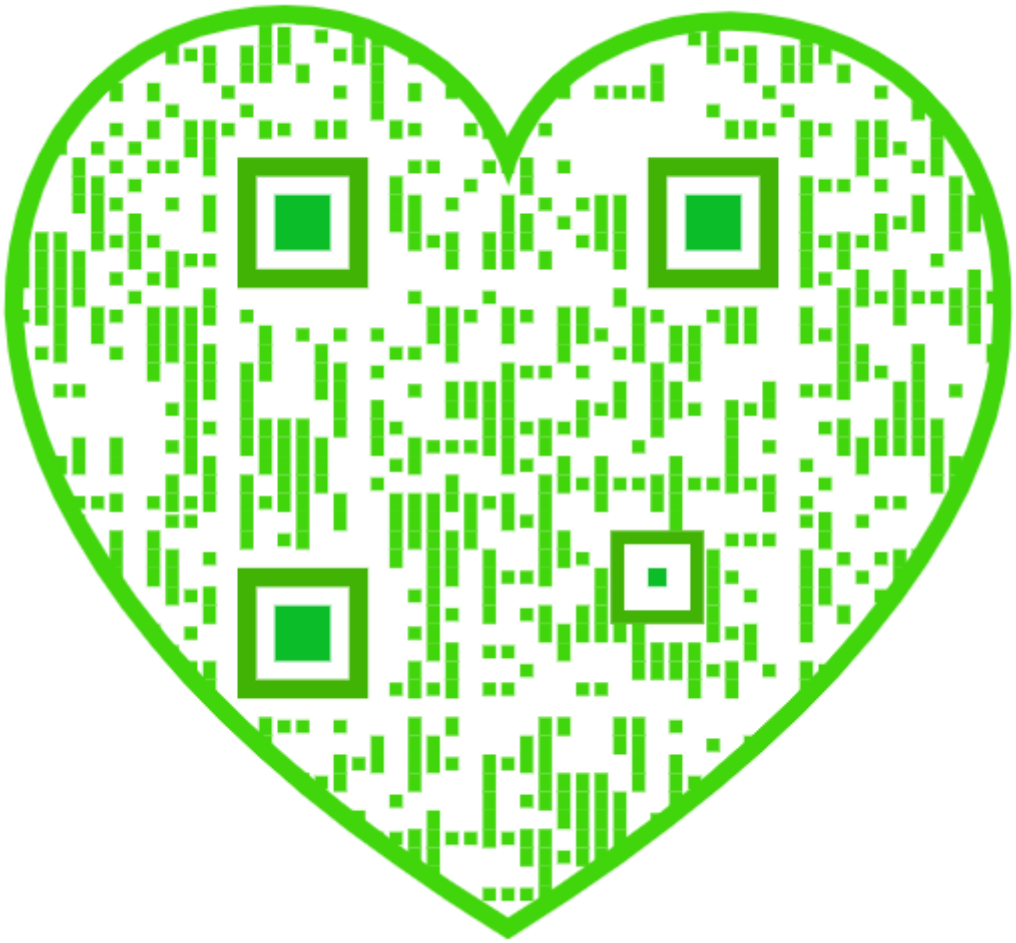
UC-NRLF
C 2 790 401

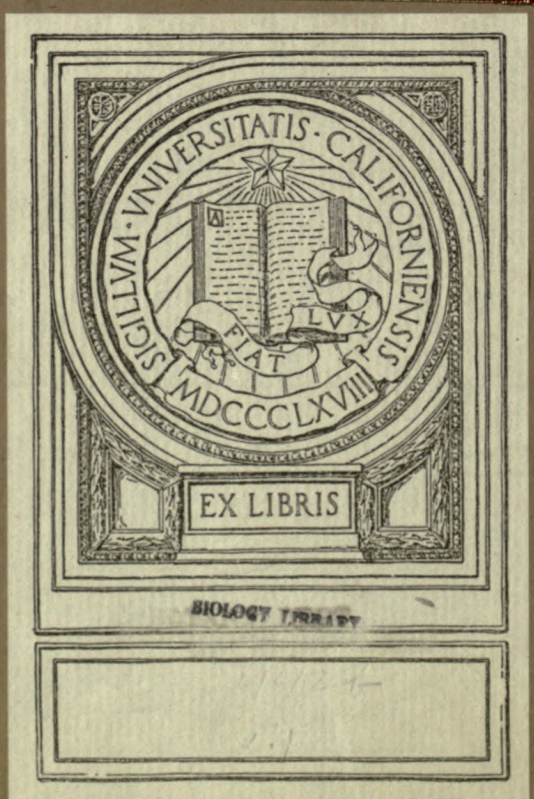




THE BOTANICAL LIBRARY
OF THE
UNIVERSITY OF CALIFORNIA.
GIFT OF
MR. AND MRS. T. S. BRANDEGEE.
1906

JOHN GOTT

1831.



UNIV OF CALIFORNIA

Wisdom and Activity collecting the various Treasures of the Vegetable Kingdom

Published by Henry Steele, London, Decbr. 1813

UNIV. OF CALIFORNIA

The UNIVERSAL HERBAL;

or,

Botanical, Medical, and Agricultural Dictionary.

By

Thomas Green

Published by Henry Fisher, Caxton, London, 1823.

Stanford
University

THE

UNIVERSAL HERBAL;

OR,

BOTANICAL, MEDICAL, AND AGRICULTURAL

DICTIONARY.

CONTAINING AN ACCOUNT OF

All the known Plants in the World,

ARRANGED ACCORDING TO THE LINNEAN SYSTEM.

SPECIFYING THE

USES TO WHICH THEY ARE OR MAY BE APPLIED, WHETHER AS FOOD, AS MEDICINE, OR IN THE ARTS AND MANUFACTURES.

WITH THE BEST

METHODS OF PROPAGATION,

AND THE

MOST RECENT AGRICULTURAL IMPROVEMENTS.

Collected from indisputable Authorities.

ADAPTED TO THE USE OF

THE FARMER—THE GARDENER—THE HUSBANDMAN—THE BOTANIST—THE FLORIST—AND COUNTRY HOUSEKEEPERS IN GENERAL.

BY THOMAS GREEN.

THE SECOND EDITION, REVISED AND IMPROVED.

VOL. I.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LONDON:

PRINTED AT THE CAXTON PRESS, BY HENRY FISHER,

Printer in Ordinary to His Majesty.

PUBLISHED AT 38, NEWGATE-STREET; AND SOLD BY ALL BOOKSELLERS.

C 1824

QK9
G7
1824
V.1
BIOLOGY
LIBRARY

UNIVERSITY OF TORONTO

PREFACE.

The obvious design of this work is to present the Botanist, Farmer, Gardener, and Country Housekeeper, with a compendium of Botanical, Agricultural, and Medical knowledge, collected from the accumulated labours of the most eminent authors, and hitherto only to be obtained in separate and very voluminous publications.

From the Introduction, which immediately follows this Preface, the Botanist will at once perceive that the Linnean Arrangement is exclusively adopted, not merely because it is most universal, but because, (to adopt the language of the present acute and learned president of the Linnean Society, Sir J. E. Smith, M.D. F.R.S.) "Without wasting any words on those speculative and fanciful changes, which the most ignorant may easily make in an artificial system; and without entering into controversy with the very few competent writers who have proposed any alterations, the discriminating characters of the Linnean System are founded in nature and fact, and depend upon parts essential to every species of plant, when in perfection; and as the application of them to practice is, above all other systems, easy and intelligible; nothing more useful can be done, than to perfect, upon our own principles, any parts of this system, which experience may shew to have been originally defective. Speculative alterations in an artificial system, are endless, and scarcely answer any more useful purpose than changing the order of letters in an alphabet. The philosophy of botanical arrangement, or the study of the natural affinities of plants, is quite another matter."

The general exemplifications of the Introduction—to which the Essay on the Physiology of Plants, in the second Volume, forms an important supplement—are followed by an Analysis illustrating the Linnean System of Classification, and by Rules for Investigation, intended to "explain and apply to practice those beautiful principles of method, arrangement, and discrimination, which render Botany not merely an amusement, a motive for taking air and exercise, or an assistance to many other arts and sciences; but a school for the mental powers, an alluring incitement for the young mind to try its growing strength, and a confirmation of the most enlightened understanding in some of its sublimest and most important truths." The explanatory Plates which exhibit the various kinds of Leaves, Trunks, Roots, Armature of Plants, and more especially those which present the Parts of Fructification, the Classes and Orders of the Sexual System, with the Dictionary of Botanical Terms, will gradually introduce the young student into the midst of this delightful science: and lest he should there find himself bewildered, the Introduction closes with succinct Instructions how he is to ascertain to what Class, Order, Genus, or Section, any known or strange plant he may meet with belongs; an assistance to which will be found in the Index to the Classes and Orders at the close of the second Volume.* To avoid also any perplexity which might arise from the Specific Character not being here printed in a different letter from the general description of each plant, and to account for any apparent repetitions, the reader will only have to bear in mind, that the specific character is always contained in the first sentence, under the name of each plant; what follows being superadded description, or directions for their culture. The notes of interrogation imply that the parts of the plants to which they are subjoined require further investigation, not having yet been perfectly described.

The foreign names of many plants, and, as far as could be ascertained, the *habitats*, or exact places of growth, where those that occur wild in our own country may be found, have been minutely recorded, as they always should be by every lover of Botany; the former for the accommodation of those who may take the UNIVERSAL HERBAL abroad; and the latter, to facilitate the researches of those who botanize at home: to both of whom it is strongly recommended to interleave their copies in the binding, that their own observations, additions, or corrections, may be noted in their proper order, for their individual use. Such persons also as have preferred the plain plates, may find an elegant amusement in occasionally colouring them at their leisure from nature.

* See also the "*Table of Genera*," published in the Appendix to this work.

The methods of propagation and culture, when peculiar, will be found under each species: but wherever the same treatment applies to a whole genus, the Farmer, Gardener, and Florist, will find the most explicit directions either immediately following the Essential Character, or subjoined to the description of the first species, to which all the rest are in the latter case invariably referred. Under every species of Grain, and of all plants used for the sustenance of man or beast, as well as under the articles Grass, Land, Moss, Mould, Meadow, Manure, Mowing, Pasture, Blight, Mildew, Vermin, Watering, Warping of Land, Weather, Weeds, Weeding, Wells, Hedges, Fences, &c. the intelligent Farmer may ascertain the opinions, practice, and experience, of the first authorities in every thing that relates to agricultural improvement.

The very copious Catalogue of Trees and Shrubs, given at the end of the second Volume, will at once enable the Gardener and Planter to select such as by their size, qualities, or places of growth, may best suit either general or particular purposes, and will save the intolerable labour and loss of time, that must have been incurred had they been left to examine the whole work in order to make that selection; which, when thus readily made, refers them for further details to the various species under their respective genera. The articles Dwarf Trees, Espaliers, Green-house, Hot-beds, Melonary, Stove, Pine-Stove, Ice-house, Nursery, Orchard, Grafting, Inoculation, Lopping, Planting, Pruning, Gravel and Grass Walks, Avenues, Wilderness Woods and Groves, Yard-manure, &c. with the Plates containing plans of the Conservatory, Hut-house, Stove-Pinery, and those for ornamental laying out of grounds, &c. will be found of essential use to the Planter, Nurseryman, and Gardener: the latter of whom will find the account of every plant with which he can have the most immediate or remote concern, accompanied with copious directions, calculated to advance his useful labours. He may also, under the head of Diseases of Plants, avail himself of all the knowledge and experience of Willdenow, as to the treatment of unhealthy plants, concerning which so much uncertainty has long prevailed. The articles entitled Planting, Timber, and Woods, are peculiarly adapted for those whose attention is principally directed to the propagation of useful trees, especially the Oak, Ash, Beech, Larch, Walnut, Chestnut, &c.: they will there find such general information as could not have been conveniently introduced into the particular description of each kind of Timber-tree, to which, under the names just enumerated, they are further referred for the most important details relative to their several qualities, and to the best means for their propagation. The Florist also, under the various species of flowers, will arrive at the most approved methods of bringing them to perfection, minutely laid down, principally upon the undoubted authority of the late celebrated Philip Miller, to whom this Work, as well as the Science of Botany, is largely indebted.

Interesting notices relative to the Arts, Manufactures, and Commerce, are interwoven, wherever articles of Trade, as Tanners' Bark, &c. have been described; or wherever there appeared any possibility of applying the plant under examination to commercial or economical purposes. In the last place, (but not on that account of the least consequence,) those Country Housekeepers who take delight in Botany, Agriculture, or Gardening, besides sharing the advantages already specified under those particulars, will find throughout this Work, very numerous excellent Recipes, which the copious Indices of Diseases, accompanying each Volume, will readily refer them to, for the cure, or at least the mitigation, of most disorders to which they are exposed. To render this part of the work still more complete, the plates of a certain number of copies have been coloured from nature, which, with the Directions for Gathering and Preserving the various Medicinal Herbs given at the end of the Introduction, will always enable them to collect, and keep ready for use, an ample stock of those simple, but efficacious, remedies.

THE EDITOR.

London, Jan. 7, 1824.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

INTRODUCTION.

NATURAL History properly signifies that study by which we learn to distinguish from each other, all bodies, whether animal, vegetable, or mineral, which surround us; to discover as much as possible their nature and properties, and especially their dependence on each other in the general scale of beings. In a more extensive sense, it may be said to teach the secondary properties of natural bodies, or the various uses to which they have been or may be converted, in the service of man; for an acquaintance with their properties is our only sure guide to a knowledge of their artificial uses. But as this definition would include many arts and sciences, each of which would be sufficient to occupy any common mind, such as agriculture, medicine, chemistry, and many others, it is sufficient for a philosophical naturalist to be acquainted with the general principles upon which such arts and sciences are founded.

BOTANY, (from *βοταν*η an herb, from *βοτος*, of *βοσκω*, I feed, because vegetables are the natural food of most animals,) is the science of plants; or that part of natural history which relates to vegetables. It may be divided into three branches: 1st. The physiology of plants, or a knowledge of the structure and functions of their different parts; 2dly. The systematical arrangement and denomination of their several kinds; and, 3dly. Their economical or medical properties: all of which should be kept in view by an intelligent botanist. In the utmost extent of the word, Botany signifies a knowledge of plants, and of the uses to which they may be applied, in medicine, chemistry, or the arts in general: but it is commonly restricted to a bare knowledge of the plants themselves, and of the distinguishing marks whereby each species may be known from every other. This knowledge is indispensably necessary. Many animals are endowed with an instinctive faculty of distinguishing salutary from noxious food. Mankind have no such instinct. They must have recourse to experience and to observation. But these are not sufficient guides in every case. A general caution, not to eat any thing but what we know to be salutary, will not answer in every instance. A ship's company, in want of provisions, may be thrown upon an uninhabited coast, or a desert island. Entirely ignorant of the nature of the plants they meet with, disease, or a scarcity of animals, may compel them to have recourse to vegetable food. The consequences may be dreadful—they must first eat before they can form any certain conclusion; and many lives have already been lost in these hazardous experiments. If the whole science of botany were as complete as some of its parts, very little skill in it would be sufficient to guard with certainty from committing such fatal mistakes. There are certain classes and orders which are called *natural*, because every genus and species comprehended under them, is not only distinguished by the same characteristic marks, but likewise possesses the same qualities, though not in an equal degree. For instance: shew a botanist the flower of a plant, the *calix* of which is a *double-valved glume* or husk, with *three stamina*, *two pistilla*, and *one naked seed*; he can pronounce with absolute certainty, that the plant from which the flower was taken, bears seed of a farinaceous quality, and that it may be safely used as food. In like manner, shew him a flower with *twelve or more stamina*, all inserted into the internal side of the calix, though it belong to a plant growing in Japan, he can pronounce without hesitation, that its fruit may be eaten with safety. On the other hand, shew him a plant whose flower has *five stamina*, *one pistil*, *one petal*, and whose fruit is of the *berry* kind; he will tell you it is poisonous. Facts of this kind render Botany a most interesting science. With respect to medical uses, it is found by experience, that plants, which are distinguished by the same *characters* in the flower and fruit, have the same qualities, though not always in an equal degree; so that upon inspecting the flower and the fruit, a botanist can determine the effects that will result from its use as a medicine. To determine therefore the medical virtues of all the plants belonging to a particular class, the physician has nothing to do but to ascertain, by a set of clear and unquestionable experiments, the virtues of any one of them; and this amazingly shortens the labour of investigation. As the number of species are known to be upwards of 20,000; by ascertaining the virtues of one genus, at a medium, you determine the number of 12 species. But by ascertaining the virtues of one genus belonging to a natural order, the virtues of perhaps 3 or 400 species are ascertained. A natural arrangement of the classes, orders, genera, and species, free in every instance from heterogeneous combinations, and disturbing no real affinities, is the *ne plus ultra* of classification. It is the point of perfection to which every naturalist should labour to approach, though what no one can expect actually to attain. To have formed the idea, is, however, no small advance towards it; and in itself implies a very important acquisition of knowledge.

This elegant science, which so manifestly displays the unbounded goodness and wisdom of God, was cultivated in some degree among the ancients, but chiefly with relation to medicine. As, however, they adopted no regular method of distribution and arrangement, the knowledge they gained was soon and easily lost. It would be as tedious as useless here to detail the various systems of those botanists who preceded the great Linneus, as it is well known that the system which bears his name is greatly superior to all that have been hitherto devised. It is called the *Sexual System*, because founded upon the important discovery, that in *plants*, as well as in *animals*, there is an indisputable distinction of the sexes; the following authenticated proof of which, will probably be acceptable to the intelligent reader. In Vol. xlvii. of the Philosophical Transactions, No. 25, there is a letter from Mr. Mylius of Berlin, concerning a remarkable experiment made upon the palm-tree. He says, "The *sex of plants* is very well confirmed, by an experiment that has been made here upon the *palma major foliis flabelliformis*, or, *the greater fan-shaped leaf palm*. There is a great tree of this kind in the garden of the Royal Academy. It has flowered and borne fruit these thirty years, but the fruit *never ripened*,

and when planted did not vegetate (or produce young plants.) The palm-tree, as you know, is a *planta diœcia*, that is, one of those in which the male and female parts of generation are upon distinct plants, (some being males and others females.) We having therefore no male plants, the flowers of our female were never impregnated with the farina of the male. There is a male plant of this kind in a garden at *Leipsic*, twenty German miles from *Berlin*. We procured from thence, in April 1749, a branch of male flowers, and suspended it over our females, and the experiment succeeded so well, that our palm-tree produced more than an hundred perfectly *ripe fruit*, from which we already have eleven young palm-trees. This experiment was repeated last year, and our palm-tree bore above two thousand ripe fruit."

A plant, like an animal, is a very compound organized living being, in which various operations, both chemical and mechanical, are continually carrying on, from its first production to its final dissolution. It springs from a seed fertilized by the pollen of its parent plant. It takes in foreign substances by its inhaling and absorbent vessels. It extracts from, and assimilates to its own substance, those parts of them that are nutritious, and throws off the rest. It secretes a variety of fluids by the means of glands, and other unknown organs. It gives that motion to the sap, upon which the continuance of its life depends.

Of the theory of vegetation, or growth, propagation, and nutriment of vegetables, our knowledge is very slight and superficial. On making a transverse section of a tree, *i. e.* cutting it through horizontally, it appears to consist of three parts:

I. The Bark, which is also subdivided into two parts, 1. The *cuticle*, or external covering, which consists of numerous layers of circular fibres or threads, which are easily separated from each other. 2. The *true bark*, which appears upon removing the former, and is a collection of cellular or spongy substances, containing two kinds of organs; the vessels peculiar to the plants, and the longitudinal fibres or perpendicular threads.

II. On removing the *bark*, the Wood appears. It has been discovered to contain the *vasa propria*, or *proper vessels*, and *longitudinal fibres*, besides large vessels with spiral or curved coats, running from one end of the tree to the other, and are denominated *vasa aëria*, or air-vessels, which are chiefly situated in the wood, leaves, and petals, but are not found in the bark of trees, nor in herbaceous plants. They are called air-vessels, because they contain no liquor, and because large quantities of air are generally found wherever they are placed; and hence they are supposed to be the organs of respiration, or breathing, in vegetables; but in what manner this function is performed, is not clearly understood.

III. In the centre of the tree is the Pith, which is of a similar structure in all vegetables; and is very plentiful in young plants, but, as they ripen, dries up, and appears in smaller quantities, and in aged trees altogether disappears. Between the wood and the pith lies a green-coloured substance, called the *corona*, or *crown*, which is said to contain all the parts of young plants in embryo.

These are the solid parts of plants, which likewise contain fluids or juices of two kinds: 1. The *succus communis*, or *common sap*, is of the same nature in all vegetables, and differs little from common water, except that it sooner becomes putrid on exposure to the air. It is supposed to ascend from the root, and to abound in proportion to the humidity of the soil. 2. The *succus proprius*, or *peculiar sap*, which varies according to the different plants in which it exists, giving to each its sensible qualities. It appears from experiments to proceed from the branches towards the roots, and never in a contrary direction.—Capillary attraction is thought to be the cause of the motion of these juices, the continuance of this power being supposed to depend on the evaporation from the leaves: and of late years a vital power assisting the flow of the juices has been ascribed to plants, because their return from the branches to the roots cannot be otherwise explained.

Every plant is also composed of several external parts, differing from each other in their outward appearance, and which cannot fail to strike the most careless spectator. Many of these parts are themselves compounded, and obviously capable of being separated into subordinate divisions. The first grand division adopted by most botanists, is into the *root*, the *body* of the plant, and the *fructification*, or *flower* and *fruit*. The last, or something equivalent to it, is essential to all plants; the first is visible in almost all, and the second is not wanting in many.

The Root, is stated by Linneus to consist of the *radicle*, and the *descending caudex*. The *radicle* is that fibrous part, which draws nourishment from the earth, and in many instances constitutes the whole of the root. The *descending caudex* is properly part of the stock or body of the plant, which extends itself below the surface of the ground, as the ascending caudex rises above it. That the ascending and descending caudex have precisely the same nature, is evident, from the well-known fact, that if a young tree be inverted, what was before the root will produce leaves, while the former stem throws out radicles. Roots are divided, according to the term of their duration, into *annual*, *biennial*, and *perennial*. The annual and biennial produce flowers and fruit only once, and then soon die; the former passing through all the stages of vegetable life in one season; the latter throwing out roots and leaves the first year, but not completing the fructification till the next. The *perennial* root has within itself a principle of continued life, and gives being to new flowers and seeds year after year, to an indefinite length of time. Of the roots that are called perennial, some are truly, others imperfectly such. In the true perennial root, the descending caudex and the radicle preserve the same individual organization, and increase in size as long as the plant continues to flourish. The imperfect perennial, are, the bulbous and the tuberous, which perish after producing the bulbs, the tubers or tubercles, which are to be the parents of future plants.

The Body of the plant springs from the root, and is terminated by the fructification. It is called by Linneus the *herb*, and according to him consists of the *trunk*, the *leaves*, the *fulcra*, props or supports, and the *hybernacula*, or buds.

The Fructification is a temporary part of the vegetable, designed to perpetuate the species, by producing a perfect seed, in which is contained the rudiment of a plant similar to that by which it was generated. Its essential parts are the *stamen* and the *pistil;* the former corresponding with the male, and the latter with the female, in the animal kingdom. The stamen consists of the *filament* and the *anther;* the pistil, of the *germ* or *seed-bud*, the *style*, and the *stigma*. They are generally protected by two coverings, the outward called the *calix*, and the inward the *corolla;* but in many kinds of plants, either the one or the other, and in some both of them are wanting. The pistil, in the last stage of its growth, is the parent of the seed or seeds, which are either naked, or inclosed in a *pericarp*, or seed-vessel. The *receptacle* or base on which the fructification is situated, is commonly considered as one of its parts; and in many plants there is a *nectary* or honey-cup connected with it.

Upon these parts Linneus has founded his celebrated system of botany, called the Sexual System. To elucidate this, take a Martagon Lily, for instance, class *Hexandria* order *Monogynia;* which, though deficient in the calix or outer green part, usually consisting of five divisions or small leaves, which embraces and supports the flower, as in the rose, is still the best example; the largeness of its size allowing all the parts of the flower to be distinctly seen. Before it opens, at the top of the stem we find a long greenish bud, which grows whiter the nearer it is to opening; and when quite opened, assumes the form of a cup or basin, divided into several parts. These parts, taken separately, are called *petals;* but as a whole, the *corolla;* and not the *flower,* which is composed of various parts, whereof the corolla only is not the principal. The corolla of the Lily not consisting of one entire cup or piece, but of six divisions or petals, is termed a *hexapetalous,* or *six-petalled corolla.* Exactly from the middle of the bottom of the corolla, or cup of the flower, there rises a sort of little column or pillar, pointing directly upwards. This is called the *pistil* or *pointal,* and is divided into three parts; 1. The swollen base with three blunted angles or corners at the bottom of the corolla, called the *germen, pericarp* or seed-vessel, or bud. 2. A thread or small stem rising out of this, called the *style,* or shaft of the column, which, 3. is crowned with a sort of capital or head with three notches, called the *stigma.* Between the pistil and the corolla of the Lily are six other bodies, entirely distinct from each other, and called the *stamina;* one part of which is long and thin, and rising from the side of the seed-bud at the bottom of the corolla, is called the *filament;* the other part, placed at the top of the filament, is thicker, and called the *anther.* Each anther is a box, which opens when it is ripe, throwing out a fine yellow dust with a strong smell, called the *pollen, farina,* or *fertilizing dust,* which falls upon and impregnates the germen or seed-bud, as in the instance of the palm-trees before cited, and without which no young plants can be produced. The parts here described are found in the flowers of most other plants, but in different proportion, situation, and number. By the resemblance of these parts, and their different combinations, the *families* of the vegetable kingdom are determined: and these analogies or resemblances are connected with others, in those parts of the plant which often seem destitute of all relation to them. Thus, this number of six stamina, sometimes only three, of six petals or divisions of the corolla, and the triangular or three-cornered form of the germen or seed-bud, distinguish the Lily tribe; the roots whereof are in general bulbous, *i. e.* round, and many-coated, like an onion; while that of the above specimen is individually distinguished by being a squamous bulb, or scaly ball.

A description of the different parts of a plant, must necessarily be obtained before it can be known. It is necessary, therefore, to pursue resemblances and differences through a number of gradations, and to found upon them primary and subordinate divisions; either ascending from particulars to generals, or descending from generals to particulars. Linneus has employed four principal divisions, *Classes, Orders, Genera,* and *Species;* occasionally introducing an intermediate one between the order and the genus, and another between the genus and the species. To illustrate this, no comparison can be more in point than that which considers the vegetables upon the face of the globe as analagous to the inhabitants, thus:

VEGETABLES resemble the INHABITANTS in general;
Classes resemble *Nations;*—*Orders* resemble *Tribes;*
Genera resemble *Families;*— *Species* resemble *Individuals.*
Varieties are the same *Individuals,* differently apparelled.

A *Class,* is an assemblage of orders, having one or more characters in common, but retaining their specific distinctions; and as it stands at the top of the series, it seizes the most general and most widely-diffused resemblances, and comprehends the greatest number of particular differences.

An *Order,* is a collection of genera connected together by one or more common characters; but, like the classes, still preserving their specific distinctions.

A *Genus,* is an assemblage of species, which, as well as the classes and orders, have some one or more characters in common to connect them, and at the same time retain their specific distinctions.

A *Species,* consists of individuals, resembling each other in the form, position, proportion, and general appearance, of their several parts, produced from similar individuals, and having a power to produce other individuals of the same kind: or, as it is concisely defined by *Jussieu,* it is a perennial succession of similar individuals, deriving their origin from a successive generation. These individuals are not indeed like each other in every minute respect; such a perfect conformity does not exist in any two individuals, either of animate or inanimate organized nature. But the difference between those of the same species, though sufficiently discernible by the eye, cannot easily be expressed in words. With a strongly-marked resemblance in all their parts, there is a perpetual variation in their outline, and other particulars; so that no two individuals, lying one upon the other, will entirely correspond. They are formed after the same model, not cast in the same mould. In the general, an accurate description of all the parts belonging to any individual, will discriminate the whole species. There are, however, some sensible qualities, of importance enough to be distinguished by proper names, which are, in many cases, too uncertain to enter into any specific character. Of these, size, colour, smoothness, or hairiness of surface, and luxuriance of one part at the expense of another, are the chief; and they are owing either to difference of soil, climate, particular exposure, and other accidents; or to artificial cultivation, which is the most abundant source of perpetual varieties.

In the Linnean System, the fructification has been justly considered of the first consequence. The characters of the classes, orders, and genera, are accordingly taken entirely from it.

In the greater number of plants, the parts of fructification may be readily discerned by the naked eye, or with the assistance of a common lens; but there are also not a few in which they have not been satisfactorily discovered, or are too minute to be described with sufficient accuracy for the purposes of systematic arrangement. In most of those whose parts of fructification have been clearly ascertained and distinctly described, the stamina and pistilla are inclosed within the same envelope, or at least are absolutely contiguous; but in some, they are contained in separate flowers, or placed at a distance from each other. In both cases there is much variety with respect to their number, position, and other circumstances. On these distinctions, the distribution into classes and orders is founded.

The characters of the *classes* are taken almost exclusively from the *stamina;* those of the *orders* either from the *stamina* or the *pistilla,* but most generally from the latter.

The *essential* characters, or marks of the genera, are taken from some particulars in the flower before unnoticed; but generic descriptions are designed to contain an account of all the most obvious appearances in every part of the flower.

The *species* are mostly characterized from peculiarities in the *stem* or *leaves;* sometimes from certain parts of the *flower;* and in some instances, though very rarely, from the *roots.*

ANALYSIS OF THE LINNEAN SYSTEM.

Every Vegetable is supposed to have a Flower, which is either,

VISIBLE;

STAMINA AND PISTILLA IN THE SAME FLOWER;

MALE AND FEMALE ORGANS DISTINCT;

STAMINA NOT UNITED ABOVE NOR BELOW;

OF EQUAL LENGTH;

Hermaphrodites, or having both the sexes in each flower.

	CLASSES.	EXAMPLES.
I.	*Monandria*. One Stamen or *Husband*; as in.....	Ginger, Indian arrow-root, turmeric, blite, [mare's tail.
II.	*Diandria*.. Two Stamina.....do.....	Jessamine, privet, olive, lilac, speedwell.
III.	*Triandria*.. Three..do. .....do.....	Valerian, tamarind, iris, and the grasses.
IV.	*Tetrandria* Four...do.....do.....	Scabious, teazel, madder, holly, woodroof. [plantain.
V.	*Pentandria* Five..do.....do.....	Bell-flower, bindweed, mullein, thorn-apple, & the rough-leaved and umbelliferous plants.
VI.	*Hexandria* Six....do. .....do.....	Snow-drop, narcissus, tulip, aloe, hyacinth.
VII.	*Heptandria* Seven do.....do.....	Horse-chesnut.
VIII.	*Octandria*..Eight..do..... do.....	Indian-cress, heath, French willow.
IX.	*Enneandria* Nine..do.....do.....	Bay-rhubarb.
X.	*Decandria* Ten....do..... do.....	Fraxinella, rue, rhododendron, lychnis
XI.	*Dodecandria* Twelve do.....do.....	Purslane, houseleek, asarabacca.
XII.	*Icosandria*..Many *Stamina*, frequently 20, attached to the *calix*, and called *twenty husbands*;	Peach, medlar, apple, rose, cinquefoil.
XIII.	*Polyandria*. Many *Stamina*, generally more than 20, not attached to the calix, called *many husbands*;	Herb christopher, poppy, larkspur, columbine, ranunculus.
	Or, OF UNEQUAL LENGTH,	
XIV.	*Didynamia*..Two long and two short *Stamina*, called *the superiority of two*;	Savory, hyssop, ground-ivy, balm, toad-flax, foxglove, agnus castus, bear's breech.
XV.	*Tetradynamia*. Four long and two short ditto, called *the superiority of four*;	Scurvy-grass, candy-tuft, water-cress, stock, woad, cabbage.
	Or, STAMINA UNITED,	
XVI.	*Monadelphia*. by the filaments into one body, the *stamina*, joining at the base, called *a brotherhood*;	Geranium, and the mallow tribe.
XVII.	*Diadelphia*.. by the filaments of two bodies or sets of *stamina* united, unlimited in number, called *two brotherhoods*;	Fumitory, milk-wort, and the pea bloom flowers.
XVIII.	*Polyadelphia*. by the filaments into many bodies or sets, called *many brotherhoods*;	Orange, chocolate nut, St. John's wort.
XIX.	*Syngenesia*..by the antheræ or tips into a cylinder, with the *stamina* separate, called *generating together*;	Violet, balsam, cardinal flower, and the flowers termed compound, as, dandelion, succory, thistle, cudweed, tansey, bluebottle.
	Or, MALE AND FEMALE ORGANS UNITED,	
XX.	*Gynandria*..or male organs or *stamina* joined to and standing upon the female organs or *pistilla*, hence called *wife* and *husband*;	Orchis, ladies' slipper, arum, vanelloe, birth-wort, passion-flower.
	Or, STAMINA AND PISTILLA IN DIFFERENT FLOWERS,	
XXI.	*Monœcia*....the same plant having male and female flowers, called *a single house*;	Mulberry, nettle, oak, cypress, fir, cucumber.
XXII.	*Diœcia*.....males and females on separate plants, called *the two houses*;	Willow, hop, spinach, poplar, mercury-juniper, lychnis dioica.
XXIII.	*Polygamia*.. males, females, or hermaphrodites, found upon the same or different plants, called *many marriages*;	White hellebore, pellitory, orach, fig.
	Or, CONCEALED.	
XXIV.	*Cryptogamia*, or concealed and cannot be described, called *concealed marriages*;	Ferns, mosses, mushrooms, mould, algæ.

The Number of the GENERA and SPECIES of PLANTS of the *Phanogamous Kinds, in the following TABLE, are taken from C. H. Persoon's Edition of Linneus, published at Paris in 1805 and 1807. In his Classification of Plants, he has differed in some respects from Linneus; especially in his retrenchment of the Classes Polyadelphia and Polygamia, (the plants of which, he has distributed in what he conceives to be their more proper places in the remaining twenty-one Classes,) and his cutting off the order Monogamia, from the Linnean class Syngenesia. The number of Genera and Species of †Cryptogamous plants, is taken from Turton's Edition of Linneus, Vol. VI. printed at Swansea, in 1803.

		Total Genera.	*Total Species.*
CLASS I.	——Order I. Monogynia; 21 Genera, 77 Species.—Order II. Digynia; 6 Genera, 13 Species.	30	90
—— II.	——Order I. Monogynia; 41 Genera, 470 Species.—Order II. Digynia; 2 Genera, 7 Species.—Order III. Trigynia; 1 Genus, 105 Species	44	582
—— III.	——Order I. Monogynia; 65 Genera, 666 Species.—Order II. Digynia; 62 Genera, 730 Species.—Order III. Trigynia; 11 Genera, 37 Species	138	1433
—— IV.	——Order I. Monogynia; 116 Genera, 741 Species.—Order II. Digynia; 8 Genera, 15 Species.—Order III. Trigynia; 1 Genus, 1 Species.—Order IV. Tetragynia; 10 Genera, 62 Species	135	819
—— V.	——Order I. Monogynia; 287 Genera, 2253 Species.—Order II. Digynia; 90 Genera, 699 Species.—Order III. Trigynia; 20 Genera, 140 Species.—Order IV. Tetragynia; 1 Genus, 3 Species.—Order V. Pentagynia; 11 Genera, 189 Species.—Order VI. Decagynia; 1 Genus, 1 Species.—Order VII. Polygynia; 3 Genera, 3 Species	413	3288
—— VI.	——Order I. Monogynia; 112 Genera, 907 Species.—Order II. Digynia; 3 Genera, 4 Species.—Order III. Trigynia; 20 Genera, 105 Species.—Order IV. Hexagynia; 3 Genera, 3 Species.—Order V. Polygynia; 1 Genus, 9 Species..	139	1028
—— VII.	——Order I. Monogynia; 9 Genera, 17 Species.—Order II. Digynia; 1 Genus, 3 Species.—Order III. Tetragynia; 2 Genera, 2 Species.—Order IV. Heptagynia; 3 Genera, 7 Species	15	29
—— VIII.	——Order I. Monandria; 58 Genera, 540 Species.—Order II. Digynia; 4 Genera, 13 Species.—Order III. Trigynia; 9 Genera, 121 Species.—Order IV. Tetragynia; 8 Genera, 15 Species	79	689
—— IX.	——Order I. Monogynia; 6 Genera, 46 Species.—Order II. Trigynia; 2 Genera, 9 Species.—Order III. Hexagynia; 1 Genus, 1 Species	9	56
—— X.	——Order I. Monogynia; 103 Genera, 611 Species.—Order II. Digynia; 11 Genera, 162 Species.—Order III. Trigynia; 14 Genera, 246 Species.—Order IV. Tetragynia; 1 Genus, 3 Species.—Order V. Pentagynia; 17 Genera, 232 Species.—Order VI. Decagynia; 2 Genera, 7 Species	148	1261
—— XI.	——Order I. Monogynia; 35 Genera, 124 Species.—Order II. Digynia; 2 Genera, 6 Species.—Order III. Trigynia; 4 Genera, 157 Species.—Order IV. Tetragynia; 1 Genus, 3 Species.—Order V. Pentagynia; 4 Genera, 9 Species.—Order VI. Dodecagynia; 1 Genus, 13 Species	47	312
—— XII.	——Order I. Monogynia; 27 Genera, 250 Species.—Order II. Digynia; 3 Genera, 41 Species.—Order III. Trigynia; 1 Genus, 3 Species.—Order IV. Pentagynia; 8 Genera, 152 Species.—Order V. Polygynia; 10 Genera, 176 Species.	49	622
—— XIII.	——Order I. Monogynia; 72 Genera, 364 Species.—Order II. Digynia; 7 Genera, 17 Species.—Order III. Trigynia; 3 Genera, 37 Species.—Order IV. Tetragynia; 5 Genera, 23 Species.—Order V. Pentagynia; 8 Genera, 123 Species.—Order VI. Polygynia; 29 Genera, 291 Species	124	855
—— XIV.	——Order I. Gymnospermia; 53 Genera, 534 Species.—Order II. Angiospermia; 116 Genera, 800 Species	169	1334
—— XV.	——Order I. Siliculosa; 26 Genera, 217 Species.—Order II.—Siliquosa; 13 Genera, 297 Species	39	514
—— XVI.	——Order I. Diandria; 2 Genera, 12 Species.—Order II. Triandria; 2 Genera, 2 Species.—Order III. Pentandria; 18 Genera, 252 Species.—Order IV. Heptandria; 1 Genus, 150 Species.—Order V. Octandria; 2 Genera, 2 Species.—Order VI. Decandria; 7 Genera, 53 Species.—Order VII. Dodecandria; 13 Genera, 54 Species.—Order VIII. Polyandria; 32 Genera, 483 Species	77	1008
—— XVII.	——Order I. Pentandria; 1 Genus, 5 Species.—Order II. Hexandria; 3 Genera, 33 Species.—Order III. Octandria; 5 Genera, 109 Species.—Order IV. Decandria; 92 Genera, 1548 Species	101	1695
—— XVIII.	——Order I. Æqualis; 79 Genera, 894 Species.—Order II. Superflua; 77 Genera, 1265 Species.—Order III. Frustraneæ; 18 Genera, 255 Species.—Order IV. Necessaria; 24 Genera, 194 Species.—Order V. Segregatæ; 20 Genera, 63 Species	218	2671
—— XIX.	——Order I. Diandria; 34 Genera, 477 Species.—Order II. Triandria; 2 Genera, 2 Species.—Order III. Hexandria; 2 Genera, 41 Species	38	520
—— XX.	——Order I. Monandria; 11 Genera, 46 Species.—Order II. Diadria; 3 Genera, 10 Species.—Order III. Triandria; 18 Genera, 294 Species.—Order IV. Tetrandria; 18 Genera, 157 Species.—Order V. Pentandria; 11 Genera, 58 Species.—Order VI. Hexandria; 10 Genera, 25 Species.—Order VII. Polyandria; 40 Genera, 257 Species.—Order VIII. Monadelphia; 42 Genera, 401 Species.—Order IX. Gynandria; 3 Genera, 3 Species	156	1251
—— XXI.	——Order I. Monandria; 8 Genera, 13 Species.—Order II. Diadria; 7 Genera, 144 Species.—Order III. Triandria; 10 Genera, 150 Species.—Order IV. Tetrandria; 16 Genera, 54 Species.—Order V. Pentandria; 24 Genera, 67 Species.—Order VI. Hexandria; 15 Genera, 108 Species.—Order VII. Octandria; 5 Genera, 44 Species.—Order VIII. Enneandria; 3 Genera, 9 Species.—Order IX. Decandria; 5 Genera, 13 Species.—Order X. Dodecandria; 5 Genera, 33 Species.—Order XI. Icosandria; 6 Genera, 17 Species.—Order XII. Polyandria; 10 Genera, 48 Species.—Order XIII. Monadelphia; 20 Genera, 85 Species.—Order XIV. Gynandria; 1 Genus, 17 Species	135	802
—— XXII.	——Order I. Filices; 38 Genera, 560 Species.—Order II. Musci; 23 Genera, 555 Species.—Order III. Hepaticæ; 7 Genera, 118 Species.—Order IV. Algæ; 8 Genera, 871 Species.—Order V. Fungi; 52 Genera, 819 Species	128	2923
		Grand Total, 2431	23,782

SYNOPSIS OF THE PRECEDING TABLE.

** Phanogamous Plants.*

Total of Genera.....2303 : of Species.....20,859

† Cryptogamous Plants.

	Genera.	Species.
Total of Genera.....128 : of Species.....2923		
Grand Total of Phanogamous and Cryptogamous Plants	2431	23,782

†‡† These Orders are named from the *Pistillum*, or female part of a plant, which is usually reckoned from the base of the Style, if there be any; if that be wanting, it is fixed from the *Stigmata*.—*Monogynia* therefore means one wife, female, or style; *Digynia*, two; *Trigynia*, three; *Tetragynia*, four; *Pentagynia*, five; *Hexagynia*, six; *Decagynia*, ten; *Polygynia*, many.

* *Phanogamous*,—from *φαινω to appear*, and *γαμος marriage*:—Plants in which the parts of fructification are visible and distinct.

† *Cryptogamous*,—from *κρυπτω to hide*, and *γαμος a marriage*:—Plants in which the parts of fructification are either totally concealed, or imperfectly visible.

*** Dr. Edward Smith, President of the Linnean Society, has removed the plants of the Monogamia order of class Syngenesia into their proper place in the class Pentandria, because the flowers of its different genera are not composite, or compounded.

RULES FOR INVESTIGATION.

When a plant offers itself to our investigation, the first thing to be determined is, the class to which it belongs. This is to be done by observing the number of stamina, and referring to the preceding Tables of the Classes. Should there be a difficulty in ascertaining the number of stamina, on account of the number appearing different in different flowers, though belonging to the same plant, it is advisable to examine one or more of the flowers which are yet unopened; for the antheræ are in that state more distinct, and we may be certain that none of them have been lost. Having fixed upon the class, we must again refer to the preceding Tables, where we shall find of how many orders the class consists; and, after observing the circumstances of the pistilla, or other characters by which the orders are determined, we must compare these, and we shall readily discover the class and order to which it systematically belongs.

If the order we refer it to has any subdivisions, we shall soon perceive under which of the subdivisions the genus should be found: and as this Dictionary presents the student with the characteristics of the orders and their respective subdivisions, and also with the genera belonging to each order or subdivision alphabetically arranged, after having discovered the class by the assistance of the preceding analysis, he will easily ascertain the order in this table under the class to which it belongs, and will there find himself at once referred to the genera and species in the body of the work.

After comparing the flowers with the characters of the different genera contained in the order, or in the particular subdivision of the order, it will soon be seen with which of them it best corresponds; and if any one agree pretty exactly with our specimen in all the leading characters, we are then certain of the genus. Doubtful matters will sometimes arise; but these are for the most part made clear, by observations subjoined to the generic descriptions. In consulting these generic descriptions, the learner is advised to pay particular attention to the structure of the *pistil*, and especially to that of its *germen*, when it begins to ripen into a *seed-vessel*; because these parts being most essential to the continuation of the species, are less liable to variation, than those which are less important.

If none of the generic characters at the beginning of the class agree with the flower, we must then look at the end or subdivision of the order to which it was referred, and see what plants are there mentioned. If we have not found the plant before, it must be some one of these; looking therefore for these, and comparing the generic descriptions with the specimen in hand, we shall not only discover the genus, but the circumstance which produced our perplexity.

The young student is also recommended to practise the investigation of *genera* only, for a considerable time, before he attempts to ascertain a *species*; and when by this means he has attained a pretty accurate knowledge of classes and orders; also of the parts composing a flower, and its subsequent state of fruit, or fructification, and likewise with the terms employed in describing them; he may next proceed to determine the *species* and *varieties*.

Whenever the *species* are numerous, they are subdivided. Consider with which of these subdivisions it agrees; and having determined that, compare it with the several *specific* characters, as it will probably agree with some one of these. If you are still in doubt, guided by the references to figures which commonly follow the specific character, turn to such figures as you possess; and to make the point still more certain, compare your plant with the descriptions which follow the references to figures; for these will remove many an existing doubt, and obviate many a possible mistake. If the plant in question be any remarkable variety, you will probably find it introduced after the additional descriptions above alluded to.

Make it an invariable rule, not to pass over a single term, the precise meaning of which you do not thoroughly understand: always consult the Botanical Dictionary, at the end of this Introduction, which will soon remove the necessity of consulting it at all.

Lastly; When gathering plants for examination, collect a considerable number of the flowers, and, if possible, some just opening, others fully expanded, and others with the seed-vessels almost ripe: take care also to gather one specimen of the plant, at least, as perfect and entire as possible.

It is deemed necessary to subjoin various examples for investigation: the student will, however, do well, after examining, to try his strength by examining any unknown flowers he may pick up in his walks.

EXAMPLES.

Common Privet.—*Ligustrum Vulgare.*

This shrub is found in hedges and shrubberies in many parts of England. It generally blossoms in June, and its blossoms are white. Having obtained a branch of it in blossom, we proceed to investigate it; and looking into several blossoms, find two stamina in each, by which we know it belongs to the Diandria class. This class contains three orders, which depend upon the number of pistilla; looking again at the flowers, we discover one pistil in each: so that the plant evidently belongs to the order Monogynia.—This order is subdivided into several parts; and observing the marks of these subdivisions, we find that in our specimen the blossom is formed of one regular corolla, fixed beneath the germen; which corresponds with the first subdivision, and that contains only one English genus, so that there can be no doubt but the plant is a Ligustrum. We shall also find that the blossom is cloven into four parts, and that it is succeeded by a berry containing four seeds. Referring to the genus Ligustrum, and comparing it with the generic description, we have the satisfaction to perceive a perfect coincidence. Having ascertained the genus, we proceed to discover the species; and as there are only two species of that genus, we know the shrub in question, from its lanceolate leaves, must be the common Privet, or Ligustrum Vulgare of Linneus.

Reed.—*Arundo.*

The Reed is plentiful upon the banks of rivers, on borders of pools, and in wet ditches; it is a sort of large grass, five or six feet high, and flowers in June. Having gathered a specimen of this, we proceed to examine it systematically. At first sight we observe that the flowers grow in panicles, and that each flower contains three stamina. We therefore refer it to the third or Triandria class, which is divided into three orders, depending upon the number of pistilla. Each of the flowers contains two pistilla, and therefore belongs to the order Digynia. This order is subdivided into several parts. The first subdivision contains the plants with flowers scattered, or irregularly disposed, *one* only in the calix. Our plant agrees with the first circumstance, but not with the last, for we find five flowers in each calix. Another subdivision contains only two flowers in a calix; we therefore pass that over, and come to the third with scattered flowers, and *several* in each calix. Before we proceed further, we just look at the remaining subdivision, but finding those flowers in the form of a spike, or a long and slender receptacle, we immediately recur to the third subdivision. This subdivision contains several genera, and we compare the characters of each with the plant in hand: the want of an awn, and the woolliness at the base of the blossoms, determines us to call it Arundo. Turning therefore to the genus Arundo, we compare it accurately with the generic description, and find it correspond with it. But as the parts constituting the flowers of grasses are frequently very minute, we make use of the botanical microscope and dissecting instrument,* to display them more clearly to the eye. Having discovered it to be an Arundo or Reed, we next proceed to ascertain the species. There are four only natives of Great Britain; and each calix containing five florets upon a flexible panicle, which is observed to be waved about with every wind, decides that it is the common Reed, or Arundo Phragmites of Linneus.

Plantain.—*Plantago.*

The Plantain flowers in June and July, and is very common in mowing grass, and upon the road-side. It is frequently stuck in the cages of linnets and canary birds, who are fond of the seeds. Examining a specimen of this, we find each flower to contain four stamina nearly of the same length; it therefore belongs to the fourth or Tetrandria class. This class contains four orders, depending upon the number of pistilla. Each of our flowers contains only *one* pistil, and therefore belongs to the first order, which admits of twelve subdivisions. Our specimen presents blossoms of *one* petal, fixed *beneath* the germen: this induces us to seek it in the fourth subdivision; and finding, by cutting across the seed-vessel, that it is divided into two cells,† we conclude that it is a Plantago. We now compare it with the generic description, and as that agrees, try next to determine the species. There are thirty-five species of Plantain; these are subdivided into plantains with naked scapes, and those furnished with a stem. Our plant has a naked scape, and therefore belongs to the first subdivision. It agrees with the Plantago Lanceolata in every particular; and hence we call it the Ribwort Plantain, or Plantago Lanceolata of Linneus.

Birch.—*Betula.*

This tree is very generally known. The flowers are disposed in catkins, which appear in April and May. Some of these catkins contain only stamina with their scales, and others on the same tree only pistilla. In the former, each floret contains four stamina, and in the latter two pistilla. These agree with the twenty-first or Monœcia class, and with the order Tetrandria, which contains twelve genera. Attention to the other parts of the character, and a comparison with the generic description, will determine it to be of the Betula genus, which having fifteen species, the shape of the leaves will prove the specimen to be the common Birch-tree, or Betula Alba of Linneus.

Honeysuckle.—*Lonicera.*

This plant is common in our hedge-rows, and is very universally known: but let us suppose a person, who never saw it before, struck with the beauty and fragrance of its blossoms, carrying a piece of it home for examination. Finding five stamina in each flower, and the antheræ not united, he refers it to the fifth or Pentandria class. The orders in that class being determined by the number of pistilla, he knows it belongs to the order Monogynia, for he finds only one pistil in each flower. This order is subdivided into eleven parts. The absence of the *four naked seeds*, and the ROUGH LEAVES, immediately determine him to reject the third subdivision. The *blossom* being *fixed beneath the germen*, does not correspond with his flower; hence he rejects the fourth and fifth subdivisions, and passes on to the sixth, where he finds flowers of one petal superior. This flower consists of one petal, and this petal is fixed *superior* to, or *above*, the germen. This subdivision containing many genera, he observes in his plant the seed-vessel is a berry with two cells; this circumstance, added to the equality of the blossom, and the knob at the top of the pistil, induces him to think it a Lonicera, which, upon comparing the flower with the generic description, he finds to be correct. Under this genus he finds twenty species; he compares it with the specific character of each, and thereby determines it to be the Woodbine Honeysuckle, or Lonicera Periclymanum of Linneus.

Snowdrop.—*Galanthus.*

The Snowdrop, though not frequent in a wild state, is to be found in almost every garden, and is among the first of our spring flowers. When we examine it attentively, the first thing that strikes us, is the want of a cup; but instead of that, we find upon the fruitstalk a sheathing substance, which covers the blossom in its infant state. The six stamina direct us to the sixth or Hexandria class, and the single pistil fixes it upon the first order of that class. This order is subdivided into, 1. Flowers with a cup and blossom. 2. Flowers with calix, corolla, or spathe. 3. Flowers with a sheath or husk. 4. Flowers naked. 5. Flowers without petals. The want of a cup, and the presence of the sheath, teach us to expect it in the third subdivision, which contains several genera. In the Allium, the blossom is fixed *beneath* the germen, but in our plant it is *above* it. In the Narcissus there is a bell-shaped

* The botanical microscope, and dissecting instruments, may be purchased for about two guineas. The microscope is of a form suited to the pocket, and is also made to stand steady while in use.

† To judge whether a capsule consists of one or more cells, the best method is, to cut it through horizontally with a sharp knife, then carefully to pick out the seeds, leaving the dividing membranes entire. If it be very minute, cut off a thin slice horizontally, place it on the stage of the microscope, view it through the magnifier, and at the same time dissect it with the instrument.

nectary, and six petals; but our plant has six petals only, and no such bell-shaped nectary. The circumstance of three *inner* petals, shorter and notched at the end, is sufficiently observable in our specimen, and clearly distinguish it from the Leucojum; it agrees only with the Galanthus. The generic character answers the description; and the three inner and shorter petals may be considered as a nectary. As there is but one species, it must therefore be the Galanthus Nivalis of Linneus, or common Snowdrop.

Pear.—*Pyrus.*

Finding about twenty stamina in each flower, we know it must belong either to the twelfth or thirteenth classes. In the twelfth, or Icosandria class, the number of stamina alone will not sufficiently distinguish it from the classes Dodecandria and Polyandria; but as the calix is formed of a single concave leaf, the petals fixed to the sides of the calix, and the stamina do not stand upon the receptacle, we conclude that it belongs to that class. Each flower having five pistilla, we look for the genus under the order Pentagynia. This order contains six genera. The calix being cloven into five parts, and the blossoms being composed of five petals, are circumstances common to three. But the fruit of one is a berry containing five seeds, and the fruit of another is a pomum or apple, with five cells and *many* seeds. Hence it appears, that our plant is undoubtedly the Pyrus; and turning to the generic description, we are confirmed in this opinion. We next compare it with the twenty-four species, and are soon able to determine whether we have got the Pyrus Communis or the Pyrus Malus; i. e. the Pear or the Apple.

Crowfoot.—*Ranunculus.*

The beautiful shining yellow blossoms of Crowfoot, and the frequency of it in pastures in the months of June and July, will probably attract our notice, especially as cattle leave it untouched, even when the pasture is bare. We therefore collect some of it, and finding a great number of stamina in each blossom, refer it to the thirteenth or Polyandria class, the stamina of which stand upon the receptacle, and not upon the cup or blossom. As this must be the class, we next examine the pistilla, and finding them more than can readily be counted, turn to the order Polygynia. This order includes twenty-one genera. Upon an accurate examination we observe a little pore or nectary within the claw of each petal; and governed also by a number of leaves forming the cup, and of petals composing the blossom, we turn to the generic description of the Ranunculus. Quite satisfied about the genus, we observe the species are numerous, and arranged according as the leaves are *divided* or *not divided.* In our specimen the leaves are divided. We then compare it with each of the species; and from its open or expanded calix, its cylindrical fruit-stalks, its leaves with three divisions, many clefts, &c. find it to be the upright Crowfoot, or Ranunculus Acris of Linneus.

Wall-flower.—*Cheiranthus.*

This plant is very generally known. It grows wild upon old walls, and is frequently cultivated in gardens. Carefully remove the calix and the petals, and you will find six stamina, two of which are shorter than the other four. It therefore belongs to the fifteenth class, or Tetradynamia. The orders of this class depend upon the form of the seed-vessel; and after examining the specimen, you necessarily refer it to the first subdivision of the second order; for the seed-vessel is a *long* pod, and the leaves of the cup stand upright, and close to the blossom. It is possible you may have to dissect several flowers, before you can ascertain the genus; for this class, like the preceding, is composed of a natural assemblage of plants, whose flowers bear a strong resemblance to each other; and the differences, when this is the case, are not very obvious. At length, however, the small glandular substance on each side the base of the germen, determines you to refer it to Cheiranthus. Upon a comparison with the generic description, you find it corresponds; and the shape of the leaves, &c. puts it beyond all doubt, that it is the Wall July-flower, or Cheiranthus Cheiri of Linneus.

Dandelion.—*Leontodon.*

This plant is in blossom during great part of the spring and summer; it grows in pastures, road-sides, and the uncultivated parts of gardens. At the first view we perceive its structure to be very different from any we have ever examined before; we hardly know what to call stamina, or what pistilla. The fact is this, it is a true compound flower, or a flower formed of a number of little flowers (or florets) sitting upon one *common* receptacle, and inclosed by one *common* calix. Separating one of the florets, and examining it carefully, we find five stamina, with the antheræ united, and the pistil passing through the cylinder formed by the union of the antheræ. We therefore refer it to the nineteenth or Syngenesia class: finding that all the florets are furnished with stamina and pistilla, we perceive that it belongs to the first order. From the shape of the blossoms of the florets, which are all long and narrow, we know that we must look in the first subdivision of that order. Perceiving that the receptacle is an important circumstance in the character of compound flowers, we pull off all the florets in one of the flowers, and expose the receptacle to view. We find it naked, that is, not beset with chaffy or bristly substances. We find too a sort of down adhering to the seeds; and observe the scales of the calix laid one over another, like the tiles on a roof; the outer scales loose, flexible, and turned back. These characters corresponding pretty well with the Leontodon, we fix upon that as the genus; we look forward to the generic description, where we are informed, that in the Leontodon Taraxacum, the down of the seed is supported on a long pedicle, which we had already remarked in the flower before us. We next read the characters of the different species; and, from the deep notches in the leaves, judge our plant to be the Leontodon Taraxacum of Linneus, or common Dandelion.

Milk-vetch.—*Astragalus.*

This genus is very common every where in Great Britain. Examining a specimen of it when in flower, we immediately collect from the papilionaceous, or butterfly-shaped blossoms, that it must belong to the Decandria order of the Diadelphia class of plants. In referring to the Linnean classification of the plants in this order, we find that there are not fewer than six grand subdivisions. Our plant cannot belong to the two first, because in the former all the stamina are united, and in the latter the stigma is pubescent; nor with the three last, which consist of plants with the legume mostly one-celled, without the marks of the two first subdivisions; of plants with the loment separating into joints; and of plants with the legume one-celled and many-seeded. Our plant having a two-celled legume, without the marks of the

two first subdivisions, it must necessarily be one of those in the third subdivision. In this there are only three genera, viz. Phaca, Biserbula, and Astragalus. The plant in question not having a half-two-celled inflated legume, it cannot be the Phaca; it must therefore be either the Biserbula or Astragalus. The gibbous shape of the legume, leaves no doubt of its being an Astragalus; but as the species of this genus are extremely numerous, in order to determine the species, we must pay very particular attention to the minute circumstances by which they are distinguished. The species of Astragalus are divided into not fewer than seven subdivisions. The specimen before us cannot belong to the six first subdivisions, because the first consists of Astragali, with leafy erect stems and axillary flowers; the second of leafy erect stems, with spikes cylindrical, axillary, sessile, or nearly so; the third of leafy erect stems, with spikes and racemes peduncled; the fourth of leafy diffuse stems; the fifth of leaflets placed in whorls; and the sixth of a naked scape, without a leafy stem. Our plant must therefore be a species of Astragalus, in the seventh subdivision, containing shrubby plants with the petioles permanent, and becoming spinous. As the species of Astragali in this subdivision are numerous, we must be very careful in examining all the specific characteristics. The leaflets being in ten pairs, determine it to be either the Astragalus Longifolius, or Astragalus Pugniformis. It cannot be the latter, which has oblong mucronate glabrous leaflets; therefore there is not the least doubt that the plant in question is the Astragalus Longifolius, from the lanceolate mucronate glabrous leaflets, the flowers being in oblong heads, and the calix having filiform villous teeth.

STARWORT.—*Aster.*

Upon the first sight of this plant, we refer it to the class Syngenesia, because of its composite flowers. As this class is subdivided into five orders, we soon perceive, by a careful inspection of the florets, that it cannot belong to the first order, which consists of plants having florets all hermaphrodite and fertile. Neither can it belong to the third order, which consists of plants with the florets of the centre hermaphrodite, and those of the ray neuter and barren; neither can it be one of the fourth order, which consists of plants having the florets of the centre hermaphrodite and barren, and those of the margin, female and fertile: nor can it belong to the last order, which consists of plants with the florets separated by a proper perianth, containing one or more florets, and placed within a common calix. The florets of the disk, in the specimen before us, being hermaphrodite, and those of the margin female, and all fertile, leave not the least shadow of doubt of its being in the order Polygamia Superflua. This order has three grand subdivisions. In the first, all the florets are tubular, which is not the case with the plant in question; in the second, the florets are semi-floscular, and somewhat two-lipped, circumstances not in our specimen. The radiate florets of our specimen, is the striking characteristic of the third subdivision, and is decisive of its being in this subdivision. Its naked receptacle is a proof that it cannot be the Boltonia, Siegesbeckia, Anthemis, Achillea, Tetragonotheca, Ximenesia, Georgina, Relhania, Pascalia, Buphthalmum, Rhanterium, Amellus, Tridax, Rosenia, Verbesina, Schlechtendalia, Galinosogea, Zinnia, Balbisia, nor Starkea. Its simple down, in union with its naked receptacle, confines it to the Doronicum Arnica, Inula, Erigeron, Solidago, Cineria, Senecio, Tussilago, Aster, and Boebera. Its imbricate calix, with the lower scales spreading, and the florets of the margin more than ten, restrict it entirely to the Aster. The species of this genus are very numerous, and are divided into seven grand subdivisions. It cannot belong to the first, which consists of species more or less shrubby; nor to the second, consisting of herbaceous plants, with the stem one or two flowered; nor to the third, containing herbaceous species, with linear or lanceolate leaves very entire; nor to the fourth, consisting of herbaceous plants, with heart-shaped, ovate, and serrate leaves; nor to the fifth, containing herbaceous plants, with ovate very entire leaves; nor to the sixth, which contains herbaceous plants, with lanceolate leaves, the lower ones more or less serrate. Our plant being herbaceous, with pinnate leaves, must belong to the last subdivision, in which there are only two species, the Aster Aurantius, and Aster Pinnatus. The pinnate leaves, with the midriff winged, leave no doubt of its being the Aster Pinnatus; and the additional circumstances of the leaflets being linear wedge-form, and serrate at top, put the matter beyond all controversy.

TRUMPET-FLOWER.—*Bignonia.*

The stamina of this plant being two longer and two shorter, is sufficient to determine it to be in the Didynamia class; and the seeds being inclosed in a capsule, shew it to be of the Angiospermia order. The plants of this order are numerous, and subdivided into seven parts, all of which, except the last, depend upon the form of the calix. The plant in question is not in the first subdivision, which consists of plants with undivided calixes; nor in the second, consisting of bifid calixes; nor in the third, containing plants with three-cleft calixes; nor in the fourth, which contains plants with four-cleft calixes; nor in the sixth, containing plants with many-clefted calixes; nor in the seventh, containing plants with more than one petal. Our plant having a five-clefted calix, there can be no doubt of its belonging to the fifth subdivision. The genera in this subdivision are numerous, which are generally distinguished from each other by the capsule and corolla. Our specimen has a two-celled capsule and a Campanulate Corolla; the union of which particulars, restrict it to the following genera: Capraria, Digitales, Bignonia, Incarvillea, Ruellia, Sesamum, and Gloxinia. The imbricate-winged seeds and the filaments, with the rudiment of a fifth, shew it can be no other than the Bignonia. The species of this genus are very numerous, and are subdivided into seven parts; all of which depend upon the shape or number of the leaves. The plant in question consequently cannot be in the first subdivision, which contains plants with simple leaves; nor in the second, consisting of plants with two leaves on each petiole; nor in the third, having plants with three leaves, on a common stalk; nor in the fourth, with leaves in finger-like divisions; nor in the fifth, with pinnate leaves; nor in the seventh, with doubly pinnate leaves. The decompound leaves of our specimen, shew it to be in the sixth subdivision. In this there are only three species. The decompositely pinnate leaves, with knotty petioles and axillary corymbs, shew it to be no other than the Bignonia Alba. The additional circumstance of its having white flowers on a many-flower-forked axillary peduncle, puts the question beyond all dispute.

SEDGE-GRASS.—*Carex.*

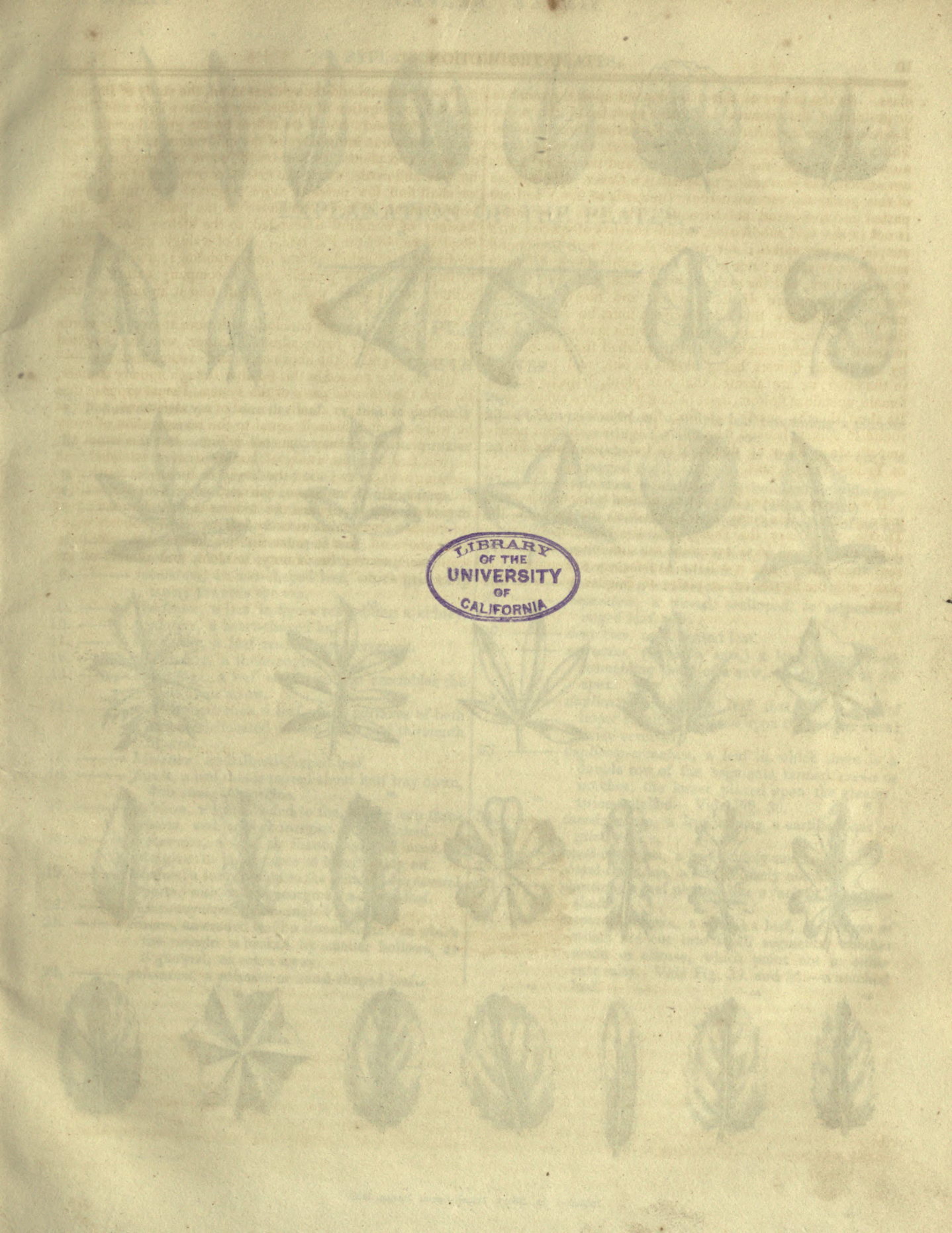
Upon a minute investigation of the apetalous flowers of this plant, we discover that some are male and others female, growing from the same root; but we are not able to find any hermaphrodites; consequently it must belong to the Monœcia

class. As the orders of this class depend upon the number or position of the stamina, our plant must be in the order Triandria, from the circumstance of its having three stamina. The want of a corolla, the imbricate ament, the calix being a one-valved scale, the three stigmata, and the coated seed, are sufficient in warranting us to call it a Carex. The species of this genus are very numerous, (upwards of 200,) and are parted into five grand subdivisions The plant in question is not in the first subdivision, which consists of species with simple solitary spikes; nor in the second, with compound androgynous spikes; nor in the last, with male and female spikes distinct, and the males several. The male and female flowers growing on distinct spikes, and nearly of equal number, each shew that our specimen must be either in the third or fourth grand subdivision. As the species of Carex, in these two subdivisions, are distinguished from each other by the female flowers being sessile in one, and peduncled in the other, we are assured that our plant, from its sessile, female, apetalous flowers, must belong to the third subdivision. Its short sheaths nearly equalling the peduncles, its female roundish spikes, beaked fruit curved downwards, and nearly smooth stem, leave no doubt of its being the Carex Flava, or Yellow Sedge-grass.

It will be very proper for the learner thus to examine several more genera of this class, as the Coltsfoot, the Burdock, the Thistle, the Tansy, the Daisy, and the Groundsel; for by doing this, he will soon overcome the difficulties which present themselves; and it will be satisfactory to compare the plant with the figures in the plates of English plants in this work.

To a superficial and thoughtless mind, the study of Botany, and the investigation of plants, may appear a light and frivolous employment: but if we reflect on the great benefits derived from a due knowledge of the cultivation and properties of herbs and plants, as well on the score of supplying food for men and cattle, as for the extensive purposes of medicine, we shall find few pursuits more pregnant with intellectual improvement, or more conducive to the public good. The Saviour of mankind descended to the lifeless emblems of Seed sown,—of the Fig-tree,—and of a single grain of Mustard-seed,—to enlighten our understandings; and if we wish to improve by the parable, and accompany nature in this solitary yet pleasing walk, we shall find it an innocent and healthful amusement.

The Compiler cannot conclude with more appropriate words than those of the justly admired author, who has supplied him with several of the above rules and exemplifications.—— "After having passed in this familiar though cursory manner, through the different parts of the system, I must suppose that the Reader no longer stands in need of my assistance; and that he will soon find himself equal to the investigation of every useful plant which may come before him. But this is not all; he will find that the study of Nature is ever attended with pleasing reflections; that the study of Botany in particular, independently of its immediate use, is as healthful as it is innocent; that it beguiles the tediousness of the road; that it furnishes amusement at every footstep of the solitary walk; and, above all, that it must fill our hearts with gratitude, while we discover the bounty, wisdom, and power, of the great CREATOR."


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Published by Henry Fisher, Caxton, London. 1823.

EXPLANATION OF THE PLATES.

PLATE I.

SIMPLE LEAVES.

Fig.
1. *Folium orbiculatum*, a circular leaf, or that is perfectly round.
2. ——— *subrotundum*, a leaf approaching to a circular figure.
3. ——— *ovatum*, an egg-shaped leaf.
4. ——— *ovale*, a leaf having an oval or elliptical form.
5. ——— *oblongum*, an oblong leaf, in which the length greatly exceeds the breadth.
6. ——— *lanceolatum*, a lance-shaped leaf.
7. ——— *lincare*, a leaf of equal breadth throughout.
8. ——— *subulatum*, an awl-shaped leaf, which gradually tapers towards the top.
9. ——— *reniforme*, a leaf in figure resembling a kidney.
10. ——— *cordatum*, a heart-shaped leaf.
11. ——— *lunulatum*, a leaf resembling a crescent.
12. ——— *triangulare*, a three-angled leaf.
13. ——— *sagittatum*, a leaf which in form resembles the head of an arrow.
14. ——— *cordato sagittatum*, a leaf which partakes of both shapes delineated in the tenth and thirteenth figures.
15. ——— *hastatum*, an halberd-shaped leaf.
16. ——— *fissum*, a leaf that is parted about half way down, with straight margins.
17. ——— *trilobum*, a leaf divided to the middle into three parts, with convex margins; three-lobed.
18. ——— *premorsum*, a leaf so blunted at the apex as to give the appearance of being bitten off.
19. ——— *lobatum*, a leaf divided to the middle into several parts, with convex margins; a lobed leaf.
20. ——— *quinquangulare*, a five-angled leaf.
21. ——— *erosum*, an eroded leaf; a sinuated leaf, in which the margin is broken by smaller hollows, as if gnawed, or eaten away.
22. ——— *palmatum*, a palmate or hand-shaped leaf.

Fig.
23. *Folium pinnatifidum*, a simple leaf resembling a pinnate or winged compound one.
24. ——— *laciniatum*, a leaf that is irregularly cut; a jagged leaf.
25. ——— *sinuatum*, a leaf that has hollows, or wide gaping breaks, on the sides, (*sinus*, a bay.)
26. ——— *dentato-sinuatum*, a leaf, the *sinuses* of which are indented.
27. ——— *retrorsum-sinuatum*, a leaf, the *sinuses* of which are turned backwards.
28. ——— *partitum*, a leaf deeply divided.
29. ——— *repandum*, a waved, scalloped, or serpentine-edged leaf.
30. ——— *dentatum*, an indented leaf.
31. ——— *serratum*, (*serra*, a saw,) a leaf having teeth resembling those of a saw, which point to the apex.
32. ——— *duplicato-serratum*, a leaf that has a row of lesser serratures placed upon the greater ones; twice-serrated.
33. ——— *duplicato-crenatum*, a leaf in which there is a double row of the segments termed *crenæ* or notches, the lesser placed upon the greater; twice-notched. Vide Fig. 38.
34. ——— *cartilagineum*, a leaf having a cartilaginous or gristly edge.
35. ——— *acutè-crenatum*, a leaf acutely notched.
36. ——— *obtusè-crenatum*, a leaf obtusely notched.
37. ——— *plicatum*, a leaf plaited like a fan, or a candle-shade.
38. ——— *crenatum*, (*crena*, a notch) a leaf, the edges of which are cut into small segments, whether acute or obtuse, which point not to either extremity. Vide Fig. 33. and 36.—a notched leaf.

PLATE II.

SIMPLE LEAVES *continued.*

Fig.
39. *Folium crispum*, a curled leaf.
40. ——— *obtusum*, a leaf which terminates obtusely.
41. ——— *acutum*, a leaf which terminates in an acute angle.
42. ——— *acuminatum*, a leaf whose *apex* is subulate or awl-shaped. (Vide Fig. 8.)—an acuminate leaf.
43. ——— *obtusum acumine*, a sharp-pointed leaf, which does not begin to taper till very near the apex —obtuse with a point.
44. ——— *emarginatum acutè*, a leaf, the apex of which is deficient in its margin, and ends sharply.
45. ——— *cuneiforme emarginatum*, a leaf that is shaped like a wedge, and has a rounded notch or deficiency at the apex.
46. ——— *retusum*, a leaf which ends in an obtuse *sinus*.
47. ——— *pilosum*, a leaf, from the surface of which proceed long distinct hairs.
48. ——— *tomentosum*, a leaf whose surface is covered with a beautiful white down. Vide *tomentum*.
49. ——— *hispidum*, a leaf whose surface is covered with hard bristles.
50. ——— *ciliatum*, a leaf, the margin of which is fringed like an eye-lash, (*cilium*.)
51. ——— *rugosum*, (*ruga*, a wrinkle) a wrinkled leaf.
52. ——— *venosum*, a leaf whose surface abounds with veins or branched vessels.
53. ——— *nervosum*, a leaf whose surface abounds with nerves, ribs, or simple unbranched prolongations of the pedicle.
54. ——— *papillosum*, a leaf, from the surface of which arise little bladders or blisters, (*papilla*, a nipple.)
55. ——— *linguiforme*, a tongue-shaped leaf.
56. ——— *acinaciforme*, a leaf shaped like a Persian scimitar, (*acinaces*.)
57. ——— *dolabriforme*, a leaf which in figure resembles a hatchet, (*dalabra*, a carpenter's axe.)
58. ——— *deltoides*, a leaf imagined to resemble the Greek delta, as in black poplar.
59. ——— *triquetrum*, a three-sided leaf, as in *anthericum ossifragum*.
60. ——— *canaliculatum*, (*canaliculus*, a little pipe, or channel) a channelled leaf; a leaf that has one longitudinal groove, running from the base to the apex on the upper surface, the lower being convex.

Fig.
61. *Folium sulcatum*, a furrowed or fluted leaf; a leaf that has several deep grooves or furrows, and in the same direction as the channelled leaf.
62. ——— *teres*, a cylindrical or pillar-shaped leaf.
63. ——— *panduræforme*, a leaf shaped like a violin, or Spanish guitar, as in *rumex pulcher*, (*pandura*, a musical instrument with three strings.)
64. ——— *lyratum*, a lyre-shaped leaf.

COMPOUND LEAVES.

1. *Folium binatum*, a fingered leaf with two leaflets.
2. ——— *ternatum foliolis sessilibus*, a fingered leaf with three leaflets that are sessile. See fig. 12. and 14 in Plate VI.
3. ——— *ternatum foliolis petiolatis*, a fingered leaf having three stalked leaflets; the reverse of the preceding term.
4. ——— *digitatum*, in general a fingered leaf; in the figure before us, in particular, a leaf of that description with five sessile leaflets.
5. ——— *pedatum*, a leaf somewhat resembling a bird's foot; exemplified in the passion flower, and black hellebore.
6. ——— *pinnatum, cum impari*, a pinnate or winged leaf with an odd leaflet at the apex.
7. ——— *abruptè pinnatum*, a pinnate leaf, which at the apex has neither an odd leaflet nor tendril.
8. ——— *pinnatum, alternatim*, a pinnate leaf having the leaflets placed alternately along the mid-rib.
9. ——— *pinnatum foliolis oppositis*, a pinnate leaf with opposite leaflets.
10. ——— *interruptè pinnatum*, a pinnate leaf with unequal leaflets—interruptedly winged.
11. ——— *pinnatum cirrhosum*, a pinnate leaf terminated by a tendril.
12. ——— **pinnatum conjugatum*, a pinnate leaf with only two pair of leaflets.
13. ——— *pinnatum decursivè*, a leaf decursively pinnate, that is, in which the leaflets run down or extend themselves into the stalk.
14. ——— *pinnatum articulatè*, a pinnate leaf, in which the common footstalk connecting the leaflets is *articulate* or jointed.

* The reader must be careful to distinguish betwixt *folium binatum* and *folium conjugatum*; the first being the lowest modification of the digitate or fingered leaf, the second the lowest of the pinnate or winged one.

Simple Leaves.

PLATE II.

W. Swift sculp.

Compound Leaves.

Published by Henry Fisher, Caxton London, 1823.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Disposition of Leaves.

PLATE III.

COMPOUND LEAVES *continued.*

Fig.
16. *Folium biternatum*, a re-compounded leaf that is doubly-ternate, that is, has the common footstalk divided into three parts, each of which has three leaflets.
17. ——— *triternatum*, a leaf that is triply-ternate, that is, has the common footstalk divided into three parts, each of which is doubly-ternate.
18. ——— *bipinnatum*, a doubly-pinnate leaf.
19. ——— *tripinnatum sine impari* a triply-pinnate leaf, each pinna of which terminates abruptly.
20. ——— *tripinnatum cum impari*, a triply-pinnate leaf, with an odd leaflet at the apex of each pinna or wing.

DETERMINATION OR DISPOSITION OF LEAVES.

1. ——— *inflexum*, a leaf bent inwards, or towards the stalk.
2. ——— *erectum*, an erect leaf, or that is nearly perpendicular.
3. ——— *patens*, a leaf bent outwards, or declining from the stalk at an acute angle; a spreading leaf.
4. ——— *horizontale*, an horizontal leaf, which is placed at right angles with the stalk.
5. ——— *reclinatum*, a leaf that is bent downwards.

Fig.
6. *Folium revolutum*, a leaf whose summits are rolled inwards.
7. ——— *seminale*, a seed-leaf.
8. ——— *caulinum*, a stem-leaf.
9. ——— *rameum*, a branch-leaf.
10. ——— *florule*, a leaf that is stationed near the flower.
11. ——— *decurrens*, a decurrent or running leaf; a leaf which extends itself downwards along the stalk beyond its proper basis.
12. ——— *petiolatum*, a leaf supported on a *petiolus* or footstalk.
13. ——— *peltatum*, a target-shaped leaf.
14. ——— *sessile*, a leaf that is seated immediately on the stem or branch, without any manifest footstalk; opposed to *petiolatum*.
15. ——— *amplexicaule*, a leaf which transversely embraces the stem by its base.
16. ——— *perfoliatum*, a perforated leaf. This leaf differs from the preceding chiefly in the perforation, which is likewise transverse, taking place at a greater distance from the margin.
17. ——— *connatum*, a leaf formed by the union of two leaves at the base.
18. ——— *vaginans*, a leaf, the base of which longitudinally surrounds the stem like a sheath. By the circumstance of its longitudinal perforation, this species of leaf may be easily distinguished from those described at No. 15. and 16.

PLATE IV.

DETERMINATION OF LEAVES *continued.*

Fig.

19. *Folium articulatum*, a jointed leaf, a species of compound leaf, in which the leaflets are produced each from the summit of that immediately under it, as in *Cactus opuntia.* This singular appearance Berkenhout very properly compares to the links of a chain.
20. *Folia stellata*, leaves surrounding the stem in the form of a radiant star; synonymous to *verticillata.*
21. ——— *quaterna*, leaves growing by fours; a modification of the two former terms.
22. ——— *opposita*, leaves growing in pairs.
23. ——— *alterna*, leaves ranged singly in succession on both sides of the stalk; the reverse of the preceding term.
24. ——— *imbricata*, leaves laid over one another like tiles, (imbrex, a gutter tile) as in the genus *Saxifraga.*
25. ——— *acerosa*, chaffy leaves; leaves that are slender and of equal breadth throughout, somewhat hard, evergreen, pointed like pins, and surrounded at the base by chaffy scales. The term is exemplified in Fir, Pine, Yew, and Juniper.
26. ——— *fasciculata*, leaves which proceed in bundles (*fasciculi*) from the same point, as in the larch tree, and some pines.

---

27. *Frons*, a composition of a leaf and branch. The trunk of the palms and ferns is so termed by Linneus. This term serves as a connecting link betwixt leaves and trunks. The two following terms belong to the division containing simple leaves.

Fig.

28. *Folium spathulatum*, a leaf shaped like a spatula, as in *Cistus incanus*, and *Phlomis purpurea.*
29. ——— *parabolicum*, a leaf which, in figure, somewhat resembles the geometrical curve termed a parabola.

TRUNKS.

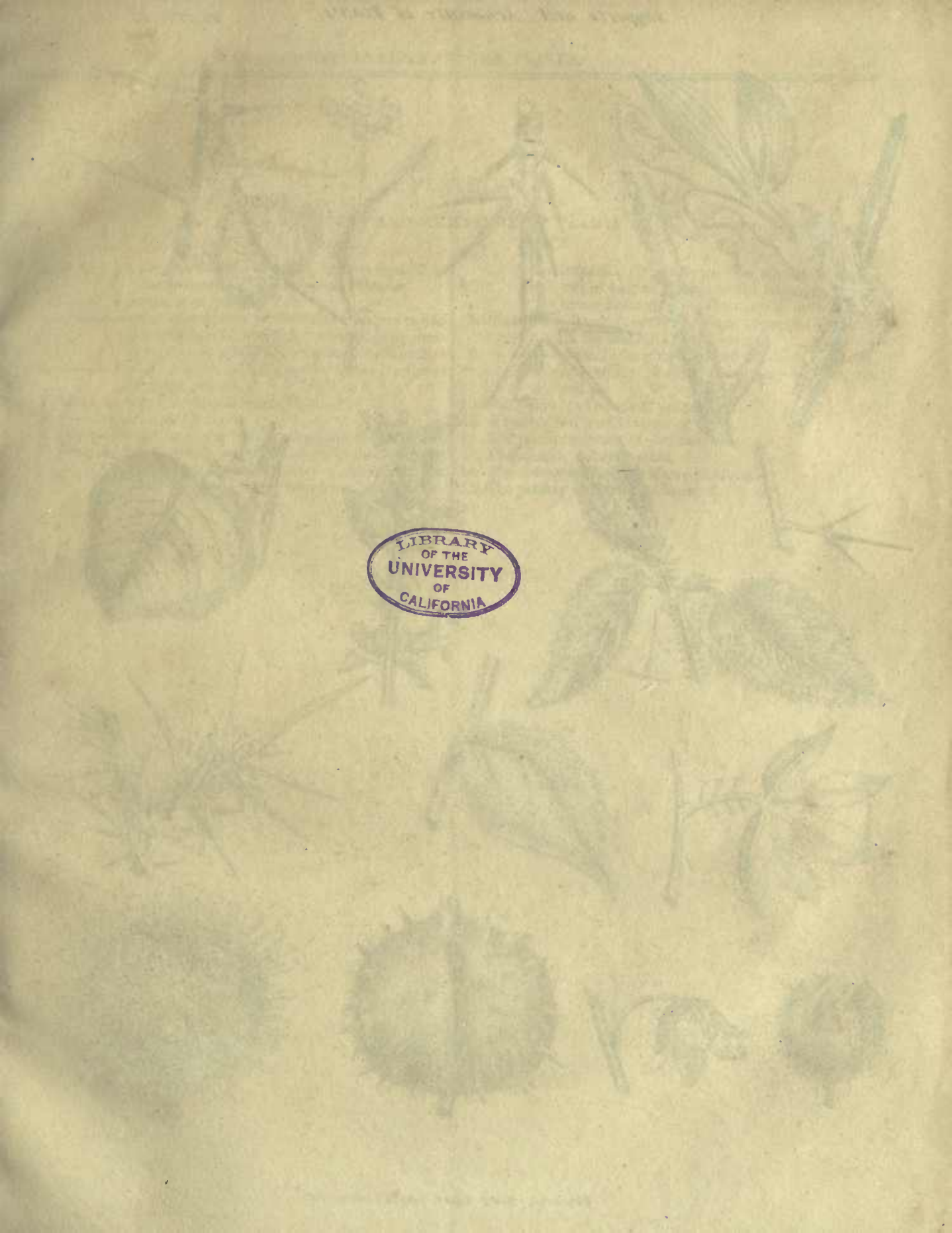
1. *Culmus squamosus*, a scaly culm, straw, or haulm; a species of that trunk or stem which is peculiar to the grasses.
2. *Caulis repens & scandens*, a creeping and climbing stem, exemplified in *Bignonia* and Ivy.
3. *Scapus*, a species of trunk which elevates the fructification, but not the leaves; a naked flower-stalk, exemplified in Auricula, and many of the liliaceous plants.
4. *Culmus articulatus*, a culm or straw that has knots or joints at certain intervals.
5. *Caulis volubilis*, a twining stem, exemplified in Convolvulus, Black Bryony, and Hop.
6. ——— *dichotomus*, (διχα, in two parts, and τεμνω, to cut) a forked stem; a compound stem, the divisions of which are always by pairs; as in *Cerastium dichotomum*, and *Valeriana locusta.*
7. ——— *brachiatus*, (*brachium*, the arm) a simple stem, whose branches grow by pairs, resembling arms; as in *Mercurialis annua.*
8. *Stipes*, the trunk of a fungus. The term is likewise used for the *basis* or stalk of that peculiar species of trunk called a *frons.* See fig. 27. in the opposite column.

Trunks.

T. Dixon sculp.

Published by Henry Fisher Caxton, London, 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Published by Henry Fisher, Caxton, London, 1822.

PLATE V.

SUPPORTS AND ARMATURE OF PLANTS.

Fig.

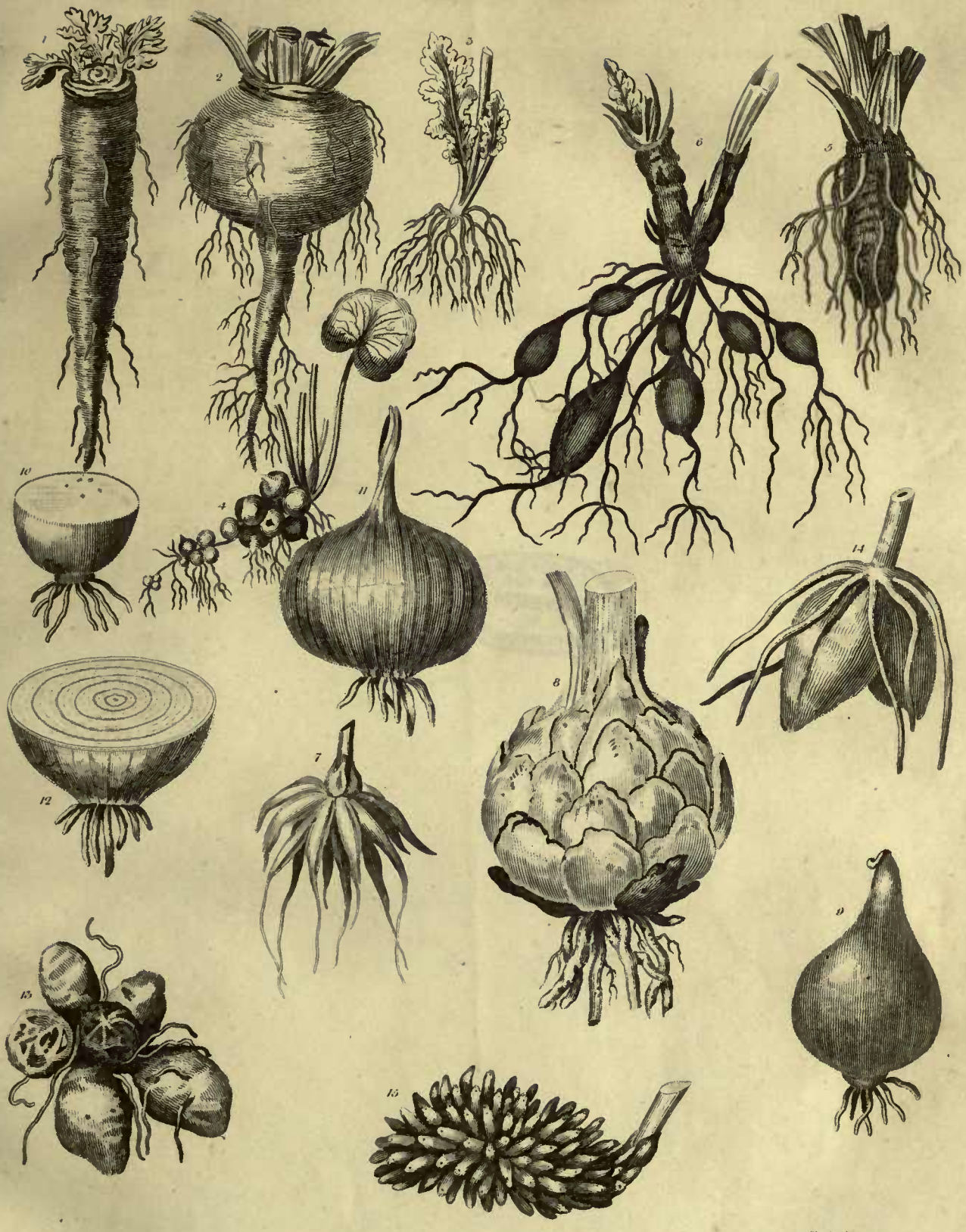
1. *Stipula*, a stipule; a scale or scales at the insertion of the footstalks of the leaves and flowers.
   Cirrus, a clasper or tendril.
2. *Aculeus simplex*, that species of vegetable armature called prickles, (*aculei*) in which the weapons in question proceed singly from the stem or branch.
3. ——— *triplex*, prickles which grow by threes; a three-pronged prickle.
4. *Spina simplex*, a simple or single thorn.
5. —— *triplex*, a triple thorn.
6. *Stimuli*, stings, as in the Nettle, *Acalypha* and *Tragia*.
7. *Bracteæ*, floral leaves; leaves which differ in colour and shape from the other leaves of the plant. In some species of Sage, Lavender, and Crown-Imperial, they assume the appearance of a tuft of hair at the end of the flower-stem, and hence have obtained the name of *coma*.
8. *Glandulæ concavæ*, concave glandular appearances, seated on the footstalk of the leaves.
9. ——— *pedicellatæ*, glands placed on short footstalks, and which likewise have their seat on the *petiolus*.
10. *Pili*, hairs; a species of pubescence.
11. A thorny leaf and branch.
12. The prickly capsule of the Beech.
13. *Pedunculus*, a flower-stalk.
14. The thorny fruit of the Horse-chestnut.
15. The prickly fruit of the Chestnut.

PLATE VI.

ROOTS.

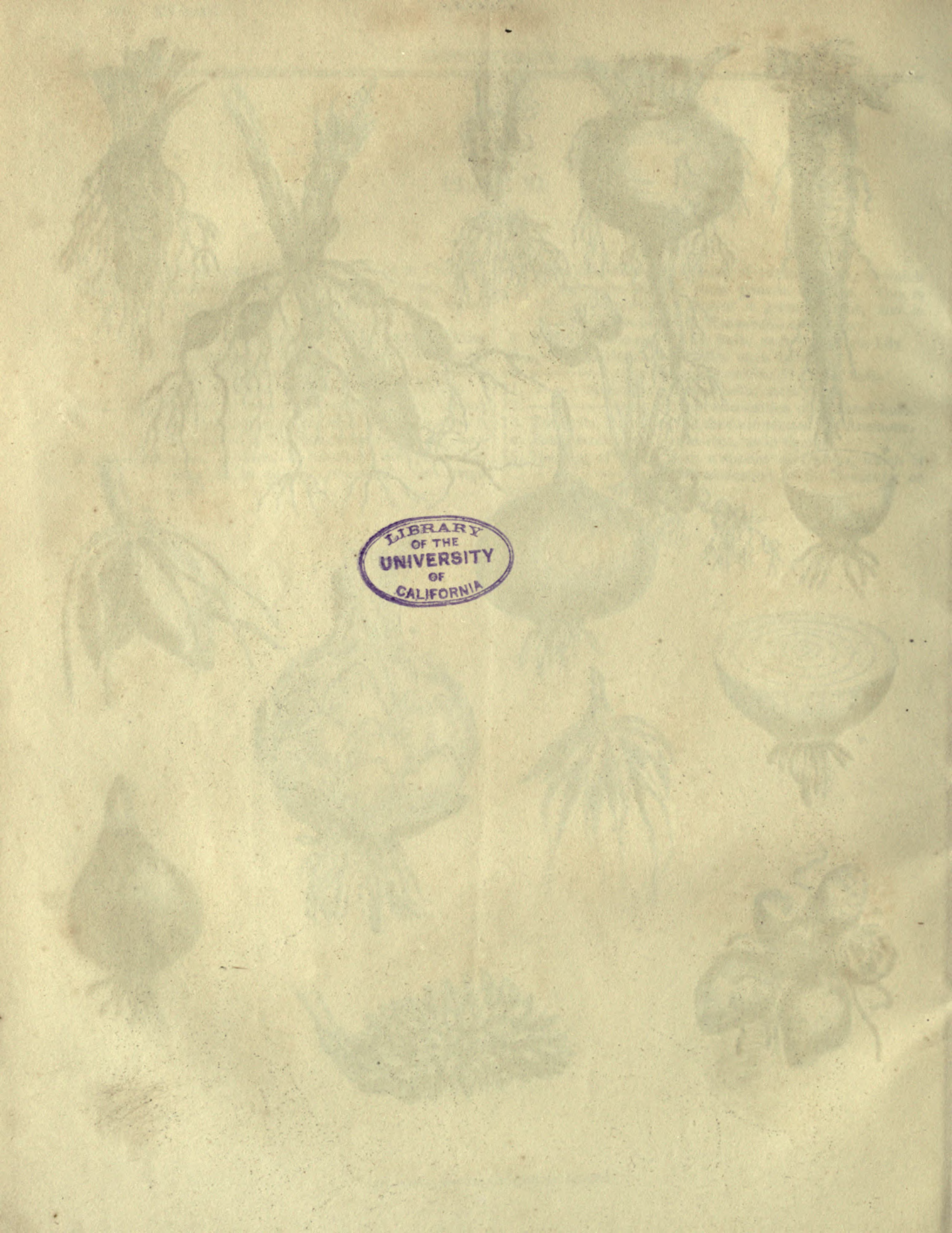
Fig.
1. *Radix fusiformis*, a spindle-shaped root, as in Carrot.
2. ——— *subrotunda*, a roundish root, as in Turnip.
3. ——— *fibrosa*, a fibrous or stringy root, as in *Senecio vulgaris*.
4. ——— *granulata*, a granulated root—a root consisting of a number of little knobs resembling grain, which are fastened to one another by small fibres or stings, as in *Saxifraga granulata*.
5. ——— *præmorsa*, a root which ends abruptly, having the appearance as if bitten off. The term is exemplified in Plantain, and *Scabiosa succisa*.
6. ——— *tuberosa, pendula*, a tuberous and pendulous root; as in *Spiræa filipendula*, or Dropwort.

Fig.
7. *Radix fascicularis*, a species of tuberous root, in which the knobby parts grow in bundles. This is sometimes termed a grumous root, and is exemplified in *Ranunculus* and Peony.
8. *Bulbus squamosus*, a scaly bulb, as in the White Lily.
9. ——— *solidus*, a solid bulb, as in Tulip.
10. ——————— a transverse section of a solid bulb.
11. ——— *tunicatus*, a coated bulb, as in Onion.
12. ——————— a transverse section of a coated bulb.
13. The roots, or pattes, as they are termed, of Anemone.
14. *Radix testiculata*, a twin-root, as in Orchis.
15. The root of bird's nest, a species of *Ophrys*, which is evidently a modification of the fascicular or bundled root.



T. Smith sculp.

Published by Henry Fisher, Caxton, London, 1823.


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

F. Dixon sculp.

Parts of Fructification.

Published by Henry Fisher, Caxton, London, 1823.

PLATE VII.

ROOTS *continued.*

Fig.
16. *Radix dentata*, a root whose knobs resemble teeth; a species of the granulated root, and exemplified in *Primula.*
17. ——— *palmata*, a hand-shaped root, as in the genus *Orchis.*
18. ——— *repens*, a creeping root; a root which extends in a horizontal direction, and sends forth radicles at certain intervals, as in the Couch-grass.
19. Bulbs produced in the angle formed by the leaf and branch, as in *Ranunculus ficaria*, or Pile-wort.
20. Roots sent forth from the midrib of the leaf, as in Cuckoo-flower, (*Cardamine.*)
21. Roots produced from the joints of the stalk, as in *Potentilla reptans.*

PARTS OF FRUCTIFICATION.

a CALIX.

Fig.
1. *Perianthium*, the flower-cup properly so called.
2. *Amentum*, a catkin.
3. *Spatha*, a sheath; as in *Narcissus.*
4. 5. *Calix auctus*, an increased calix; a perianth, which has a row of leaves distinct from the flower-cup surrounding the base, as in *Dianthus.*
6. *Involucrum universale*, the universal *calix*, or cover of an umbelliferous flower, which is placed under the large or general umbel.
7. ——— *partiale*, the partial *calix*, or cover of an umbelliferous flower, which is placed under the smaller or partial umbel.
8. *Calyptra*, the calix of the Mosses.
9. *Volva*, the calix of the *fungi*, or mushroom tribe.
10. *Gluma*, the husky *calix* of the grasses.

PLATE VIII.

PARTS OF FRUCTIFICATION *continued.*

β Corolla.

Fig.

1. *Corolla monopetala*, a *corolla* or flower of one petal.
2. ——— *hexapetala*, a corolla or flower of six petals.
3. ——— *polypetala serie duplici*, a corolla or flower of many petals, in a double series or row.
4. ——— *ringens*, a gaping or grinning flower; *a*, the upper lip, termed *galea* or helmet; *b*, the under lip.
5. ——— *papilionacea*, a butterfly-shaped flower.
6. Exhibits the several parts of a papilionaceous flower: *a*, representing the *vexillum*, or banner; *bb* the *alæ*, or wings; *c*, the *carina*, or keel; *d*, the *stamina*.
7. 8. *Corolla personata*, a masqued flower, or which resembles the snout of an animal;—*a*, the upper lip; *b*, the under lip.

(Compound Flowers.)

Fig.

9. *Corolla composita flosculis ligulatis*, a compound flower with flat, tongue, or strap-shaped florets; the semifloscular flower of Tournefort.
10. *Flosculus ligulatus*, a flat or tongue-shaped hermaphrodite floret; the semi-floret of Tournefort.
11. *Corolla composita radiata*, a compound radiated flower, having semi-florets in the *radius* or circumference, and florets in the disk or centre.
12. The ligulated floret of a radiated flower, which wants both the sexual organs.
13. *Corolla composita flosculis tubulosis*, a compound flower with tubular or hollow florets; the floscular flower of Tournefort.
14. *Flosculus tubulosus*, a tubular or hollow floret; the floret properly so called.

Compound Flowers.

Published by Henry Fisher Caxton. London. 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Nectarium.

Published by Henry Fisher, Caxton, London, 1822.

PLATE IX.

PARTS OF FRUCTIFICATION.

Corolla *continued.*

Fig.
14. *Corolla campanulata,* a bell-shaped flower.
15. } Different modifications of the same.
16. }
17. *Corolla infundibuliformis,* a funnel-shaped flower.
18. ——— *hypocrateriformis,* a salver-shaped flower:
a, the limb, (*limbus*) or upper spreading part of the petal;
b, the tube, (*tubus*) or lower hollow part.
19. ——— *cruciformis,* a cross-shaped flower.
20. The petal of a cross-shaped flower, the upper spreading part of which, as of the petals of all polypetalous flowers, is termed *lamina,* the plate or border; the lower tapering part, *unguis,* or the claw.
21. *Corolla rotata,* the back or under side of a wheel-shaped flower.
22. The front or upper surface of a flower of the same description.

γ Nectarium.

Fig.
1. The flower of Aconite or Monk's-hood.
2. The horned nectaries of the same, being two fistular nodding bodies, resembling stamina, with an oblique mouth and recurved tail, seated on long awl-shaped footstalks, and completely hid by the upper helmet-shaped petal.
3. A bell-shaped nectary, exemplified in *Narcissus triandrus.*
4. The glandular nectary of Willow (*Salix.*)
5. *Nigella,* Fennel flower, or Devil-in-a-bush.
6. The eight-lipped nectaries of the same.
7. *Tropaeolum,* or Indian Cress, the nectary of which terminates the calix, and resembles a cock's spur.

PLATE X.

PARTS OF FRUCTIFICATION *continued.*

♂ Sexual Organs.

Fig.

1. The germen or seed-bud of poppy, crowned with its flat, radiated, and target-shaped *stigma.*
2. Exhibits the different parts of a pistillum, viz. *stigma,* style, and *germen.*
3. Another illustration of the same.
4. *Pistillum* of Iris.
5. A *pistillum* with a three-cornered *stigma,* germen, and no style.
6. *Pistillum* of *Oenothera,* or Tree-primrose:
   a, the quadrifid stigma.
   b, the style.
   c, the germen.
7. *Oenothera:*
   a, the *pistillum.*
   b, the *stamina.*
   c, the petals.
   d, the upper spreading part of the *calix.*
   e, the tube, or long cylindrical lower part.
   f, the *germen.*
8. The parts of a stamen or male organ of fecundation, in which,
   a, represents the *anther,*
   b, the filament,
   c, the pollen or fertilizing dust.

Nectarium *resumed.*

Fig.

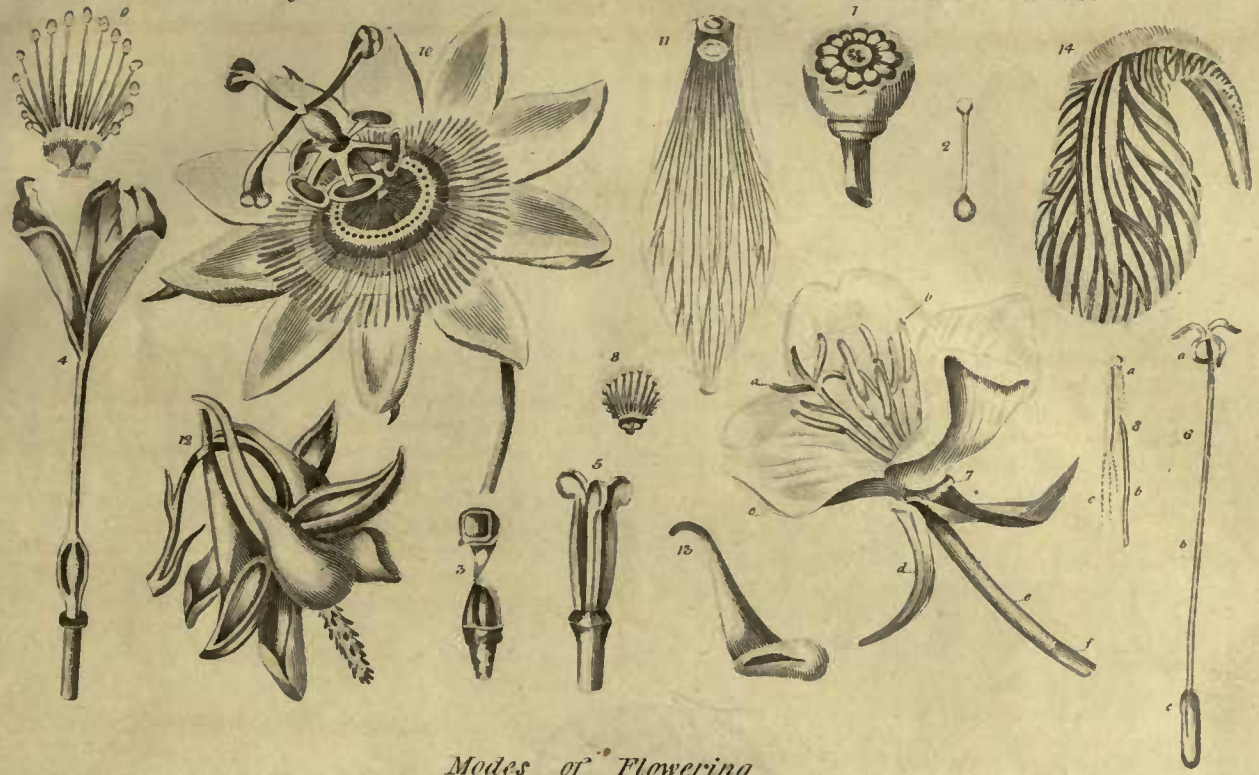
8. } Represent the singular nectaries of *Parnassia.*
9. }
10. Passion-flower with its nectary, termed by Linneus a triple crown.
11. The nectary of Crown Imperial, being a *fovea* or pit in the base of each petal.
12. The five-horned nectaries of Columbine, as connected with the flower.
13. One of the horned nectaries of Columbine detached from the flower.
14. The fringed or bearded nectarium in *Iris.*

MODES OF FLOWERING.

1. Verticillus, a whirl or whorl.
2. Fasciculus, a bundle or bunch.
3. Spica, a mode of close inflorescence resembling a spike or ear of Wheat, Rye, or Barley.
4. Racemus, a cluster; as of Currants, Grapes, &c.
5. Panicula, a panicle; a mode of loose inflorescence resembling that of Oats, and some other Grasses.

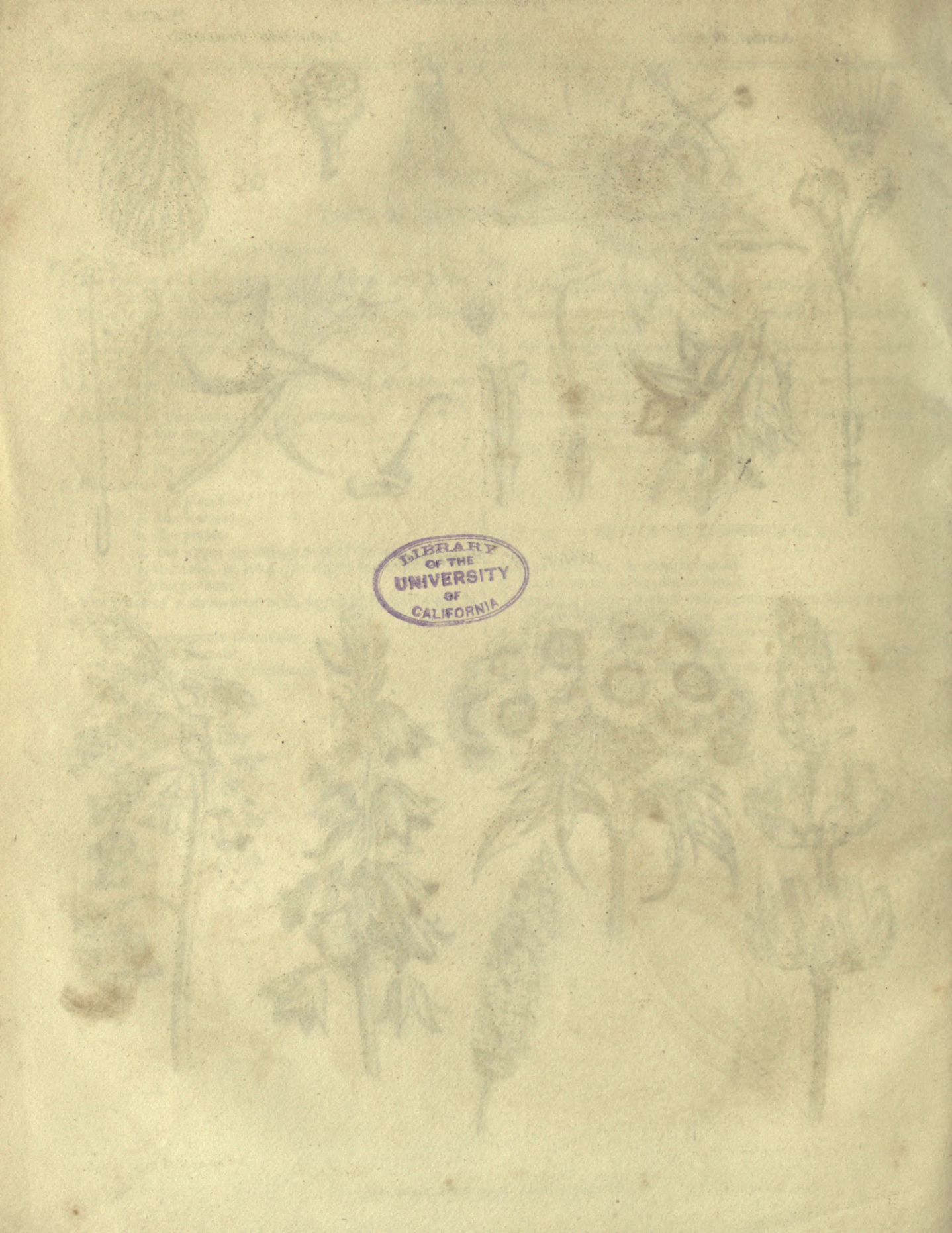
Sexual Organs.

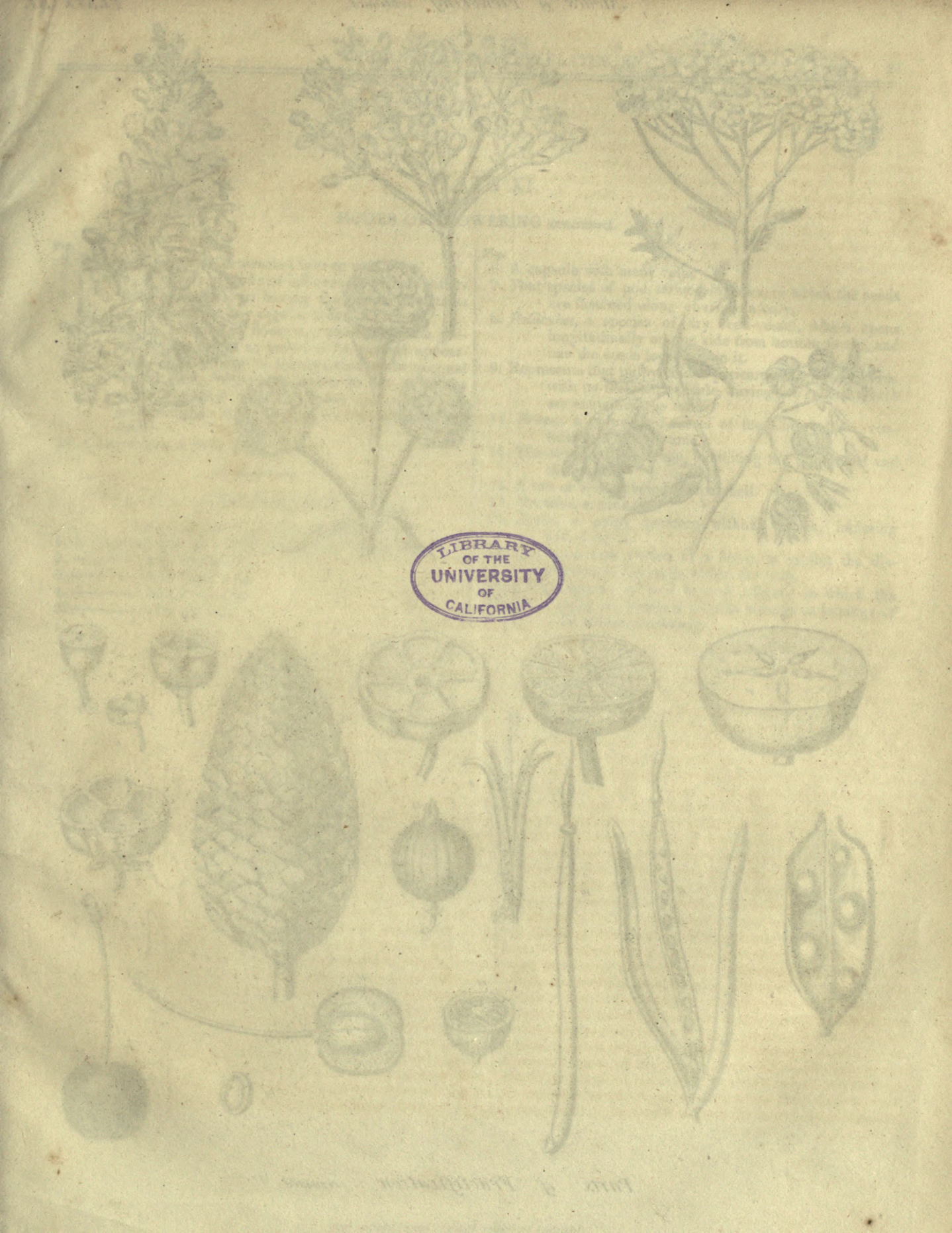
Nectarium resumed.



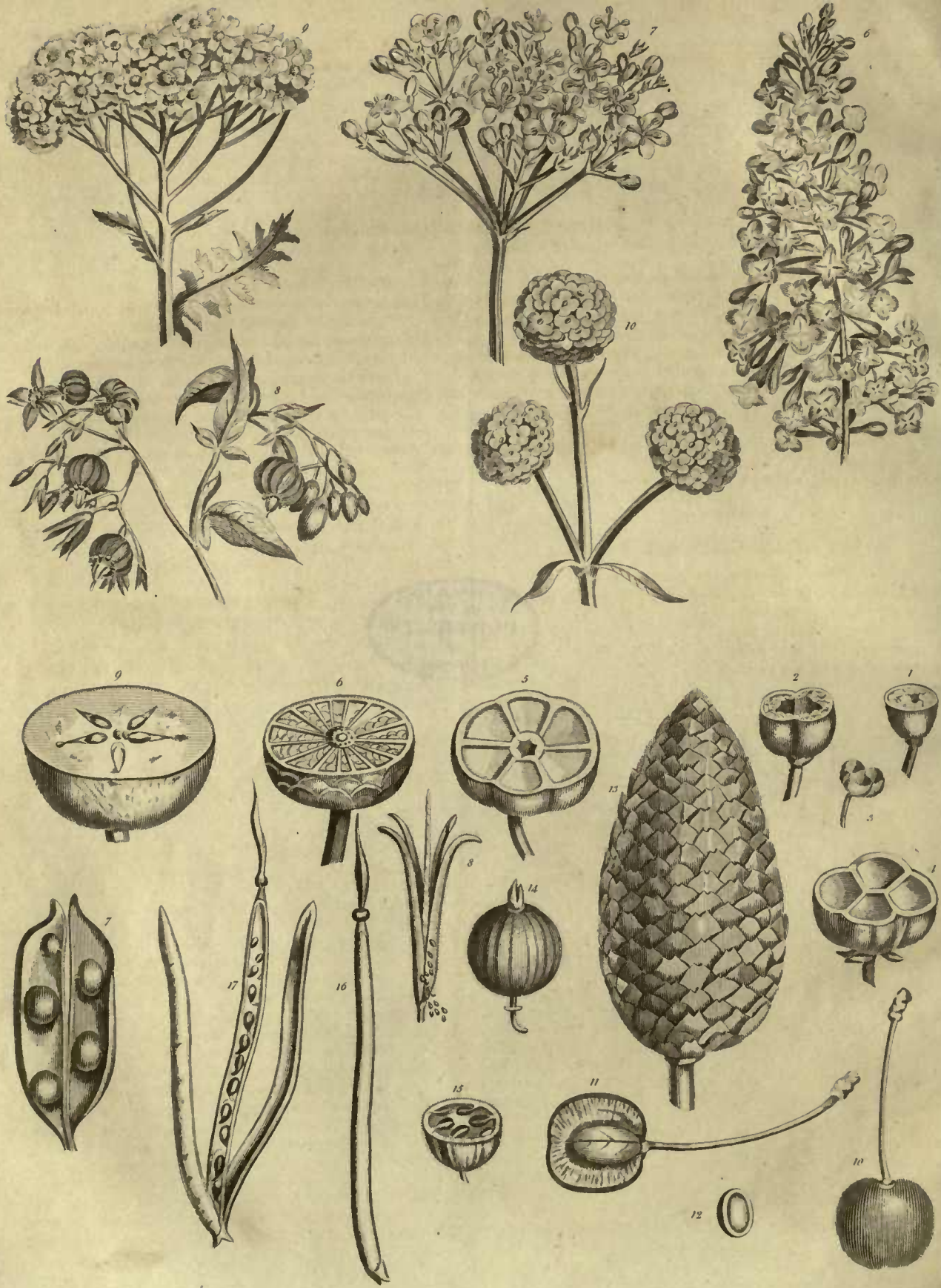
Modes of Flowering.

Published by Henry Fisher, Caxton, London, 1823.


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA



LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA



Parts of Fructification resumed.

Published by Henry Fisher, Caxton, London, 1823

PLATE XI.

MODES OF FLOWERING *continued.*

Fig.

6. Thyrsus, a panicle contracted into an oval form.
7. 8. Cyma, a cyme; a mode of inflorescence which differs from an umbel, in having the partial footstalks placed without any regular order.
9. Corymbus, a mode of flowering, which, like the preceding, resembles an umbel in its general appearance, but may easily be distinguished by the unequal length of the footstalks, which do not, as in the umbel, proceed from the same centre, but are produced from different parts on both sides of the stalk.
10. Capitulum, a little head.

PARTS OF FRUCTIFICATION *resumed.*

ε Pericarpium, or Seed-vessel.

1. A Capsule, with an undivided cavity or single cell.
2. ——— with two cells.
3. ——— with three cells.
4. ——— with four cells.
5. ——— with six cells.

Fig.

6. A capsule with many cells.
7. That species of pod termed *legumen*, in which the seeds are fastened along one suture only.
8. *Folliculus*, a species of dry seed-vessel, which opens longitudinally on one side from bottom to top, and has the seeds loose within it.
9. Represents that pulpy kind of pericarpium termed *pomum*, with its inclosed capsule, having five cells, in which are contained the seeds.
10. *Drupa*, a pulpy seed-vessel of the Cherry kind, containing a nut or stone.
11. The section of a *drupa*, exhibiting the pulpy part and the stone.
12. A nut or seed covered with a shell.
13. *Strobilus*, a cone.
14. *Bacca*, a pulpy pericarp without valves, inclosing naked seeds.
15. The transverse section of a *bacca*, to exhibit the disposition of the seeds within the pulp.
16. 17. That species of pod termed *siliqua*, in which the seeds are fastened to both sutures or joinings of the valves alternately.

PLATE XII.

THE CLASSES OR PRIMARY DIVISIONS OF THE SEXUAL SYSTEM.

The reader is referred to the Analysis or general scheme of this celebrated method, perfixed to the present work; as likewise to the explanation of each class in the Dictionary, under its respective title.

Fig.
1. *Monandria.*
2. *Diandria.*
3. *Triandria.*
4. *Tetrandria.*
5. *Pentandria.*
6. *Hexandria.*
7. *Heptandria.*
8. *Octandria.*
9. *Enneandria.*
10. *Decandria.*
11. *Dodecandria.*
12. *Icosandria.*

Fig.
13. *Polyandria.*
14. *Didynamia.*
15. *Tetradynamia.*
16. *Monadelphia.*
17. *Diadelphia.*
18. *Polyadelphia.*
19. *Syngenesia.*
20. *Gynandria.*
21. *Monœcia.*
22. *Diœcia.*
23. *Polygamia.*
24. *Cryptogamia.*

THE ORDERS OR SECONDARY DIVISIONS OF THE SEXUAL SYSTEM.

Fig.
1. The Order *Monogynia*, containing hermaphrodite flowers with one *pistillum* or female organ.
2. *Digynia*, hermaphrodite flowers with two pistilla;—*a*, the pistilla detached from the flower.
3. *Trigynia*, hermaphrodite flowers with three pistilla;—*a*, the pistilla separated.
4. *Tetragynia*, hermaphrodite flowers with four pistilla;—*a*, the pistilla separated.
5. *Pentagynia*, hermaphrodite flowers with five pistilla;—*a*, the pistilla separated.
6. *Hexagynia*, hermaphrodite flowers with six pistilla;—*a*, the pistilla separated from the flower.
7. *Heptagynia*, hermaphrodite flowers with seven pistilla;—*a*, the pistilla detached from the flower.
8. *Decagynia*, hermaphrodite flowers with ten pistilla;—*a*, the pistilla separated.
9. *Dodecagynia*, hermaphrodite flowers with twelve female organs.
10. *Polygynia*, hermaphrodite flowers containing an indefinite number of pistilla, or female organs.

Fig.
11. *Gymnospermia*, the name of the first order in the class *Didynamia*, in which *a* represents a longitudinal section of the flower, to display the four naked seeds in the bottom of the calix.
12. *Angiospermia*, the name of the second order in the class *Didynamia*, containing such hermaphrodite flowers with four stamina, two longer than the others, as have their seeds contained in a vessel;—*a*, the pericarp, or vessel.
13. *Siliculosa*, the first order in the class *Tetradynamia*, containing such flowers possessed of the classical character, as have their seeds contained in a short round pod;—*a*, the *silicula*, or pod, divided to shew the seeds.
14. *Siliquosa*, the second order in the class *Tetradynamia*, containing such plants possessed of the classical character, as have their seeds contained in a *siliqua* or long slender pod, to each suture of which they are alternately attached;—*a*, the *siliqua*.
15. *Polygamia æqualis*, the first order in the class *Syngenesia*;—*a*, a floret separated from the aggregate.
16. ——— *superflua*, the second order in the class *Syngenesia*:—*a* represents a female floret in the circumference or ray; *b*, an hermaphrodite floret in the centre or disk.
17. ——— *frustranea*, the third order in the class *Syngenesia*.
18. ——— *necessaria*, the fourth order in the class *Syngenesia*.
19. — · — *segregata*, the fifth order in the class *Syngenesia*.
a, a floret with its proper flower-cup detached from the aggregate.
20. *Monogamia*, the sixth order in the class *Syngenesia*; a, representing a section of the flower, to exhibit the union of the stamina by the anthera.
21. 22. 23. *Triœcia*, the third order in the class *Polygamia*, in which hermaphrodite flowers are intermingled with male or female flowers, or both, on one, two, or three plants.
24. *Filices*, Ferns, the first order,
25. *Musci*, Mosses, the second order,
26. *Algæ*, Sea-weed, the third order,
27. *Fungi*, Mushrooms, the fourth order,
} in the class *Cryptogamia*.

W. Swift Sculp.

The Orders, or Secondary Divisions of the Sexual System.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

BOTANICAL TERMS.

A.

ABBREVIATUS, short.
Acalices, having no calix. See *Calix*.
Acaulis, stemless; wanting the caulis or stalk.
Acerosus, chaffy.
Acini, the small berries that compose the fruit of mulberry, strawberry, and bramble.
Acorn, the seed of the oak.
Acotyledones, plants not furnished with cotyledons or lobes, and which consequently do not put forth seminal leaves. See *Cotyledones*.
Acicularis, needle-shaped.
Acinaciformis, scymetar-shaped.
Acini, granulations.
Aculei, prickles; a species of weapon wherewith the stems and branches of several plants are furnished. See *Arma*.
Acuminatum, pointed, tapering to a point.
Acutus, (acute,) sharp, ending with an acute angle.
Adnatus, connected.
Adpressus, contiguous, laid to.
Adversifoliæ, plants whose leaves stand opposite to each other upon the same branch.
Aggregatus, (aggregate,) a flower consisting of a number of smaller flowers, collected into one head by means of some part common to them all.
Air-bag. See *Foliculus*.
Ala, wing; the name of a membrane affixed to some species of seeds, and which, by its flying, helps to disperse them.
Alatus. See *Winged Seed*, *Stem*, or *Leaf-stalk*.
Alburnum, the soft white substance which in trees is found between the inner bark and the wood, which in process of time acquiring solidity, becomes itself wood.
Algæ, flags, rushes; plants whose roots, leaves, and stem, are all in one.
Amaræ herbæ, bitter herbs.
Amentaceous, having that kind of calix termed *Amentum*, which see.
Amentum, or *catkin;* a species of calix consisting of many chaffy scales, dispersed along a slender thread or receptacle, and so called from its resembling the tail of a cat.
Amplexicaulis, embracing the stem.
Anceps, two-edged.
Androgyna, androgynous.
Androgynous, producing male and female flowers from the same roots.
Angiospermia, the second order of the class Didynamia in the Sexual System, consisting of plants whose characteristic it is to have four stamina, two of which are long and two short.
Angular stem, having edges or corners, opposed to cylindrical or round.
Angustifolius, narrow-leaved.
Annulus, a ring.
Anomalous, irregular; subject to no certain order.
Anther, *anthera*, or *apex;* the anther, summit, or top, of the stamen, connected with the flower, and elevated upon the filament or thread. See *Stamen* and *Filamentum*.
Apetalous, having no petals or corolla.
Apex. See *Anther*.
Aphyllous, leafless.
Aquaticæ, aquatics; plants which grow in or near the water.
Arachnoideus, cobwebbed.
Arbor, a tree; a perennial plant, which rises to a very great height, with a simple, woody, and durable stem or trunk. See *Herba*.
Arborescent, from herbaceous becoming woody.
Aril, a seed-coat, which covers the seed partially, or falls off spontaneously.
Arilled, seeds covered with outer coats.
Arista. See *Awn*.
Arma, arms; offensive weapons of plants, such as aculei or prickles. See *Aculei*: *Spinæ*, thorns; see *Spina*: *Furcæ*, forks: and *Stimuli*, stings; see *Stimuli*.
Articulus, a joint; that part of the culmus or stalk in grasses, which is intercepted, or lies between two joints or knots. See *Culmus*.
Asper, rough.
Asperifoliæ, rough-leaved plants.
Auriculatus, ear-shaped.
Autumnales, plants which flower in autumn.
Awl-shaped, slender, and becoming finer towards the end like an awl.
Awn, or *arista*, the slender sharp substance growing to the valves of corn or grass, and frequently called a beard.
Axilla, an armpit; the angle formed by the branch and stem, or by the leaf with either. Leaves are said to be axillary, which proceed from the angle formed by the stem and branch.
Axillaris, axillary.
Axillary, (axillaris) the base or bottom of the leaves, or branches, on the upper and inner side.
Axis, an axle-tree.

B.

Bacca, a berry; defined by Linneus to be a pulpy pericarpium or seed-vessel, without a valve or covering, and inclosing several naked seeds.
Barba, a beard; a species of pubes or down, with which the surfaces of some plants is covered. See *Pubes*.
Barbatus, bearded.
Bark. See *Cortex*.
Barren, such flowers or florets as produce no perfect seed.
Base. See *Axillaris*.
Battledore-shaped. See *Spatulatum*.
Beaded, granulatus; consisting of many little knobs connected by small strings.

Beak, or *bill*, a long projecting appendage to some seeds, resembling the beak of a bird.
Bell-shaped, shaped like a bell.
Berry. See *Bacca*.
Bicapsularis, having two capsules. See *Capsule*.
Biennial Plants, those which continue alive two years.
Bifarius, pointing from opposite sides.
Biferæ, plants which flower twice a year, in spring and in autumn, as is common between the tropics.
Bifidus, cleft, or cloven in two.
Biflorus, double-flowered.
Bigeminum, twin fork.
Bijugum, in two pairs.
Bilabiata, double-lipped (blossoms.)
Bill, (rostrum) a substance attached to a seed resembling a woodcock's bill.
Bilobum, two-lobed (leaves.)
Biloculare, two-celled seed-vessel.
Binatus, (binate) paired.
Bipartitum, deeply divided into two parts.
Bipinnatum, doubly-winged.
Bird-footed, (pedatus) bearing some resemblance to the feet of land-fowl, like the leaves of the passion-flower.
Biternatus, doubly three-fold.
Bitten, (præmorsus) appearing as if bitten off.
Bivalve, double-valved; a seed-vessel.
Bladders, (vesiculæ) a kind of air-bags.
Bladder-shaped, (inflatus) distended like a blown bladder.
Blistered, (bullatus) when the surface of a leaf rises high above the veins, like blisters.
Blossom. See *Corolla*.
Blunt, (obtusus) opposed to acute; sharp.
Boat-shaped, (navicularis) like a keel-bottomed boat.
Border, the upper-spreading part of the one-petalled corolla.
Bordered, (marginatus) having a border.
Bowed, (arcuatus) bent like a bow.
Bractea, a floral leaf; the name of one of the seven fulcra or props of plants, enumerated by Linneus.
Branched, (ramosus) having lateral divisions.
Bristles, strong stiff cylindrical hairs.
Broad-topped spike. See *Corymbus*.
Brumales, plants which flower in winter; common about the Cape of Good Hope.
Bud. See *Gemma*.
Bulbus, a bulb; a large kind of bud, generally produced under the ground, upon or near the roots of certain herbaceous plants, hence denominated bulbous.
Bulbus articulatus, a jointed bulb, composed of several plates or layers, closely linked together.
Bulbus caulinus, a bulb upon the stalk, instead of the root.
Bulbus duplicatus, or *testiculatus*, double or testicle bulb, two solid bulbs connected together.
Bulbus solidus, a solid bulb; as in the Tulip.
Bulbus squamatus, or *squamosus*, a scaly bulb, consisting of thin plates, or scales, laid over each other like tiles; as in the Lily.
Bulbus tunicatus, or *coated* bulb, as in the Onion.
Bulging, (gibbus) swoln out irregularly on one or more sides.
Bullatum. See *Blistered*.
Bunch, (racemus) a fruit-stalk furnished with short lateral branches.
Bundle. See *Fasciculus*.
Bundled, fasciculatus.
Butterfly-shaped, (papilionaceous) from an imaginary resemblance which some blossoms bear to that insect.

C.

Caducous, shedding; a term expressive of the shortest period of duration, which has different meanings, according to the different parts of the plant to which it may be applied.
Cæspitosus, matted together.
Calcar, the spur of the corolla; the nectarium, so called, which terminates the corolla behind, like a cock's spur, as in calve's-snout, violet, &c.
Calcaratus, spurred.
Caliculatus, double calix.
Caliculus, seed-coat cover.
Calidæ, plants that are natives of warm climates, such as the East Indies, South America, &c.
Calix, the outer covering of the flower, commonly called the flower cup, which in the greater number of plants incloses and supports the bottom of the corolla.
Calyptra, a veil or covering, placed over the antheræ or summits of the mosses, and in figure resembling an extinguisher, hood, or monk's cowl.
Campanulatus, bell-shaped.
Canaliculatum, channelled (leaf.)
Cancellatus, latticed.
Candor, the whites; a disease incident to trees.
Capillaris, hairlike; capillary or hair-shaped plants.
Capitatus, a knob of many flowers upon one stalk.
Capitulum, a little head, in which many flowers are connected together, as in the gomphrena, or globe amaranth.
Capreolus. See *Cirrus* and *Tendril*.
Caprification, the management of fig-trees.
Capsule, or capsula, a little chest or casket; it denotes a dry hollow seed-vessel, that cleaves or splits in some determinate manner.
Carina, a keel.
Carinatus, boat-shaped, or keeled.
Carnosum, fleshy, of a thick pulpy substance.
Cartilagineum, (cartilaginous) having a hard or horny edge.
Castratio, or the castration of plants, which is effected by cutting off the antheræ before they have attained maturity.
Catkin. See *Amentum*.
Catulus, catkin.
Cauda, a tail.
Caudex, the stock or body of the root, part of which ascends to produce the trunk of the plant, and part descends to form its roots.
Caulescens, having a stem or trunk, as most plants; opposed to *Acaulis*, which see.
Caulis, a stalk or stem, which elevates the leaves, flower, and fruit.
Caulinus, belonging to the stem.
Cavus, hollow.
Cell. See *Loculamenti*.
Central florets, those which occupy the central part of a compound flower.
Central leaf-stalk, is fixed not to the base, but to the middle part of a leaf.
Cernuus, bent (fruit-stalk.)
Chaffy, (acerosus.)
Chaffy receptacle, flower, or *husk*; set with a substance like chaff.
Channelled, (canaliculatus,) having a deep furrow from the base to the end.
Characters, marks or signs; the description of the genera of plants. See *Genus*.

Chive. See *Stamen, Stamina.*
Cicatrisated, scarred.
Ciliated, fringed, bordered with soft parallel hairs.
Cingent, binding round.
Circular, (circularis) round and flat, nearly in the form of a circle.
Circumcissa, cut round.
Circumference, (circulus) the part of a circle most distant from its centre.
Cirrosum folium, (cirrose) a leaf which terminates in a tendril.
Cirrus, a clasper or tendril; the fine spiral string or fibre by which some plants, as the ivy and vine, fasten themselves to trees or walls, &c. for support.
Clammy, viscous; adhesive, like bird-lime.
Clasper. See *Cirrus.*
Class A. the first and highest division in every botanical system, denotes the agreement of several genera in the parts of fructification, according to the principles of nature distinguished by art.
Clausus, closed.
Clavated, club-shaped.
Clavicula. See *Cirrus.*
Clavus, a species of disease, to which the grains of many grasses, particularly those of Rye, are subject.
Claw, (unguis) blossoms composed of several petals, which petals are often so formed as to admit of two distinct names, the claw and the limb; the claw is the lower part, by which it is connected with the base.
Cleft. See *Cloven.*
Climbing, (scandens) a term applied to plants which take the advantage of some adjoining body, to raise and support themselves, as the ivy.
Close. See *Conglomerated.*
Clothing, means every kind of hairiness on the surface of plants. See *Bristles, Cotton, Hair, Wool.*
Cloven, (fissus) divided half way down.
Club-shaped, (clavatus) flowers thicker at the base, and thinner upwards.
Cluster, (thyrsus) a collection of flowers, somewhat in an egg-shaped form.
Coadunate, jointed together at the base.
Coarctated, compact.
Coated, (tunicatus.) See *Bulbus tunicatus.*
Cob-webbed, (arachnoideus) covered with a substance like a cobweb.
Coccum. See *Loculamenti.*
Cochleated, pod; convoluted like a snail-shell.
Coloratus, coloured.
Coloured, (coloratus) when a leaf or cup is of any other colour than green.
Column, (columnella) the upright little pillar in the centre of some capsules, to which the seeds are fixed.
Columnar, differs from cylindrical, by tapering upwards, like the shaft of a column, and is thus applicable to stems, some leaves, &c.
Columnella, a column; the substance that passes through a capsule, and connects the several internal partitions with the seeds.
Coma, a bush of hair, or collection of floral leaves; a comb. See *Bractea.*
Comb-like, a sort of winged leaf, the leaflets of which are like the teeth of a comb.
Common fruit-stalk, bearing several flowers.
Compact, firm
Compact, (coarctatus) growing close, and as it were pressed together.

Completus, a complete flower; viz, one provided with both the covers, namely, the calix or flower-cup, and the petals, i. e. both a cup and a blossom.
Complicated, doubled together.
Composite, a compound flower, formed from the union of several lesser flowers, within the same calix, each of which has five stamina, distinct at bottom, but united at the top by the antheræ, and forming a cylinder, through which a style, considerably longer than the stamina, passes, and is crowned by a stigma or summit, with two divisions rolled backwards.
Compound berry, where one large berry is composed of several small ones, as in the raspberry.
Compound bunch, composed of several lesser bunches.
Compound corymbus, composed of several small corymbs.
Compound flowers. See *Composite.*
Compound leaf, when each leaf-stalk supports more than one leaf; or when one leaf is inserted into another.
Compound spike, composed of several little spikes or spikets.
Compound umbel, when each umbel is subdivided into other little umbels, or umbellules.
Compressed, (compressus) a term applied to a cylindrical surface more or less flatted.
Compressed leaf, one that is thicker than it is broad.
Concave, hollowed out like a bowl.
Conceptaculum, a receiver, or species of seed-vessel, with one valve, opening from top to bottom on one side, and having no suture to fasten the seeds within it.
Conduplicate, doubled, or folded together.
Cone. See *Strobilus.*
Cone-shaped, leaves rolled up like cones.
Confertus, crowded.
Confluent leaves, (confluentia folia) leaves running into each other at the base.
Congestus, heaped together.
Conglobate. See *Conglomerate.*
Conglomerated, flowers heaped or wound together, and growing upon a branched foot-stalk, to which they are irregularly but closely connected.
Congregatæ. See *Composite.*
Congregated. See *Conglomerated.*
Conical, (conicus) in the form of a sugar-loaf.
Coniferæ, cone-bearing plants.
Conjugate, a winged leaf, with only one pair of leaflets.
Connate, united at the base.
Connected, (adnatus) leaves or stipulæ, such as have their upper surface at the base, growing to the stem or branch.
Connivent, converging or approaching; closing.
Contiguous, (adpressus) when a leaf, branch, or seed-vessel rises up so perpendicularly, as to stand almost parallel, and close to the stem, as if pressed to it.
Contortæ, twisted plants.
Contrarium. See *Transverse.*
Conus, a cone. See *Strobilus.*
Converging, approaching each other at top.
Converging antheræ, leaning towards each other.
Converging filamenta, as in borage.
Converging leaves, bent inwards towards the stem.
Converging petals, leaning towards the centre of the flower.
Convex, opposed to concave; like the surface of a globe.
Convolute, rolled or twisted spirally.
Corculum, corcle, or heart of a seed.
Cordated, heart-shaped.
Coriaceous, stiff; leather-like.
Cornuted, horn-shaped.

Corolla, Linneus's name for the beautiful coloured leaves of the flowers which individually are called petals, standing within the calix, and being supported by it. See *Petalum.*

Corollula, a little corolla.

Corona, a crown.

Coronariæ, a wreath, chaplet, or garland.

Cortex, the rind, or coarse outer bark of plants.

Corticose, full of bark, barky.

Corymb, differs from a spike, in having the flowers whereof it is composed, not sitting, but standing, each on its proper fruit-stalk, each of which again springs out of one common fruit-stalk.

Costated, ribbed (leaf.)

Cotton. See *Tomentum.*

Cotleydons, the perishable, porous side-lobes of the seed, which involve, and for some time furnish nourishment to, the embryo plant.

Creeping stem, creeping along the ground, and sending forth little roots.

Creeping root, as in the spearmint.

Crenated, scolloped.

Crescent-shaped, (lunularis) shaped like a new moon.

Crested, (cristatus) flowers furnished with a tuft or crest, as milk-wort.

Cross pairs, (decussatus) when leaves grow in pairs, and each pair points in a different direction to the pair next above or below it.

Cross-shaped, (cruciatus.) See *Cruciform.*

Cruciated, cross-shaped.

Cruciform, a cross-shaped flower, formed of four equal petals, which spread at top, in form of a cross

Cryptogamia, a concealed marriage. The name of the 24th class of the Linnean system.

Cryptogamous, those plants whose fructifications are invisible or undiscovered.

Cubit, about half a yard.

Cucullated, hooded, cone-shaped.

Culm, the straw or trunk of the grasses, which elevates the leaves, flower, and fruit.

Cuneiform, wedge-shaped.

Cup. See *Perianth.*

Cup, double, when one cup has another surrounding its base.

Curled, (crispus.)

Curtain, (volva.)

Cuspidated, prickly-pointed.

Cut round, (circumcissus) when a seed-vessel does not open longways, in the usual manner, but in a circle surrounding it, like a snuff-box or ivory egg, as in pimpernel.

Cyathiform, glass-shaped.

Cylindrical, round.

Cyma, a tuft; a mode of flowering, in which a number of slender foot-stalks proceed from a common centre, and rise to the same height.

D

Dagger-pointed, not gradually tapering to a point, but ending suddenly, like a dagger's blade.

Decagynia, from δεκα, ten; and γυνη, a woman: the name of an order, or secondary division, in the class Decandria, consisting of plants whose flowers have ten stamina, and the same number of styles.

Decandria, from δεκα ten; and ἀνηρ, a husband: the name of the tenth class in Linneus's Sexual System, consisting of plants whose flowers have ten male organs or stamina.

Decaphyllous, ten-leaved.

Decemfidus, a cup with ten clefts.

Decemlocular, ten-celled.

Deciduous, or *Deciduus,* a term expressive of the second stage of duration in plants: thus a leaf is said to be deciduous which drops in autumn; as are also petals which fall off with the stamina and pistillum. The calix of the Thornapple, which falls off before the blossom, is said to be deciduous.

Declining, (declinatus) bent like a bow, with the arch downwards.

Decomposite flowers, those which contain within the same common calix a number of lesser or partial flower-cups, that are each of them common to many florets.

Decumbent, lying down; a drooping flower, in which the stamina and pointal are inclined toward the lower side, as in pea-bloom, wild senna, &c.

Decurrent, (decurrens) leaf; when there is no leaf-stalk, but the base of the leaf runs down the stem.

Decussated, cross-pairs.

Deflex, down-bending.

Deflexus, bending rather outwards.

Deflorated, applied to antheræ which have shed their pollen.

Defoliation, the falling off of the leaves.

Dehiscentia, the bursting open of the antheræ for dispersing the male dust; as likewise of the seed-vessel called a capsule, for discharging the seeds when ripe. See *Anther,* and *Capsule.*

Dehiscent, opening or standing open. See *Dehiscentia.*

Deltoideus, triangular; spear-shaped, or trowel-shaped.

Demersus. See *Submersus.*

Dendroides, shrub-like.

Dentato-serrated, tooth-serrated.

Dentato-sinuated, toothed and indented.

Dentated, toothed.

Dented, (retusus,) a blunt leaf, with a dent or blunt notch at the end.

Denticulated, set with little teeth.

Dependent, hanging down.

Depressed, (depressus) when the surface of a leaf, &c. is in a small degree concave; pressed down, flatted.

Diadelphia, from δις, twice; and ἀδελφία, a brotherhood; two brotherhoods: the seventeenth class of the Sexual System, consisting of plants whose flowers are hermaphrodite, and have the stamina, or male organs, united below into cylindrical filaments.

Diamond-shaped, (rhombeus) leaves whose figures resemble the diamonds upon cards.

Diandria, from δις, twice; and ἀνηρ, a husband: the name of the second class of Linneus's Sexual System, consisting of hermaphrodite plants, which have flowers with two stamina or male organs.

Dichotomous, forked.

Dicoccus, two capsules, united each with one cell.

Dicotyledons, plants whose seeds have two side-lobes, and consequently rise with two seminal leaves: most plants are of this kind.

Didyma, double.

Didynamia, from δις, twice; and δυναμις, power; two powers; the fourteenth class of the Linnean system, which has four stamina, or male organs, two long and two short.

Difform, irregular in shape; of different shapes

Diffuse, spreading.

Digitated, finger-like.

Digynia, δις, twice; and γυνη, a woman: the name of an order, or secondary division, in each of the first thirteen classes in Linneus's Sexual System, except the ninth and twelfth. It consists of plants, which, to their respective classic characters, add the having two styles or female organs.

Dimidiated, half-round; extending half way round.

Dimpled, (umbilicated) having a little hollow dot.

Diœcia, from δις twice; and οικία, a house; two houses: the twenty-second class of the Sexual System, containing plants which, having no hermaphrodite flowers, produce male and female flowers on separate roots.

Dipetalous, double-petalled.

Diphyllous, double-leaved.

Discus, or *disk,* signifies the centre of a radiated compound flower, and generally consists of small florets, with a hollow regular petal.

Disk, (discus.)

Dispermous, double-seeded.

Dissectum. See *Laciniatum.*

Dissemination, the scattering abroad the seeds of vegetables, for the purposes of increase.

Dissepimentum, a partition, which in dry seed-vessels, as capsules and pods, divides the fruit internally into cells.

Dissilient, bursting suddenly asunder.

Distant, far asunder.

Distented, (ventricosus) or bellying, as the cup of the rose.

Distichous, double-rowed.

Distinct, unconnected; separated from each other.

Divaricate, straddling.

Diverging, (divergens) spreading wide from the stem, almost horizontally.

Divided, (partitus) applied to a leaf, a cup, or a petal, signifies them to be parted more than half way down.

Divisions. See *Divided.*

Dodecagynia, the name of one of the orders in the eleventh class, having twelve to eighteen pistils in each flower.

Dodecandria, from δωδεκα, twelve; and ανηρ, a husband: the name of the eleventh class of the Sexual System, consisting of plants with hermaphrodite flowers, which have twelve stamina or male organs.

Dodrans, a palm; about a quarter of a yard.

Dolabriform, hatchet-shaped leaf.

Dorsal, fixed to the back.

Dotted, (punctatus) marked with little hollow dots.

Double, (didymus) applied to the antheræ, where two are united like a double nut.

Double calix, when one calix has another outer one surrounding it.

Doubled, (conduplicatus.)

Double germen, when two germina are united together.

Double compound, (decompositus) leaves with the primary leaf-stalk divided, so that each division forms a compound leaf.

Down. See *Pappus.*

Down-bending, deflex.

Downy, (leaf.) See *Tomentum.*

Drooping, (nutans) grass panicles, whose spikets often hang down in a beautiful pensile form.

Drupe, a pulpy seed-vessel without valves, consisting of a hard nut or stone, surrounded by a pulpy substance; as cherries, plums, &c.

Dumosæ, bushy plants.

Duplicate. See *Duplicated.*

Duplicated, doubled; having the corolla doubled: or, in other words, the term is expressive of the least degree of luxuriance of which the petals are susceptible, and is exemplified in campanula with a nettle-leaf, and thorn-apple with a violet flower; it is very common in flowers of one petal.

Duplicato-crenated, doubly scolloped.

Duplicato-pinnated, doubly serrated.

Duplicato-ternated, doubly-threefold.

Dust. See *Pollen.*

Dusted, (pulveratus) some plants appear as if covered with a kind of dust or powder.

E

Ear-shaped, (auriculatus) like a human ear; also used to signify a little appendage at the base of a leaf or leafit.

Ebracteated, without any floral leaf.

Ecalcarated, without a spur or thorn.

Echinated, set with prickles.

Efflorescent, blooming; a term expressive of the precise time of the year and month, in which every plant throws its first flowers. See *Florescent.*

Egg-shaped, (ovatus) a shape resembling the solid substance of an egg.

Elliptic, of an equal breadth at each end. See *Oval.*

Emarginatum, (emarginate) end nicked or notched.

Embracing, (amplexicaulis) when the base of a leaf nearly surrounds the stem.

Enervious, nerveless.

Enneandria, from εννέα, nine; and ανηρ, a husband; the name of the ninth class in Linneus's Sexual System, consisting of plants with hermaphrodite flower, with nine stamina, or male organs.

Enodis, without joints.

Ensiform, sword-shaped, tapering to a point.

Epidermis, the scarf-skin, or outer covering of the bark of plants.

Equitant, folded upon one another, laminated.

Erect, in opposition to decumbent, or a nodding or drooping flower.

Erose, gnawed, irregularly cut or notched.

Essential Character, the circumstance which distinguishes one genus from every other.

Eunuch, full flowers so called, which, by multiplying the petals altogether, exclude the stamina or male organs of generation, and thus render the seed barren.

Even surface, level, regular, in opposition to scored or furrowed.

Evergreen, bearing green leaves throughout the year.

Exarated. See *Furrowed.*

Extrafoliaceous, underneath the leaves.

Eye. See *Hilum.*

F

Fartus, or *Farcitus,* filled full.

Farina. See *Pollen.*

Fasciated, bundled; plants so called, which consist of several stems or stalks growing close together, so as to form a compact bundle.

Fasciculated, bundled.

Fasciculus, a little bundle, in which the flower-stalks are erect, parallel, placed close to one another, and of the same height, as in sweetwilliam.

Fastigiated, flat-topped.

Fauces, the jaws or chaps, otherwise the gaping at the top of the tube of a monopetalous flower.

Favosum, boney-combed.

Feathered, (plumosus) the down of seeds, which sometimes consists of fine, simple, or undivided hairs; in other instances, sends out lateral hairs, and is then said to be feathered.

Feeble, (debilis) too weak to stand upright.

Femineus, a female flower, which is furnished with the pistillum, or female organ of generation, but wants the stamina, or male organ.

Ferruginous, of the colour of rust of iron.

Fibrous, composed of small threads or fibres.

Filament, a thread; the lower slender thread-shaped part of the stamina, that serves as a foot-stalk for elevating the antheræ, and connecting them with the vegetable.

Filiform, thread-shaped.

Fimbriate. See *Fringed.*

Fingerlike, compound leaves, like the expanded fingers of a man's hand.

Fissum, cloven, or split.

Fistulose, hollow.

Flagellum, a runner.

Florescent, the act of flowering, which Linneus compares to the act of generation in animals; as the ripening of the fruit, in his judgment, resembles the birth.

Floret, a little flower. See *Floscule.*

Flos, the flower, according to the Linnean system, consists of the antheræ and stigma, whether the covers, i. e. the calix and petals, are present or not.

Floscule, a partial or lesser floret of an aggregate flower. See *Aggregate.*

Foliaceous, leafy.

Folium, a leaf; according to Miller, a part of a plant extended into length and breadth, so as to have one side distinguishable from the other. According to Linneus, leaves are the organs of motion, or muscles of the plant.

Folliculus, air-bag; a species of seed-vessel. See *Conceptaculum.*

Forked, (furcatus.)

Fornicated, vaulted.

Four-cornered, (tetragonus.)

Frigidæ, plants that are natives of cold climates, as Siberia, Canada, Germany, Holland, England.

Fringed, (ciliatus.)

Frondescent, a term signifying the precise time of the year and month in which each species of plants unfolds its first leaves.

Fructescent, comprehends the precise time in which, after the fall of the flowers, the fruits arrive at maturity, and disperse their seeds.

Fructification, comprehends the flower and the fruit, and is defined to be a temporary part of plants, appropriated to generation, ending the old vegetable and beginning the new.

Frutex, a shrub; a plant which rises with a woody durable stem, higher than that of under-shrubs, but inferior to that of trees. Trees always rise with a single body or trunk; many shrubs have several stems growing out of the same root.

Fruticose, shrub-like.

Fulcra, props, supports; certain minute external parts, which serve either to support or defend the plants, or to promote some necessary secretion.

Fuliginose, sooty.

Fungi, mushrooms.

Funnel-shaped, a monopetalous blossom, of which the lower part is tubular, and the upper part conical; as in Houndstongue, Bugloss, Cowslip, &c.

Furca, a fork; *furcæ* forks.

Furcated, forked.

Furrowed, (sulcatus) marked with deep lines running lengthways.

Fusiform, spindle-shaped.

G

Gemma, a bud; a compendium of a plant, seated upon the stem and branches, and covered with scales to defend it from cold and injuries till the time of unfolding. It is generally gummy and resinous.

Geniculated, knee-jointed.

Geniculum, knee-joint.

Genitalia, genitals, i. e. the antheræ and stigmata of flowers, the former being the male, and the latter the female organs of generation in plants.

Genus, a race or kind; the third of the five numbers of the Linnean system, is an assemblage of several species, that is, of plants resembling each other in their most essential parts. *Genus* is the singular of Genera.

Germen, the seed-bud; the base of the pistillum, containing the rudiments of the seeds.

Gibbous, swelling.

Gills, (lamellæ) thin plates on the under side of the pileus or hat of a mushroom.

Glabrous, smooth.

Glaucous, clothed with a fine mealiness.

Glands, a species of secretory or excretory vessels found on the surface of some plants.

Glandular, bordered with pores.

Glass-shaped, tubular; like a drinking-glass; as the calix of Jacob's ladder.

Globular, like a round ball.

Globulous, globular.

Glochis, a barbed point.

Glomerate, congregated.

Glossy, smooth, shining.

Glume, a husk; the calix of the grasses, composed of one, two, or three valves; a kind of scale commonly transparent in the margin, and most frequently terminated by a pointed thread, termed a beard.

Glutinous, covered with a slippery or adhesive slime.

Grain. See *Beaded.*

Granulated. See *Beaded.*

Gristly, cartilaginous, as in the edge of some leaves, which are stronger and more transparent than the rest.

Gymnospermia, from γυμνος, naked; and σπερμα, seed: the name of an order or secondary division belonging to the Linnean class Didynamia, the plants of which have four stamina, two long and two short, and four naked seeds.

Gynandria, from γυνη, a woman; ἀνηρ, a husband: the name of the twentieth class in the Sexual System of Linneus, the plants whereof have hermaphrodite flowers, in which the stamina are placed upon the style, or upon a pillar-shaped receptacle resembling a style, which rises in the middle of the flower, and supports both the stamina and pointal.

H

Hair-like, slender; undivided and cylindrical.

Hairs, (pili) are supposed to be the excretory ducts of vegetables.

Halbert-shaped, (hastatus) as the floral leaves of the pansie.

Hamosus, or *Hamatus,* hooked.

Hamus, a hook, or species of bristly armour, in which each bristle is bowed inwards at the top.

Handbreadth, (palmus.) See *Dodrans.*
Hand-shaped, (palmatus) resembling a human hand with the fingers expanded.
Hastated, halbert-shaped, triangular.
Hat, (pileus) the top of mushrooms, &c. sometimes called the flap.
Heads, (capitatus) of flowers; where flowers grow together in compact knobs.
Heart. See *Corculum.*
Helmet, (galea) the upper part of a gaping blossom.
Hemispherical, in the shape of half a globe.
Heptandria, from ἑπτα, seven; and ἀνηρ a husband: the seventh class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, which have seven stamina or male organs.
Herb, that portion of every vegetable which arises from the root, and is terminated by the fructification.
Herbacea, herbaceous plants, which perish down to the root every year.
Herbaceous stem, one that is succulent and tender, not hard and woody.
Hermaphroditus, hermaphrodite; a flower which contains both the antheræ and stigma, the organs of generation, within the same calix and petals.
Hexagynia, from ἑξ, six; and γυνη, a woman: an order or secondary division in the Sexual System, consisting of plants which, besides their classic distinctions, have their flowers furnished with six styles, or female organs.
Hexandria, from ἑξ, six; and ἀνηρ, a husband: the name of the sixth class of the Linnean system, the plants of which have hermaphrodite flowers, furnished with six stamina, or male organs, of an equal length.
Hexagonous, hexagonal; six-sided.
Hexapetalus, six petals.
Hexaphyllous, six-leaved.
Hians, open, in opposition to closed.
Hilum, the external mark or scar of a seed, in the place where it was fastened within the pericarpium, as in the bean, &c.
Hirsutus, strong-haired, shaggy.
Hirtum, hairy, clothed with soft hairs.
Hispid, bristly.
Hoary, (incanus) covered on one or both sides, with a very fine white silvery-looking substance.
Hollow, (cavus) as is a straw.
Hooded. See *Cucullatus.*
Hoof-shaped, (ungulatus.)
Hook, (hamus.)
Horizontal, parallel to the ground.
Hunched. See *Bulging.*
Husk. See *Glume.*
Hybernaculum, winter-quarters; that part of a plant which defends the bud from injuries during the severities of winter.
Hibrida, hybrid; a monstrous production of two different species of plants, analogous to a mule among animals: the seed of hybrid plants will not propagate.
Hypocrateriformis, salver-shaped.

I & J

Jagged, leaves divided into lobes, which are again subdivided in an irregular manner.
Icosandria, from εικοσι, twenty; and ἀνηρ, a husband: the twelfth class of the Linnean stem, consisting of plants with hermaphrodite flowers, furnished with twenty or more stamina, that are inserted into the inner side of the calix, or petals, or both.

Imberbis, beardless.
Imbricate, (imbricatus.)
Imbricatus, indented.
Imperfect flowers, wanting either pistil or anther, or both.
Inæqualis, unequal.
Inanis, pithy.
Incanus, hoary.
Incisus, cut or jagged; snipt.
Inclinans, leaning.
Includens, enclosing.
Incompletus, incomplete.
Incrassatus, thickest upwards.
Incurvatus, bowed inwards.
Indented, hollowed, deeply scolloped.
Indivisum, leaf undivided.
Inermis, unarmed.
Inferus, beneath. *Inferior,* is applied principally to the germen when it is placed below the cup.
Inflated, distended like a bladder.
Inflexus, bent inwards.
Inflorescentia, a mode of flowering; the manner in which flowers are supported on their foot-stalks.
Integrum, undivided.
Intorsio, twisting.
Intrafoliaceous, within the leaves.
Involucrum, rolled up; a species of calix, restricted by Linneus to umbelliferous flowers. See *Umbella.*
Involutus, (involute) rolled inwards.
Joint, (articulus.)
Jointed, (articulatus) stem, as in a wheat straw.
Irregularis, an irregular flower, which wants uniformity: the term generally applies to the petals.
Juga, pairs; *bi-juga,* two pairs; *tri-juga,* three pairs: applied to the leaflets of a compound leaf.

K

Keel, (carina) a name given to the lowermost petal in a butterfly-shaped blossom, from its supposed resemblance to the keel of a ship.
Keeled, (carinatus) bent like the keel of a ship or boat.
Kidney-shaped, (reniforme) as the seed of the French bean.
Knee-jointed, (geniculatus) when a straw or stem is a little bent at the joints.
Knob, a head. See *Capitulum.*
Knot, (nodus) a joint; remarkable in the stems or straws of (the grasses and reeds.)

L

Labiatus, (labiate) a flower having lips.
Labium. See *Lip.*
Lacerus, ragged.
Lacinia, segments.
Laciniatum, cut, or as it were torn.
Lactescentia, producing milk; a term applied to the juices or liquors, of whatever colour, which flow out of plants when any injury is done to them.
Lacunosum, pitted.
Lævis, level, smooth.
Lamellæ, gills.
Lamina, a thin plate or border; the upper spreading part of a flower, consisting of more than one petal.
Lana, wool: a kind of down or velvet, which serves as a veil to screen the leaves and branches, which are covered with it from the extremities of heat.
Lanatus, woolly.

Lanceolatus, spear-shaped.
Lanceolato-ovatum, spear egg-shaped.
Lanugo, soft wool or down.
Lateral, branches or flowers; those growing from the sides of the stem, opposed to terminating.
Latticed, (cancellatus) open like lattice-work.
Laxus, limber, loose.
Leaf. See *Folium.*
Leaflet, a little leaf; a single leaf, or part of a compound leaf.
Leaf-stalk, (petiolus) the foot-stalk of a leaf.
Leather-like, tough and pliable like leather.
Legumen, that species of the seed-vessel termed a pod, in which the seeds are fastened along one suture only.
Leprosus, rough like the skin of a leper.
Liber, the inner bark or rind of plants.
Lignosus, woody.
Lignum, wood.
Ligulatus, strap-shaped.
Limbus, (limb) the limb or upper expanded part of a flower, consisting of only one petal, opposed to the tube, which is the lowest part.
Linear, narrow, with the sides as nearly parallel as possible.
Lingulate, tongue-shaped.
Lip, (labium) the upper or under division of a gaping blossom.
Lobatus, lobed, with the margins of the segments rounded.
Lobes, divisions nearly half way down the leaves, which are convex at the edges, and distant from each other.
Loculamenti, and *loculi,* cells or pockets: the internal divisions of a capsule, or other dry seed-vessel, so termed.
Lopped, (truncatus) appearing as if cut off.
Lucidum, transparent.
Lunatum, Lunulatum, crescent-shaped.
Luxuriant, (luxurians.)
Luxurians, luxuriant, or double flower, some of whose parts are increased in number, to the diminution or entire exclusion of others.
Lyre-shaped, (lyratus) as the leaves of Herb Bennet.

M

Maculated, spotted; sprinkled with spots or stains.
Marcescens, shrivelling.
Marginatus, bordered.
Masculus, male; a flower which contains the stamina, or male organs of generation: but not the stigma, or female organ.
Matted, (cæspitosus) thickly interwoven together, as the fibres in turf-bogs.
Medulla, pith.
Membranaceous, (membranaceus) thin, shining, and semi-transparent, like parchment.
Mid-rib, the principal nerve which runs from the base towards the end of a leaf, along its middle.
Monadelphia, from *μονος,* alone; and *ἀδελφία,* a brotherhood: a single brotherhood. The sixteenth class in Linneus's Sexual arrangement; in which the plants have hermaphrodite flowers, with all the stamina or male organs of generation united below into one body or cylinder, through which the pointed or female organ passes.
Monandria, from *μονος,* alone; and *ἀνηρ,* a husband: the first class of the Sexual System of Linneus; in which the plants have hermaphrodite flowers, with only one stamina or male organ.
Monocotyledones, single cotyledons; plants whose seeds have only one lobe, and consequently rise with a single seed-leaf.
Monœcia, from *μονος,* alone; and *οἰκία,* a house: the name of the twenty-first class of the Sexual System. The plants have male and female flowers placed apart; that is, within different covers on the same root.
Monogynia, from *μονος,* alone; and *γυνη,* a woman; the name of the first order of subdivision, in the first thirteen classes of the Linnean System. It consists of plants, which, besides their agreement in their classic distinctions, generally derived from their number of stamina, have only one pistil, or female organ.
Monopetalous, having only one petal. See *Petalum.*
Monophyllous, one-leafed.
Monosperma, one-seeded.
Monostachyos a single spike.
Mouth. See *Fauces.*
Mucronate, (mucronatum) sharp-pointed.
Mucronatum, mucronate; a dagger-pointed-leaf, sharp-pointed at the end.
Mules. See *Hybrida.*
Multangularis, many-cornered.
Multifidum, many-clefted.
Multiflores, many-flowered.
Multiloculare, many-celled.
Multipartita, having many deep divisions.
Multivalvis, many-valved; more than two.
Muricatus, covered with sharp points.
Musci, mosses.
Muticus, awnless. See *Awn.*
Mutilus flus, a mutilated flower; so called, when deprived of the whole or a greater part of its petals.

N

Nail. See *Claw.*
Naked, (nudus) destitute of leaves; as the tulip or cowslip stalk.
Nap. See *Tomentum.*
Narrow, (ligulatus) the florets in some compound flowers, one tubular at the bottom, but flat and narrow, like a strap or fillet at the top.
Natans, floating.
Nectarium, (nectary) or honey-cup, a part of the corolla, containing that species of vegetable salt, called honey, or nectar, which oozes from the plant in a fluid form, and is the principal food of bees and other insects.
Nervosum, fibrous, ribbed.
Neutral, flowers or florets, such as contain neither stamina nor pistilla, and therefore produce no seeds.
Nidulatatia semina, seeds dispersed in pulp.
Nitidus, glossy.
Nodding, (nutans) when the flower or the fruit stalk is bent near the end, as in the Narcissus.
Nodus, a knot.
Notched, (emarginatus) leaves; the edges cut something like the teeth of a large timber saw.
Nucleus, kernel; the seed enclosed in a nut, or hard bony shell. See *Nux.*
Nudum, naked.
Nutans, nodding; but, applied to a panicle, more properly drooping.
Nux, nut; a species of seed, covered by a hard bony shell which is also sometimes covered with a fleshy substance, and is then called a stone.

O

Obcordate, Obcordatum; an obcordate or inversely heart-shaped leaf: having the point of the heart next to the stem or branch.

Obovate Obovatum; an obovate or inversely egg-shaped leaf: having the narrow end downwards, or next to the branch or stem.

Obtusus, blunt, terminating in the segment of a circle.

Octandria, from ὀκτὼ, eight; and ἀνηρ, a husband: the eighth class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, which are furnished with eight stamina, or male organs of generation.

Octofidus, eight-clefted.

Octopartitus, having eight divisions.

Oculus, an eye; a species of bud.

Ordor, smell, which is too variable and indeterminate to be employed in the discrimination of plants.

Open, (patulus) standing open, or spreading wide.

Operculatum, covered with a lid,

Orbiculatus, round and flat.

Orders, subdivisions of classes.

Ordo, an order; the first subdivision of a class, in the Sexual method, which parcelling out the genera of any class into several distinct lots, gives perspicuity to the method, and facilitates its distinctions.

Ore, rim of the cup. See *Fauces.*

Osseous, hard as bone.

Oval, (ovale) leaf; as the leaves of the box.

Ovarium, the ovary; the germen, or seed-bud, containing the rudiments of the future seed.

P

Pagina, surface of a leaf.

Pairs. See *Juga.*

Palatum, the palate of the flower; the name applied to any prominence or gibbosity in the jaws of the corolla.

Palea, chaff.

Palm. See *Dodrans.*

Palmate, hand-shaped.

Palmæ, palm-trees; under this name Linneus has arranged several genera, which, although admissible into separate classes of his system, he has chosen rather, on account of their singular structure, to place apart in an appendix to his work.

Panduriformis, fiddle-shaped.

Panicula, or *panicle,* a mode of flowering, in which the fructifications are dispersed upon foot stalks variously subdivided. It is, in fact, a sort of branching, or diffused spike, composed of a number of small spikes, that are attached along a common foot-stalk.

Papilionaceous, butterfly-shaped.

Papillosus, pimpled.

Pappus, down; a sort of feathers or hairy crown, with which many seeds, particularly those of compound flowers, are furnished, for the purpose of dissemination.

Parallelus, parallel.

Parasitical, (parasiticus) vegetables not taking root in the earth, but growing upon other vegetables.

Partial, (partialis) expressive of a part, not of the whole.

Partition, (dissepimentum) the substance dividing seed-vessels into different cells.

Partitus, divided.

Patens, expanding

Patulus, open.

Pectinatum, (pectinate) a comb-like leaf.

Pedatum, bird-footed.

Pedicellus, a partial flower-stalk; the proper stalk of any single flower in an aggregate or head of flowers.

Pedicle. See *Pedunculus.*

Pedunculus, the foot-stalk or fruit-stalk of a flower, or head of flowers.

Pelta, a short buckler or target; the name of the flower, or flat fructification, of the genus lichen, or liver-wort.

Peltatum, target-shaped leaf.

Pencil-shaped, (penicilliformis) like a camel-hair pencil: as the summit of a millet.

Penicilliformis, pencil-shaped.

Pendant, hanging down.

Pentagonous, five-cornered.

Pentagynia, the name of one of the orders in the fifth, tenth, eleventh, twelfth, and thirteenth classes, having five pistils in each flower.

Pentandria, from πεντε, five; and ἀνηρ, a husband: the name of the fifth class in the Linnean system, consisting of plants which have hermaphrodite flowers, with five stamina or male organs.

Pentapetala, five-petaled.

Pentapetali, flowers having five petals.

Pentaphyllous, five-leaved cup.

Perennial, (perennis) continuing for several years; at least more than two.

Perfect, (completus) a flower having both a cup and a blossom, and also one or more stamina and pistilla.

Perforated, (perfoliatus) leaves; when the stem seems to go through the leaves.

Perfoliatum, perforated leaf.

Perianthium, the flower-cup, properly so called; the most common species of calix, placed immediately under the flower, which is contained in it as in a cup.

Pericarpium, the seed-vessel; an entrail of the plant, big with seeds, which it discharges when ripe.

Permanent, (persistens) cup; remaining till the fruit is ripe.

Personatus, gaping, (blossom.)

Pes, a foot; twelve inches.

Petaliformis, resembling a petal.

Petals. See *Petalum.*

Petalum, a petal, or coloured leaf of the flower; a single part or subdivision of the *Corolla,* which see.

Petiolaris, having leaf-stalks.

Petiolus, the foot-stalk of the leaves; one of the fulcra, or parts that serve for support, for protection, and for defence.

Phanogamous; plants in which the parts of fructification are visible and distinct.

Pileus, a hat or bonnet; the upper part of a mushroom covering the fructification.

Pili, hairs; one of the species of pubes, or defensive weapons, with which several plants are furnished.

Pillar, (stipes) the little shaft or pedicle, upon which the down of some seeds is placed, as in dandelion.

Pilosus, hairy.

Pimpled, (papillosus) beset with pimples, or hard little protuberances.

Pinna, a leaflet of a winged leaf.

Pinnatifid, wing-cleft, cut transversely.

Pinnatus, winged leaf; whereas *alatus* relates only to the seed-stem, or leaf-stalk. See *Alatus.*

Pinnulatus, when a leaflet of a winged leaf is again subdivided.

Pistil, or *pointal.* See *Pistillum.*

Pistilliferous, flowers or florets, such as contain one or more pistilla, but no stamina.

Pistillum, the pestle, pistil, or pointal; an erect column, generally placed in the centre of the flower, within the stamina, and called the female organ of generation in plants.

Pitcher-shaped, (urceolatus) swelling or bellying out like a common jug.

Pith, medulla.

Pitted, (lacunosum) when the surface of a leaf lies in hollows between the veins.

Plenus, a full flower; a term used to express the highest degree of luxuriance in flowers.

Plicatus, plaited.

Plumosus, feathered.

Plumula, a little feather; the scaly part of the corculum, or embryo plant within the seed, which ascends, and becomes the stem or trunk. See *Corculum.*

Pod, (siliqua) a seed-vessel of two valves, within which the seeds are fixed alternately to each seam or suture.

Pointal. See *Pistil.*

Pollen, small dust; fecundating or fertilizing dust, contained within the antheræ or tips of the stamina, and dispersed upon the female organ when ripe, for the purposes of impregnation.

Polyadelphia, from πολυς, many; and ἀδελφία, a brotherhood: the name of the eighteenth class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, in which several stamina or male organs are united by their filaments, into three or more distinct bundles.

Polyandria, from πολυς, many; and ἀνηρ, a husband: the name of the thirteenth class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, furnished with more than twenty stamina, that are inserted into the common receptacle of the flower.

Polygamia, from πολυς, many; and γαμος, marriage: polygamy, the name of the twenty-third class in the Sexual System of Linneus, consisting of polygamous or mongrel plants; that is, plants having hermaphrodite flowers, and likewise male or female flowers, or both. The term is applied also to each of the orders of the class Syngenesia, and signifies that several florets are enclosed within one common calix.

Polypetalous, many-petalled.

Polyphyllous, many-leaved.

Polysperma, many-seeded.

Polystachyous, many-spiked.

Pomaceæ, pomaceous; fruit of the apple, berry, and cherry kind.

Pomaceous. See *Pomaceæ.*

Pomum, an apple; a species of seed-vessel, composed of a succulent, fleshy pulp, in the middle of which is generally found a membranous capsule, with a number of cavities for containing the seeds.

Pores, little holes.

Posticus, hinder part.

Pouch, a short *Pod,* which see.

Præmorsus, as if bitten off, or jagged-pointed.

Pressed to, (adpressus.) See *Contiguous.*

Prickles, (aculei) sharp-pointed weapons of defence, formed from the bark, and not from the wood of a plant, as in the rose.

Prickly, (aculeatus) armed with prickles.

Prickly-pointed, (cuspidatus) ending suddenly in a hard sharp point.

Prismaticus. See *Prism-shaped.*

Prism-shaped, (prismaticus) differing from cylindrical in the circumference being angular.

Procumbens, (procumbent) trailing, lying on the ground.

Prolifer, prolific; a prolific flower, which from its own substance produces another; a singular degree of luxuriance, to which full flowers are chiefly liable.

Prominens, projecting partition; when it stands out beyond the valves.

Pronus, the under surface of a leaf.

Propago seed; Linneus's name for the seeds of the mosses.

Proprius, belonging to an individual.

Props. See *Fulcra.*

Protruding, (exsertus) standing out of the blossoms, like the stamina of some of the grica's.

Protuberances, (torasus) in seed-vessels; occasioned by the swelling out of the enclosed seeds.

Pubes, hair, down; a general term, expressive of all the hairy and glandular appearances on the surface of plants, supposed by naturalists to serve the double purpose of defensive weapons, and vessels of secretion.

Pubescent, (pubescens) clothed with soft wool or hair.

Pulmones, lungs; the leaves called the organs of perspiration and respiration in plants.

Pulpy, (pulposus) soft and tenacious; a cherry is pulpy, but an apple fleshy.

Pulpy seed-vessel. See *Drupa.*

Pulveratus, dusted.

Punctatus, dotted.

Purse-shapen, (scrotiformis) like a purse that draws together with strings at the top.

Q

Quadrangularis, four-cornered.

Quadridentatus, four-toothed.

Quadrifidus, four-clefted.

Quadrilobum, four-lobed.

Quadriloculare, four-celled.

Quadripartitum, with four divisions.

Quadrivalve, four-valved.

Quaterna, by fours.

Quina, by fives.

Quinatum, (quinate) five leaved.

Quinquangulare, five-cornered.

Quinquefidum, five-clefted.

Quinquelobum, five-lobed.

Quinqueloculare, five-celled.

Quinquepartitum, with five divisions.

Quinquevalve, five-valved.

R

Racemus, a cluster; in which the flowers placed along a common foot-stalk, are furnished with short proper foot-stalks, proceeding as lateral branches from the common flower-stalk. See *Bunch.*

Rostrum. See *Beak.*

Radiate, (radiatus) a sort of compound flowers, in which the florets of the centre differ in form from those in the circumference; thus the daisy and sunflower are radiate flowers, the florets in the centre being all tubular, but those in the circumference are narrow and strap-shaped.

Radiate summits; placed in a circle, as in the poppy.

Radicalis, (radicle) issuing immediately from the root.

Radicula, radicle, a little root; the stringy or fibrous part of the root, which, penetrating the soil, attracts moisture and nourishment for the support of the vegetable flower.

Radii, rays; the outer florets in a radiate compound flower: they may be called the florets of the circumference, and the inner ones the central florets.

Radii, spokes; the fruit-stalks of an umbel. See *Umbella.*
Radius, the semi-diameter of a circle.
Radix, root; the lower part of the plant, generally hid below the surface of the earth, to attract the moisture from the soil, and communicate it to the other parts of the plant.
Rameus, belonging to a branch.
Ramus, a branch.
Ramulus, the branch of a branch.
Receptacle. See *Receptaculum.*
Receptaculum, (receptacle) one of the seven parts of fructification, defined by Linneus to be the base which connects or supports the other parts.
Reclinatus, reclining.
Reclining, (reclinatus) bent back a little, so that the extremity is lower than the base.
Rectus, straight.
Recurvatus, reeurved, or bowed back.
Reflexus, reflected; bent back rather angularly, as the petals of the fleur-de-lis.
Refractus, bent back as if broken.
Regular (regularis) blossom; one that is regular in the figure, size, and proportion of its parts.
Remote (remotus) whirls; when there is a considerable length of stem between each whirl.
Reniforme, kidney-shaped.
Repandum, wavy, bent backwards.
Repens, Reptans, creeping.
Replicutus, folded or plaited, so as to form a groove or channel.
Resupinatum, horizontally turned upside-down.
Reticulata, veined like net-work.
Retrofaetus, broken back.
Retrorsùm serratum, inversely serrated.
Retrorsùm sinuatum, crookedly bent back.
Retusum, (retuse) bluntly notched at the end, and sometimes merely blunt.
Revolute, turned or rolled back.
Rhombeous, or *Rhomboid,* diamond-shaped.
Rhomboideous, rhomboidal; nearly diamond-shaped, but broader one way than the other.
Rigid, (rigidus) stiff, not easily bent.
Rimose, full of cracks.
Ring, (annulus.)
Ringent, gaping or grinning.
Rising, upwards, differs from *ascending,* in first inclining downwards, and then rising upwards.
Rod-shaped, (virgatus) having many slender and nearly straight parallel branches or shoots.
Rolled back, (revolutus) with respect to the leaf in general means rolled downwards like the leaves of Sweet-william.
Root. See *Radix.*
Root-leaves, (radicalia) the leaves which proceed immediately from the root, without the intervention of the stem.
Rostellum, the sealy part of the coreulum, or embryo of the seed, which shoots downward into the soil, and becomes the root.
Rostratum, having a bill.
Rostrum, a bill or beak.
Rotula, wheel-shaped (blossom.)
Rough, asper.
Round. See *Globular.*
Round, (obicularis) rough and flat.
Ruffle, or Ring; the part of the curtain of an Agaric, which adheres to the stem after the outer part of it has vanished.
Rugose, rugged or wrinkled.

Rumer, (flagellum) a barren twig or shoot, lying upon the ground, as in the garden Strawberry, and Stone Bramble: they are sometimes called wires.
Runcinated, notched.
Rundle. See *Umbel.*
Rundlet. See *Umbellule.*
Running, along the stem. See *Decurrent.*

S

Sagittated, arrow-shaped.
Salver-shaped, (hypocrateriformis) the shape of a blossom of one petal, the lower part of which is tubular, the upper flat, and expanded; as in the blossom of the Periwinkle.
Sapor, taste; which is too uncertain to be of any utilty in discriminating plants.
Sarmentose, having runners.
Saucer, (scutellum) like a china saucer; a circular and concave fructification of some of the lichens.
Scaber, rough like a file.
Scabridæ, plants with rough leaves.
Scabrities, roughness.
Scabrous, rough, rugged.
Scaly, (squamosus) like the skin of a fish.
Scandent, climbing.
Scape, stalk; such as supports the flower, but not the leaves of a plant, and rises immediately from the root.
Scariose, skinny.
Scarred, (cicatrisatus) marked with scars, where the leaves have fallen off.
Scattered, disposed without any regular order.
Scolloped, (crenatus) as the leaves of bird's-eye and gill.
Scored, (striatus) marked with superficial parallel lines, as the cup of a pink.
Scrobiform, like fine saw-dust.
Scrotiform, purse-shaped.
Scurfy, (squarrosus) applied to a cup in compound flowers, the scales of which are bent outwards at the end, so as to give the whole a rough, ragged appearance.
Scymetar-shaped leaf, (acinaciforme) a long fleshy leaf, thick and straight at one edge, thin and arched at the other.
Scyphifer, glass-shaped, as the fructification of some of the lichens.
Seam, or *suture,* the line formed by the union of the valves of a seed-vessel.
Secund, pointing one way.
Securiform, axe-shaped.
Seed, see *Semen;* a deciduous part of a vegetable, containing the rudiments of a new plant.
Seed-bud. See *Germen.*
Seed-coat, (axillus) the proper coat of a seed which falls off spontaneously.
Seed-cover, (calyculus) the real cover of the seed.
Seed-lobes, (cotyledones) the perishable parts of a seed, designed to afford nourishment to the young plant when it first begins to expand.
Seed-vessel. See *Pericarp.*
Segment, (lacinium) the small parts of a leaf, cup, or petal, included between the incisions.
Semen, seed; the essence of the fruit of every vegetable, containing the rudiments of a new vegetable, and fertilized by the sprinkling of the male dust.
Semi-cylindrical (semi-teres:) if the trunk of a tree was sawn lengthwise through the middle, each part would be semi-cylindrical.

Seminal leaves, those which rise immediately from a seed, or rather from the seed-lobes.
Semi-orbiculated, shaped like half a globe.
Semi-sagittated, shaped like half the head of an arrow.
Semi-teres. See *Semi-cylindrical.*
Sempervirent, evergreen.
Senis, (foliis) growing in sixes.
Separate. See *Mœnœcia.*
Sericeous, silky.
Serpentine, (repandus) the edge of some leaves is formed like a serpentine line, without any angles or corners.
Serrated, (serratus) like the teeth of a common saw.
Serrulated, (serrulatum) very minutely serrated.
Sessile, sitting.
Setaceous, bristle-shaped.
Seta, bristles.
Setose, bristly, or set with bristles.
Sexangular, six-sided, or cornered.
Sex-fid, six-clefted.
Sex-locular, six-celled.
Shaft. See *Style.*
Sheath. See *Spatha.*
Sheathed, fruit-stalk. See *Spadix.*
Sheath-scale, a membrane found at the top of the sheaths, which surround the stem of the grasses, just where the sheath ends, and the proper leaf begins.
Sheathing (vaginans) leaves; when the base of a leaf infolds the stem, as in most of the grasses.
Shedding. See *Caducous.*
Shell. See *Legumen.*
Shoot, (surculus) the branch of a moss.
Short, (abbreviatus:) a cup is said to be short, when it is shorter than the tube of the blossom.
Shrivelling, (marcescens) fading and withered, but not falling off.
Shrubby, (fruticosus) somewhat woody and perennial, as the stems of the rose.
Silicula, a broad and short pod or pouch.
Silique, see *Pod;* in which the seeds are alternately fixed to either suture or joining of the valves; in this it differs from the legumen, which has its seeds attached to one suture only.
Silky, (sericeus.)
Simple, (simplex) undivided.
Simple cup, one that consists of a single series of segments, as goats' beard.
Simple leaf, when there is only one upon a leaf-stalk.
Simple stalk, undivided, as in the Tulip.
Simple stem, one that is undivided, or only sends out small branches.
Simplicissimus, very simple, absolutely undivided.
Single, (unicus) one flower only upon a stalk, as the Tulip.
Sinuate-angulose, indented and angular.
Sinuate-dentated, indented and toothed.
Sinuated, indented, cut along the margin.
Sitting leaves, (sessilis) having no leaf-stalks.
Skinny, or *skin-like,* (scariosus) tough, thin, and semi-transparent, like gold-beater's skin.
Slanting, (obliquus) straight, but in a direction between horizontal and perpendicular.
Smooth, (glaber) the surface smooth to the touch, without any hairiness or other inequality.
Snipt, cut at the edges without any regularity.
Solid root, fleshy and uniform, like a turnip.
Solid stem, without a cavity, opposed to hollow
Solitary, (solitarius) only one in a place, having but one flower on a fruit-stalk; or only one fruit-stalk proceeding from the same part of a plant.
Sooty, (fulginosus) dark and dirty as if sooted, as are some of the Lichens.
Spadiceous, sheathed; an aggregate flower, in which the receptacle is enclosed within a spatha or sheath, that is common to many florets.
Spadix, a flower-stalk that is protuded out of a spatha or sheath.
Spadilated, battledore-shaped
Span, seven inches.
Sparsus, scattered.
Spatha, a sheath; a species of calix which bursts lengthways and protudes a stalk, supporting one or more flowers which commonly have no perianthium or flower-cup.
Spatulatum, roundish, or obovate.
Spear-shaped, (lanceolatus.)
Spear-egg-shaped, (lanceolato-ovatum) applied to a leaf, signifies that it is shaped like a spear towards the base, and like an egg towards the extremity.
Species, a set of plants which agree in the general structure of their flowers and fruit, and therefore belong to the same genus; but differ in their stem, leaves, and other particulars. See the *Introduction* to this work.
Specific character, one or more circumstances of a plant, sufficient to distinguish it from any other of the same genus.
Spherical, (spherica) globular.
Spike, a mode of flowering in which the flowers are ranged alternately upon both sides of a single common flower-stalk.
Spicula. See *Spikelet.*
Spikelet, spicula, or little-spike; constituting part of a larger composition of florets.
Spike stalk, (rachis) a long, rough, slender receptacle, upon which the flowers composing a spike are placed. Take a spike (or, as it is commonly called, an ear) of wheat; pull off all the seeds and chaff; what remains is a spike-stalk.
Spine, a thorn; a species of armature or offensive weapon, protuded from the wood of the plant, and therefore of a stronger and harder nature than prickles, which are only detached portions of the bark.
Spindle-shaped, (fusiformis) a gradually tapering root.
Spinescent, becoming hard and thorny.
Spinose, thorny.
Spinous, beset with prickles.
Spiral, (spiralis) twisted like a corkscrew.
Spokes, (radii) the foot-stalks of flowers collected into *umbels* and *umbellules.*
Spreading, (diffusus) not rising high, but spreading wide upon the ground, as the stems of fumitory and pansie.
Spur, (calcar) shaped like the spur of a cock, as the nectaries of the larkspur.
Squamated, Squamose, scaly.
Squarrose, scurfy.
Stalk, (scapus) that species of trunk which elevates and supports the flowers, but not the leaves of a plant.
Stamens, (stamina) threads or chives; the slender threads which support the antheræ, and in most flowers are placed round the seed-bud.
Staminiferous flowers, or *florets,* such as contain one or more stamina, but no pistilla, and are necessarily barren.
Standard, (vexillum) the upright petal of a butterfly-shaped blossom, very remarkable in a pea.

Starry, (stellatus) plants whose leaves grow in whorls round the stem, as the goosegrass, cheese-rennet, and several other plants in the class Tetrandria.
Stellate, starry, or star-like.
Stem, (caulis) the proper trunk of a plant, supporting the leaves, branches, and flowers.
Stem-clasping, (amplexicaulis.)
Stem-leaves, (caulina) such as grow immediately upon the stem, without the intervention of branches.
Stemless. See *Acaulis.*
Sterile, barren.
Stiff. See *Rigid.*
Stigma, the summit of the style: the female organ of generation in plants, which receives the fecundating dust of the tops of the stamina, and transmits its vapour or effluvia through the style, into the heart of the seed-bud, for the purpose of impregnating the seeds.
Stimuli, stings; a species of offensive weapon, designed to keep off naked animals that would approach and injure certain plants.
Stings, (stimuli) sharp-pointed substances, conveying poison into the parts they penetrate, as in the nettle.
Stipes, a pillar or pedicle.
Stipes, the trunk of a tree or plant, sometimes the foot-stalk; likewise the slender thread which elevates the pappus, or hairy crown, in many compound flowers.
Stipitated, standing on a pillar or pedicle.
Stipulæ, a sort of props; small leaves or scales, situated on each side the base of a leaf-stalk or fruit-stalk; for the purpose of supporting them in their first appearance, as in the garden pea.
Stolo, a sucker.
Stoloniferous, putting forth suckers.
Stone. See *Nux.*
Straddling, (divaricatus) branches standing wide from each other.
Straight, (rectus) not bending.
Strap-shaped, (linearis) long and narrow, like a strap or fillet; as in the crocus leaf.
Strap spear-shaped. See *Spear egg-shaped.*
Straw. See *Culm.*
Streaked, marked with depressed, but not always parallel lines.
Striated, scored.
Strictus, stiff and straight.
Strigæ, strong spear-shaped bristles or thorns
Strigose, furnished with strigæ.
Strings, fibres. See *Filament.*
Strobiliform spike, a cone-shaped spike.
Strobilus, a cone; a species of seed-vessel, composed of woody scales which are placed against one another, and split only at top, being fixed below to an axis, which occupies the centre of the cone.
Style, the slender part of the pistillum, or female organ resembling a pillar, which stands upon the seed-bud, and elevates the stigma, or summit.
Subdivisus, subdivided.
Submersus, under water.
Subovate, nearly egg-shaped.
Subramose, a little branched.
Subrotund, nearly globular.
Subulated, awl-shaped.
Succulent, juicy.
Succus, sap; the juices of plants.
Suckers, (stolones) shoots which rise from the root, spread along the ground, and then take root themselves, as in the sweet-violet.
Suffruticose, somewhat woody, nearly shrubby, as sage and lavender.
Sulcated, furrowed.
Summit, (stigma) the upper part of the *Pistil,* which see.
Superficies, the surface.
Superflua, superfluous.
Superior (superus) *cup* or *blossom;* when the calyx or corolla is situated above the germen, it is said to be superior; as in the Honeysuckle.
Superus, superior, above.
Supine, the upper surface.
Supra-decomposite, more than doubly compound.
Supra-foliaceous, placed above the leaf.
Surculus, a shoot; the branch of a Moss.
Suture, a seam.
Sword-shaped, (ensiforme) as the leaves of the Iris, or Fleur-de-lis.
Syngenesia, from συν, together; and γενεσις, generation: the name of the nineteenth class in the Sexual System of Linneus; it consists of plants in which the antheræ or male organs of generation are united into a cylinder, the filaments by which they are supported remaining separate and distinct.

T

Tail, (cauda) a sort of slender-pointed appendage to some seeds.
Taper leaf, (acuminatum) gradually tapering to a point.
Target, (pelta) a kind of fructification on the leaves of some of the Lichens, which is circular, and a little convex.
Target-shaped, (peltatum) applied to a leaf having its leaf-stalk fixed, not at the edges, but nearly in its centre.
Target-shaped summit, one that is circular and flat.
Tendril. See *Cirrus.*
Tenuis, thin, slender.
Teres, columnar.
Teretusculus, roundish.
Tergeminum, (leaf) doubly twin fork.
Terminal, terminating.
Terminating, (terminalis) opposed to lateral; standing at the end of the stem or branches, as the fruit-stalks of Borrage.
Ternate, growing three together from the same point.
Ternis, by threes; three in a place.
Tessellated, chequered.
Tetradynamia, from τεσσαρες, four; and δυναμις, power: four powers; the name of the fifteenth class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, having six stamina, four of which are longer than the rest.
Tetragynia, from τεσσαρες, four; and γυνη, a woman: the name of an order or secondary division in the fourth, fifth, sixth, eighth, and thirteenth classes, of the Linnean System; it consists of plants, which, to the classic character, whatever it be, add the circumstance of having four styles or female organs, as its name imports.
Tetragonous, four-cornered.
Tetrandria, from τεσσαρες, four; and ἀνηρ, a husband: the name of the fourth class in Linneus's Sexual System, consisting of plants whose flowers are hermaphrodite, and have four stamina or male organs of equal length.
Tetrapetalous, four-petalled.
Tetraphyllous, four-leaved.
Tetraspermous, four-seeded.
Thalamus. See *Receptacle.*
Thorn. See *Spine.*

Thread. See *Filament.*
Thread-shaped, (filiformis) of the same thickness from top to bottom, like a piece of packthread; like the leaves of Fennel, the style of Crocus, or of Honeysuckle.
Three-edged, (trigonus) or three-cornered; a stem having three corners or angles, and the sides not flat.
Three-fibred, (trinervatus) having three veins or nerves, running from the base to the end of a leaf, without branching off.
Three-lobed, (trilobatum.)
Thronging, (confluentia) assembled in close parcels, with intervening naked places.
Thyrsus, a cluster; according to Linneus, is a panicle contracted into an oval or egg-shaped form.
Tiled, (imbricatus) one leaf or scale partly covering another, like the tiles of a house; as the cup of dandelion or burdock.
Tip. See *Anther.*
Tomentose, cottony or downy.
Tomentum, short wool; a species of hoary or downy pubescence, which covers the surface of many plants.
Tongue-shaped, (lingulatum) applied to express a thick fleshy leaf, somewhat in the shape of a tongue.
Toothed, (dentatus) when the edges of a leaf are set with little teeth, as in primrose.
Tooth-serrated, (dentato-serratum) when the edge of a leaf is set with serrated teeth.
Top-shaped, (turbinatus) nearly conical.
Torose, protuberating.
Torulose, a little swelling out.
Tortile, twisting.
Trailing stems, (procumbens) lying along upon the ground, and not sending out roots, as common Speedwell.
Transverse, crosswise.
Trapeziform, the shape of a flat leaf, having four unequal sides.
Trebly-compound. See *Triply compound.*
Triangular leaf, stem, or *stalk,* having three sides, and three angles or corners.
Triandria, from τρεις, three; and ἀνηρ, a husband: the name of the third class in Linneus's Sexual System, consisting of plants with hermaphrodite flowers, with three stamina or male organs.
Triangularly spear-shaped, (deltoideus) leaves broad at the base, and nearly triangular, but spear-shaped at the point.
Trichotomous, dividing by threes.
Tricoccous, three-celled, three-seeded, swelling out.
Tricuspidated, three-pointed.
Tridentated, three-toothed.
Trifid, three-clefted.
Trigonal, three-cornered.
Trilobate, three-lobed.
Trilocular, three-celled.
Trinerved, three-fibred, three-ribbed.
Tripartite, with three divisions.
Triphyllous, three-leaved.
Tripinnated, triply winged.
Triply compound leaves, (folia supra decomposita) are of three kinds:—1. *Double Twin-fork,* (tergeminus) leaf-stalk, with two leaflets at the end of each, and two more at the division of the fork.—2. *Triply three-fold,* (triternatus triplico-ternatus) the divisions of a triple leaf-stalk, again subdivided into threes, and three leaflets at the end of each subdivision.—3. *Triply-winged,* (tripinnatus triplico-pinnatus) when the lateral ribs of a doubly-winged leaf, have themselves other leaf-stalks with winged leaves
Triqueter, with three flat sides, as the stem of the pansie
Trispermous, three-seeded.
Triternate triply threefold.
Trivalved, three-valved.
Trowel-shaped. See *Triangularly spear-shaped.*
Truncated, lopped.
Trunk, that part of the herb which rises immediately from the root, and is terminated by the fructification.
Trygynia, the name of one of the orders in several of the classes, having three pistils in each flower.
Tube, the lower hollow part of a flower with one petal; opposed to unguis, the claw of a polypetalous flower.
Tubercle, (tuberculus) a little solid pimple.
Tuberculate, tubercled.
Tubulated, Tubulose, tubular.
Tuoerous root, (tuberosus) consisting of many rounding knobs, collected into a bundle, as the root of peony and dropwort.
Tubular, (tubulosus) in the shape of a hollow tube, as the cup of the Privet, the blossom of the Honeysuckle, or the nectary of the Helleborc.
Tubular florets, are shaped like a hollow tube.
Tuft. See *Cyma.*
Tunicated, coated.
Turbinated, top-shaped, nearly conical.
Turgid, swollen, turgid.
Turis, a young unexpanded shoot, as is the Asparagus before it is gathered for eating.
Twining, (volubilis) twisting round other bodies, and ascending in a spiral line.
Twin-fork, (bigeminus.)
Two-edged, (anceps) as the stem of Tutsan.
Two-rowed, (distichus) like the teeth in a double box or ivory comb, as in the leaves of the common fir.

U & V

Vagina, a sheath formed by a part of a leaf, distinct from the sheath (spatha) which is a species of calix.
Vaginans, sheathing.
Vaginated, sheathed.
Valve, (valvula) the different pieces that compose a capsule are called valves; thus, in Thornapple there are four, in Loosestrife ten, in Jacob's Ladder, Daffodil, and Hyacinth, three. The petals and empalements that constitute the flowers of Grasses are called valves; thus, in the Common Meadow-grass the calix or empalement is a dry chaffy husk composed of two valves, and the blossom is formed of two other valves. The mouth of the tube of a blossom is frequently closed by several projecting substances: thus, in the blossoms of Borrage and Jacob's Ladder, the tube is closed by five of these substances, which are also called valves.
Valvula, a little valve or opening: the external division of a dry seed-vessel, as a capsule or pod, which splits when the seeds are ripe for dissemination.
Vane-like, (versatilis) turning about like a vane, as the antheræ of geranium and crown imperial.
Vaulted, (fornicatus) like the roof of one's mouth.
Veil, (calyptra) the calix of mosses covering the tips. It is generally in a conical form like an extinguisher.
Veined, (venosum) a leaf is said to be veined when its fibres are branched.
Venose, veined.
Ventricose, distended; bellying.

Varieties, plants of the same species, but which differ slightly from each other.
Vernatio, a term used by Linneus, to express the curious manner in which the leaves are folded or wrapped up in their buds.
Verrucose. warty.
Versatile, vane-like.
Verticillated, growing in whorls.
Verticilli, whorls.
Verticillus, a little whorl, hinge, axis, axle-tree, or spindle.
Vesicules, bladders.
Vexillum, a standard; the upper petal of a pea-bloom, or butterfly-shaped flower, which is generally larger than any of the others.
Vigiliæ, (plantarum) the vigils of plants; under this term botanists signify the precise time of the day in which the flowers of different plants open, expand, and shut.
Villi, soft hairs.
Villoes, covered with soft hairs, like the Furze-leaf.
Vimen, a slender and flexible twig.
Virgated, rod-shaped.
Viscid, (viscidus) clammy.
Viscosity, clamminess.
Viviparous, (viviparus) a term applied to stems or stalks producing bulbs that are capable of vegetation.
Volubile, twining.
Volva, a curtain or screen.
Unguis. See *Claw.*
Umbel, a composition of flowers, in which a number of slender fruit-stalks grow from the same centre.
Umbelliferous, plants which produce their flowers in umbels.
Umbellule, a little umbel.
Umbilicated, resembling a navel; dimpled.
Umbo. See *Disk.*
Unangulated, one-edged.
Unarmed, (inermis) without weapons of defence.
Uncinnated, hooked at the end.
Undated, waved.
Under-shrub, (suffrutex) like a shrub in its woody texture at the bottom, but the top-shoots herbaceous, tender, and dying in the winter; lavender is an instance.
Undivided, simple.
Unequal florets, (radiati) when an umbel is not composed of equal florets, but those in the circumference are larger than those in the centre, and the outer petals are larger, and different in shape from the inner petals.
Ungulated, hoof-shaped
Unicus, single; only one.
Uniflorous, one-flowered.
Uniform, (equalis) a term applied to compound flowers, when the florets which compose them are all alike.
Unilateral, growing from one side only.
Unilocular, one-celled.
Univalve, one-valved.
Universal, general.
United leaves, (connatus) two opposite leaves growing together at the base.
Upright, (erectus) standing upright or nearly so, as the cups of the periwinkle, the antheræ of the polyanthus, the stalks of tulips, and the stems of asparagus.
Urceolated, pitcher-shaped.
Urens, stinging.
Utriculus, a little bag or hollow vesicle.

W

Warty, (verrucosus) having little hard lumps or warts upon the surface.
Waved, (undatus) when the surface of the leaf towards the edge does not lie flat, but appears waved and full, like a ruffle.
Weapons. See *Arma, Prickles, Thorns,* and *Stings.*
Wedge-shaped, (cuneiformis) as the leaves of the garden Spurge, and the garden Purslain.
Wheel-shaped, (rotatus) a term used to express a blossom of one petal, with a flat border and a very short tube.
Whirls, (verticilli) of branches, leaves, or flowers; the branches of fir, the leaves of Ladies Bedstraw, and the flowers of the Deadnettle, grow in whirls round their respective stems, and somewhat resemble the spokes round the nave of a wheel.
Winged leaf-stalk, (alatus,) flattish, with a thin membrane or leafy border on each side:—*Leaf,* when an undivided leaf-stalk has many little leaves growing from each side:—*Stem* or *leaf-stalk,* such as have a thin flat membrane on each side.
Wing-cleft, (pinnatifidus) is applied to a leaf that is cut and divided so deeply on each side down towards the middle rib, as almost to resemble a winged leaf.
Winged-shoots, (surculipinnati) when the roots strike out from the sides, like the plumage along the sides of a quill.
Wings. See *Ala*; the lateral petals of a butterfly-shaped blossom, as in the Pea.
Wires, (flagelli.) See *Runners.*
Woody, (arboreus) opposed to herbaceous.
Wool. See *Lana.*
Woolly, (lanatus.)
Wrapper, volva; but not the volva of Linneus; a tough membrane, which envelopes the whole plant of some of the Fungusses in its younger state.
Wrinkled, (rugosus) as the leaves of Sage, Primrose, Wood-Strawberry, Hazel, &c.

Z

Zigzag, (flexuosus) having many contrary turnings and bendings, as the stems of the rough bindweed, woody night-shade, or the branches of golden rod.

GENERAL RULES

FOR

GATHERING AND PRESERVING HERBS,

ROOTS, BARKS, SEEDS, AND FLOWERS

Together with the Methods of Making such Preparations from them, as may best retain their Virtues, or be most useful to be kept in Families.

THE intention of the author is, to inform those who live in the country, and are desirous of being useful to their families and friends, or charitable to the poor in relieving their disorders, of the virtues of those plants which grow wild about them; that they may be able to supply the necessary assistance, in places where apothecaries are not at hand, without putting themselves to the expense of costly medicines, when the common herbs, that may be had for gathering, will answer the same purpose. However, as there are cases wherein more help may be obtained from foreign drugs, than from any thing produced at home, an account of those roots, barks, seeds, gums, and other vegetable productions, kept by the druggists and apothecaries, is added, together with their virtues, and those of the several trees and plants from which they are obtained.

The plants are alphabetically arranged, according to their English names, that they may be the more readily found. With regard to the virtues of plants, too many have been attributed to most of them, but here their real virtues only, as ascertained by the experience of the best judges, are introduced, and placed in the most conspicuous light.

Nature has, in this country, as well as in all others, provided, in the herbs of its own growth, the remedies for the several diesases to which it is most subject; and although the addition of what is brought from abroad, should not be supposed superfluous, there is no occasion that it should cause the other to be neglected. This neglect has been the consequence of the too great respect shewn to them; which, with the present universal use of chemical preparations, has almost driven the whole Galenical medicine out of our minds.

To restore this more safe, more gentle, and often more efficacious part of medicine to its natural credit, has been one great intent in writing this treatise; and it is the more necessary for the service of those, who are intended most to be directed in this matter, since this is much less dangerous than the other: for in most instances it is hard to say that this is dangerous at all.

The apothecaries are apt, in their unfeeling mockery, to say, that they are obliged to the good persons who give medicines to their sick neighbours, for a great deal of their business; for out of little disorders they make great ones. This may be the case *where their shops supply the means*; for chemical medicines, and some of the drugs brought from abroad, are not to be trusted with those who have not great experience; but there will be no danger of this kind, when the fields afford the supply. This is the medicine of nature, and as it is more efficacious in most cases, it is more safe in all. If opium may be dangerous in an unexperienced hand, the person who will give in its place a syrup of the wild lettuce, (a plant not known in common practice at this time, but recommended from experience in this treatise) will find that it will ease pain, and that it will cause sleep, in the manner of that foreign drug, but will never find any ill consequences from it; and the same might be said in many other instances.

As the descriptions in this work very readily distinguish what are the real plants that should be used, the great care will remain, in what manner to gather and preserve, and in what manner to give them; it will be useful to add directions upon those heads. As to the *former*, it should be perfectly understood, because a great deal depends upon it; the *latter* cannot easily be mistaken.

Having displaced the drugs brought from abroad in a great measure from charitable practice, every person who has the spirit of true benevolence, should keep a kind of druggist's shop, which should be supplied from the neighbouring fields, and from their own gardens. There is no reason the drugs should not be as well preserved, and as carefully laid up, as if the product of a different climate, though the use of the fresh plants will in general be best when they can be had.

As there are some which will not retain their virtues in a dried state, and can be met with only during a small part of the year; it will be proper to add the best methods of preserving these in some way, according to the apothecaries' manner; with the method of making the preparations from them for ready service, which will be sufficient to lead to the perfect use of the medicines of our own growth; and it will be found upon experience, that those who sufficiently know how to make a proper use of these, need seldom have recourse to any others.

Concerning the Methods of Collecting and Preserving Plants, and Parts of them, for Use.

THE virtues of different plants residing principally in certain parts of them, and those differing according to the nature of the herb, these several parts are to be selected, and the rest left; and these are in some to be used fresh, and just gathered; in others, either necessity, or the natural preference, make it proper to dry and preserve them.

In some only the leaves are to be used; in others, the whole plant cut from the root; in others, the flowers only; in others, the fruits; in others, the seeds; in some, the roots; and of

some trees, the barks; some, the woods; and only the excrescences of others: while some vegetables are to be used entire, whether fresh gathered, or dried and preserved. Of all these, instances will be given in great number in the following sheets, and the matter will be specified under each article, as the part of the plant to be used will always be named; and it will be added whether it be best fresh, or best or necessarily dried or otherwise preserved; but it will be proper in this place to enter into the full examination of this matter, to save unnecessary repetitions under the several particular articles.

The whole of most plants native of our country, dies off in winter, except the root; and in many, that perishes also, leaving the species to be renewed from the fallen seeds. When the whole plant dies, the root is seldom of any virtue; but when the root remains many years, and sends up new shoots in the spring, it commonly has great virtue. This may be a general rule: for there is very little to be expected in the roots of annual plants; their seeds, for the most part, contain their greatest virtues.

In others, the root lives through the winter, and there arise from it large leaves in the spring, before the stalk appears. These are to be distinguished from those which afterwards grow on the stalk, for they are more juicy, and for many purposes much better. In the same manner, some plants, from their seeds dropped in autumn, produce a root and leaves which stand all the winter, and the stalk does not rise till the succeeding spring. These are of the nature of those leaves which rise from the root of other plants before the stalks in spring; and are in the same manner to be distinguished from those which grow upon the stalks; they have the full nourishment from the root, whereas the others are starved by the growth of the stalk and its branches, and the preparations made by nature for the flowers and seeds; which are the great purpose of nature, as they are to continue the plant.

For this reason, when the leaves of any plant are said to be the part fittest for use, they are not to be taken from the stalk, but these large ones growing from the root are to be chosen; and these where there is no stalk, if that can be; for then only they are fullest of juice, and have their complete virtue; the stalk running away with the nourishment from them. This is so much done in some plants, that although the leaves growing from the root were very vigorous before the stalk grew up, they die and wither as it rises. When the juice of the leaves of any plant is required, these are the leaves from which it is to be pressed: when they are ordered in decoction, notice is always taken in this work, whether they be best fresh or dried; if fresh, they should be just gathered for the occasion; they should be cut up close from the root, and only shook clean, not washed; for in many, that carries off a part of the virtue: they are to be cut into the pot. If they are to be dried, the same caution is to be used; and they are best dried by spreading them upon the floor of the room, with the windows open, often turning them. When thoroughly dried, they should be put up in a drawer, pressing them close down, and covered with paper. When the entire plant is to be used except the root, care is to be taken that it be gathered at a proper season. Nature, in the whole growth of plants, tends to the production of their flowers and seeds, but when they are ripe, the rest begins to decay, having done its duty; so that the time when the entire plant is in its most full perfection, is when it is in the bud; when the heads are formed for flowering, but not a single flower has yet disclosed itself: this is the exact time.

When herbs are to be used fresh, it is best not to take them entire, but only to cut off the tops; three or four inches long, if for infusion, and if for other purposes, less: if they are to be beaten up with sugar, they should be only an inch, or less: just as far as they are fresh and tender. The tops of the plant thus gathered, are always preferable to the whole plant for immediate use.

When the entire herb is to be dried, the season for gathering is to be as just described, when the flowers are budding; and the time of the day must be when the morning dew is dried away. This is a very material circumstance, for if they be cut wet with the dew, herbs will not dry well, and if they be cut at noon-day, when the sun has made the leaves flag, they will not have their full power. Care must also be taken to cut them in a dry day; for the wet of rain will do as much harm as that of dew.

When the herbs are thus gathered, they are to be looked over, the decayed leaves to be picked off, and the dead ends of the stalks cut away: they are then to be tied up in small bunches, (the smaller the better,) and hung upon lines drawn across a room, where the windows and doors are to be kept open in good weather; the bunches are to be half a foot asunder, and they are to hang till perfectly dry. They are then to be taken softly down, without shaking off the buds of the flowers, and laid evenly in a drawer, pressing them down, and covering them with paper. They are thus ready for infusions and decoctions, and are better for distillation than when fresh.

The flowers of plants are principally used fresh, though several particular kinds retain their virtue very well dried; they are on these different occasions to be treated differently.

Lavender flowers, and those of Stœchas, (Graphalium Stœchas) keep very well; they are therefore to be preserved dry. The Lavender flowers are to be stripped off the stalks, and spread upon the floor of a room to dry. The Stœchas flowers are to be preserved in the whole head; this is to be cut off from the top of the stalk, and dried in the same manner: when dry, they are to be kept as the herbs.

When Rosemary flowers are dried, they are generally taken with some of the leaves about them; and this is very right, for the leaves retain more virtue than the flowers. Some dry Borage, Bugloss, and Cowslips, but they retain very little virtue in that condition. Rose-buds are to be dried, and to this purpose, their white heads are to be cut off; and the full-blown flowers may be preserved in the same manner. The Red Rose is always meant, when we speak of the dried flowers.

For the rest of the flowers used in medicine, they are best fresh; but as they remain only a small part of the year in that state, the method is to preserve them in the form of syrups and conserves. Such as the syrup of Cloves and Poppies, the Conserves of Cowslips, and the like. Of these, a short general account shall be subjoined, that nothing may be wanting to make this work as useful for families as the nature of it will admit.

Among the fruits of plants, several are to be used fresh, as the hip for conserve, and the Quince, Mulberry, and Black Currant; from the juices of which, syrups are made. As to those which are to be dried, as the Juniper berries, the Bay berries, and the like, they are only to be gathered when just ripening, not when quite mellow, and spread upon a table or floor, often turning them till they are dry. But of these we use very few of our own growth; most of the fruits used in medicine are brought from abroad, and must be purchased of the druggist or apothecary.

With respect to the seeds and plants, it is otherwise; many of them are of our own growth, and nothing is so easy as to preserve them. These are all to be used dry; but nature

has in a manner dried them to our hands: for they are not to be gathered till perfectly ripe, and then they need very little farther care. They are only to be spread for three or four days upon a clean floor, where the air has free passage, but where the sun does not come; and they are then ready to be put up.

The seeds used in medicine, may be referred to three general kinds. They either grow in naked heads or umbels, as in Fennel, Parsley, and the like; or in pods, as in Mustard and Cresses; or in large fleshy fruits, as in Melon and Cucumbers. In each case they must be left upon the plant till perfectly ripe; then they are only to be shook from the heads upon the floor, or if in pods, a smart stroke or two of the plant upon the floor, when they are thoroughly ripe, will dislodge them. In the other case, the fruit must be cut open, and they must be taken out from among the wet matter, separated from the membranes that are about them, and spread upon a table, in a dry place, where they must be often turned and rubbed as they grow dry, that in the end they may be perfectly dry and clean.

Among the roots, a great many may be used fresh, but a greater number are best dried. The black and white Briony, the Arum, and some others, lose all their virtues in drying; and many that retain some, yet lose the greater part of it: there are others which are excellent, both fresh and dried, as the Marshmallow and some more.

As to the few which lose their virtue entirely in drying, it will be best to keep some of them always in the garden, that they may be taken up as they are wanted. The others are to be managed according to their several natures, and they do a great deal towards furnishing the druggist's shop, which should be filled with medicines, the produce of our own country.

The best season for gathering roots for drying, is in the early part of the spring: what nature does for plants when they are just going to flower, she does for roots when the leaves are just going to bud; the juices are rich, fresh, and full, and the virtue is strongest in them at this season; therefore they are to be then taken up.

In the end of February and the beginning of March, the ground should be searched for the first budding of leaves, and the roots taken up. They are to be wiped clean, not washed; and, according to their several natures, prepared for drying.

Some are full of a mucilaginous juice, as Marshmallow, and above all other roots, the Squill, and in some degree many others of that kind; these must be cut into thin slices crosswise, and they will dry best if laid upon a hair-cloth stretched across a frame. They must be frequently turned, and be very thoroughly dry before they are put up, else they will become mouldy; but, rightly prepared, they keep very well.

Other roots have juices that evaporate more easily. These have the virtue either throughout the whole substance, or only in the outer part, and they are to be prepared accordingly. When roots are of one uniform substance, they generally have the virtue equal, or nearly so, in all parts. These should be split open lengthwise, first cutting off the head, and the little end; or if considerably thick, they may be quartered; when this is done, they are to be strung upon a line, by drawing a needle, threaded with a small twine, through their thickest part, and they are then to be hung up to dry in the manner of the herbs; the line being stretched across a room, the doors and windows of which are to be kept open in good weather.

When roots consist of a sort of thick rind, or fleshy substance within the rind, and a hard sticky part in the middle, this fleshy substance under it possesses all the virtues; the hard inner substance having none: in this case, the root is to be split longwise as before, and the hard woody part is to be taken out and thrown away: the rest is to be strung, as before described, and dried in the same manner.

When roots consist of fibres, these are generally connected to a head, if it be ever so small, and the best method is to split this in two, and then string up the separate parts for drying.

It is needless to enumerate the examples of the several kinds of roots here; they follow in their places: but if charitable people would, on first looking over this book to see what are most useful, order their gardener to take out of his ground, and to seek in the fields the several roots there mentioned, and see them dried and preserved according to these directions, they would be possessed of a set of drugs of a new kind indeed; but they would save the price of many brought from other countries, and might be used with less danger.

The barks of trees make but a small part of the English drugs, and most of them are best fresh; but such as will preserve and retain their virtues dried, are very easily prepared that way: nothing more is required than to cut them into moderate pieces, and string them up in the same manner as the roots. When they are dry, they are to be put up as the others, and they will keep ever so long; but in all this time they are for the most part losing their virtues.

It may be prudent to preserve drugs brought from abroad a great while, because of their price; but as these cost only the trouble of gathering and preserving them, it is advisable that the whole shop be renewed every year; what is left of the old parcel of every kind, being thrown away as the fresh one is collected in its season.

The place for keeping these should be a dry room, neither damp nor hot; and they should now and then be looked at, to see that they are in order; that they do not grow mouldy or smell musty through damp, or become lighter, and lose their virtue by too much heat.

It may be proper just to mention, that the woods which we use are best kept in the block, and shaved off as they are wanted; for being kept in shavings, they lose their virtue: and in the same manner as to the foreign woods, it is best to keep a block of Sassafrass, and of Ligaum Vitæ, in the house, and cut them as they are wanted.

As to the excrescences, such as the galls of the Oak, and the burr upon the wild Briar, they are naturally so dry, that they only require to be exposed a few days to the air upon a table; and then they may be put up with safety, and will keep a long time.

Lastly, the Funguses, such as Jew's-ears, and the like, are to be gathered when they are full grown, and strung upon a line: they must dry leisurely, or else they spoil: they must be very well dried before they are put up, else they will grow mouldy in damp weather; and if once that happen, no art can recover their virtues.

Thus may a druggist's shop of a new kind be filled, and it will consist of as many articles as those which receive their furniture from abroad; and there will be this advantage in having every thing ready; that when custom has made the virtues of the several things familiar, any person may do from his judgment as the physician in his prescription—mix several things of like virtue together, and not depend upon the virtues of any one singly, when the case requires something of power. These roots and barks powdered, will make as handsome and as efficacious boluses and mixtures as any furnished by the apothecary.

Concerning the various Methods of preparing Simples for present Use.

THERE is no form of medicines sent from the apothecary, which may not be prepared from the herbs of our own growth, in the same manner as from foreign drugs. Electuaries may be made with the powders of these barks, roots, and seeds, with conserves of flowers, and of the tops of fresh herbs; and syrups, made from their juices and infusions; the manner of making which is very simple, and shall be subjoined to this chapter, that all may be understood before we enter on the book itself: and in the same manner their boluses may be made, which are only some of these powders mixed up with syrup: and their draughts and juleps, which are made from the distilled waters of these herbs, with spirit, or without these, syrups being added; and the tinctures of the roots and barks; the method of making which shall be also annexed in a familiar manner.

But beside these several forms of giving them, there are others much more simple, easy, and ready, and these are generally more efficacious. We shall arrange these under three kinds; juices, infusions, and decoctions. These are the forms of giving the medicines most frequently mentioned in the course of the work, and there is less trouble in them than in the others. They are not indeed contrived for show, nor would they answer the purpose of the apothecary, for his profits would be small upon them: but when the design is only to do good, they are the first to be chosen.

Juices are to be expressed from leaves or roots; and in order to this, they are to be first beaten in a mortar. There is no form whatever in which herbs have so much effect, and yet this is in a manner unknown in the common practice of physic. The juices are to be obtained in some plants from the entire herb, as in Watercresses, Brooklime, and others that have juicy stalks; in others the leaves are to be used, as in Nettles, and the like, where the stalk is dry, and yields nothing, but is troublesome in the preparation. When the juice of a root is to be had, it must be fresh taken up, and thoroughly beaten. A marble mortar and wooden pestle serve best for this purpose, for any thing of metal is improper; many plants would take a tincture from it, and the juice would be so impregnated with it, as to become a different medicine, and probably very improper in the case in which it was about to be given.

As these juices have sometimes an ill taste, and as some of them are apt to be cold upon the stomach, or otherwise to disagree with it, there are methods to be used to make them sit better upon it; and in some cases these increase their virtues.

When the thick juice, fresh drawn, is too coarse for the person's stomach, it may be suffered to settle and grow clear: a little sugar may be added also in beating the herb, and in many cases, as in those juices given for the scurvy, the juice of a Seville orange may be added, which will greatly improve the flavour.

To the roots it is often proper to add a little white wine in the bruising, and they will operate the better for it. Thus, for instance, the juice of the Flower-de-luce root will not stay upon many stomachs alone; but with a little white wine added in the bruising, all becomes easy, and its effects are not the less for the addition. The same addition may be made to some of the colder herbs; and if a little sugar, and, upon occasion, a few grains of powdered ginger, be added, there will be scarce any fear of the medicine disagreeing with the stomach, and its effects will be the same as if it had been bruised and pressed alone.

Infusions are naturally to be mentioned after the juices, for they are in many cases used to supply their place. Juices can only be obtained from fresh plants, and there are times of the year when the plants are not to be had in that state. Recourse is then to be had to the shop, instead of the field; the plant whose juice cannot be had, is there to be found dried and preserved; and if that has been done according to the preceding directions, it retains a great part of its virtues: in this case it is to be cut to pieces, and hot water being poured upon it, extracts so much of its qualities, as to stand in the place of the other. Often, indeed, the virtues are the same, in some plants they are greatest from the infusion; but then some others lose so much in drying, that an infusion scarce has any thing. But it is not only as a help in the place of the other, that this preparation is to be used, for infusions are very proper from many fresh herbs; and are of great virtue from many dry ones, of which, when fresh, the juice would have been worth little.

Infusions are the fittest forms for those herbs whose qualities are light, and whose virtue is easily extracted: in this case, hot water poured upon them takes up enough of their virtue, and none is lost in the operation; others require to be boiled in the water. From these are thus made what we call decoctions: and as these last would not give their virtues in infusion, so the others would lose it all in the boiling; it would go off with the vapour. We know very well, that the distilled water of any herb is only the vapour of the boiled herb caught by proper vessels, and condensed to water: therefore, whether it be caught or let to fly away, all that virtue must be lost in boiling. It is from this, that some plants are fit for decoctions, and some for infusions. There are some which, if distilled, give no virtue to the water; and those are fit for decoctions, which will retain all their virtue, as Bistort, and Tormentil roots, and the like. On the contrary, an infusion of Mint, or Pennyroyal, is of a strong taste, and excellent virtue; whereas a decoction of these herbs is disagreeable, or good for nothing.

There are herbs also, which have so little juice that it would be impossible to get it out; and others, whose virtue lies in the husks and buds, and this would be lost in the operation. An infusion of these is the right way of giving them. Thus, Mother of Thyme is a dry little herb, from which it would be hard to get any juice, and when gotten, it would possess very little of its virtues; but an infusion of Mother of Thyme possesses it entirely.

Infusions are of two kinds. They are either prepared in quantity, to be drank cold; or they are drank as they are made, in the manner of tea. This last method is the best; but people will not be prevailed upon to do it, unless the taste of the herb be agreeable; for the flavour is much stronger hot than it is cold.

Infusions in the manner of tea, are to be made just as tea, and drank with a little sugar; the others are to be made in this manner:—A stone jar is to be fitted with a close cover; the herb, whether fresh or dried, is to be cut to pieces; and when the jar has been scalded out with hot water, it is to be put in: boiling water is then to be poured upon it, and the top is to be fixed on: it is thus to stand four, five, or six hours, or a whole night, according to the nature of the ingredient, and then to be poured off clear.

It is impossible to direct the quantity in general for these infusions, because much more of some plants is required than of others: for the most part, three quarters of an ounce of a dried plant, or two ounces of the fresh gathered. The best rule is, to suit it to the patient's strength and palate. It is

intended not to be disagreeable, and to have as much virtue of the herb as is necessary: this is only to be known in each kind by trial; and the virtue may be heightened, as well as the flavour mended, by several additions. Of these, sugar and a little white wine are the most familiar, but lemon juice is often very serviceable, as we find in sage tea; and a few drops of oil of vitriol give colour and strength to tincture of roses. Salt of tartar makes many infusions stronger also than they would be, but it gives them a very disagreeable taste. It is therefore fit only for such as are to be taken at one draught, not for such as are to be swallowed in large quantities time after time.

Among the herbs that yield their virtues most commodiously by infusion, may be accounted many of those which are pectoral, and good in coughs, as Coltsfoot, Ground-ivy, and the like: the light and aromatic, good in nervous disorders, as Mother of Thyme, Balm, and the like: the bitter are also excellent in infusion, but very disagreeable in decoction; thus boiling water poured upon Roman Wormwood, Gentian root, and Orange peel, makes a very excellent bitter. It need only stand till the liquor is cold, and may then be poured off for use. It is often proper to add some purging ingredient to this bitter infusion; and a little fresh Polypody root excellently answers that purpose, without spoiling the taste of the medicine.

Several of the purging plants also do very well in infusion, as Purging Flax, and the like; and the fresh root of Polypody alone is a very good one: a little lemon-juice added to the last-named infusion does no harm; and it takes off what is disagreeable in the taste, in the same manner as it does from an infusion of Senna.

Thus we see what a great number of purposes may be answered by infusions, and they are the most familiar of all preparations. Nothing is required, but pouring some boiling water upon the plants fresh or dried, as already directed, and pouring it off again when cold.

Decoctions are contrived to answer the purpose of infusions, upon plants which are of so firm a texture, that they will not easily yield forth their useful parts. In these the ingredients are to be boiled in the water; as, in the others, the boiling water was to be poured over them. In general, leaves, flowers, and entire plants, whether fresh or dried, are used in infusions; the roots and barks in decoctions.

An earthen pipkin, with a close cover, is the best vessel for preparing these; for many of those medicines which are little suspected of it, will take a tincture from the metal; and it would be as improper to boil them in a copper pan, (as it is too common a custom,) as to beat the herbs and roots in a metal mortar.

Fresh roots are used in decoction, as well as those which are dried; and the barks and other ingredients in like manner. When the fresh are used, the roots are to be cut into thin slices, and the barks and woods should be shaved down; as to the leaves and entire plants, they need be cut but slightly. When dry ingredients are used, the roots and barks are best pounded to pieces; and as to the herbs and flowers, little is to be done to them, and in general, they are best added toward the end of the decoction.

It is always best to let the ingredients of a decoction stand in the water cold for twelve hours, before it is set on the fire, and then it should be heated gradually, and afterwards kept boiling gently as long as is necessary: and this is to be proportioned to the nature of the ingredients. Generally a quarter of an hour is sufficient, sometimes much longer is necessary. They are then to be strained off while they are hot, pressing them hard, and the liquor set by to cool: when they are thoroughly cold, they are to be poured off clear from the settlement, for they always become clear as they cool, and sweetened with a little sugar. Frequently also, it is proper to add to them a little white wine, as to the infusions.

Concerning distilled Waters, and other Preparations to be kept in the House.

That spirit is best which is called molasses spirit; it is to be bought at a small price at the distillers; and as to the sugar, the most ordinary loaf kind will do for most purposes; where other is necessary it will be particularly named.

Few families are without an alembic or still; and that will be of material service. With that instrument the simple waters are to be made, with no expense beside the fire; and it will be proper to keep those of the following ingredients.

Mint-water, Peppermint-water, and Pennyroyal-water, are to be made of the dry herbs. Three pounds of each are to be put into the still, with four gallons of water, and two gallons is to be distilled off. Milk-water is to be made thus: a pound and a half of Spear-mint, a pound of Rue, half a pound of Roman Wormwood, and half a pound of Angelica leaves, are to be put into the still with five gallons of water, and three gallons are to be distilled off. Common Mint-water is good in sicknesses of the stomach, Peppermint-water in colics, and Pennyroyal to promote the menses. Milk-water is good in fevers, and to make juleps. It used to be made with milk, but that answers no purpose. Only one simple water more need be kept, and that for colics; it is best made of Jamaica pepper: a pound of Jamaica Pepper is to be put into a still over night, with three gallons of water; and the next morning two gallons of water distilled off.

It has been customary to keep a great many simple waters, but these are all that are necessary or proper. The other herbs are better to be given in infusion and decoction.

As for cordial waters, they are made as the others, only with the addition of spirit. It may be proper to keep the following; and no more are necessary,

1. Cinnamon-water; which is made by putting into the still a pound of cinnamon, a gallon of spirit, and a gallon of water, and the next day distilling off a gallon. This is good in sickness at the stomach, and is a fine cordial.

2. Spirituous milk-water; made from a pound of Spear-mint, half a pound of Angelica, and a quarter of a pound of Roman Wormwood, all green: to these is to be put a gallon of spirit, and a gallon of water, and a gallon to be distilled off; to which is to be added a pint of vinegar; this is good to promote sweat, and is used instead of treacle-water, being better.

3. Strong Pennyroyal-water, (which is used instead of hysteric water in all hysteric cases, and to promote the menses) is made of a pound and a half of dry Pennyroyal, a gallon of spirit, and six quarts of water, drawing off a gallon.

4. Aniseed water, (which is good in the cholic,) is made with a pound of Aniseed, a pound of Angelica seed, and two gallons of spirit, with one gallon of water, distilling off two gallons.

No more of these are necessary: but it may be acceptable to add the making of Lavender water, spirit of Lavender, and Hungary water, which are preparations of the same kind, and very easy.

Lavender-water is made from a pound of fresh Lavender flowers, and a gallon of molasses spirit, with two quarts of water; five pints are to be distilled off. Hungary-water is made of a pound and half of Rosemary tops with the flowers,

a gallon of spirit, and a gallon of water, distilling off five pints: and to make the spirit of Lavender, or pulsy drops, mix three pints of Lavender-water, and one pint of Hungary-water, and add to this half an ounce of Cinnamon, the same quantity of Nutmegs, and three drachms of red Saunders-wood; these are to stand together till the spirit is well coloured.

This is all the family practitioner will need with distilling: a short account, but sufficient.

As for *Tinctures*, which are a great article with the apothecary and chemist, making a great show, and really very useful; I would have several of them kept, and they are as easily made as the waters, nay, more easily. Molasses spirit is all that is necessary for this purpose.

It would be well to keep tinctures of all roots and barks which are recommended to be dried in the course of this work, for a tincture will contain more or less of the virtue of every one of these, and be often convenient, where the powder or decoction could not be given. It is needless to enumerate these, and one rule of making serves for them all: two ounces of the ingredient is to be cut into thin slices, or bruised in a mortar, and put into a quart of spirit; it is to stand a fortnight in a place a little warm, and be often shook: at the end of this time, it is to be taken out, strained off, and made to pass through a funnel, lined with whitish brown paper, and put up with the name of the ingredient.

To these tinctures of roots, barks, and seeds, it would be well to add a few made of foreign ingredients. As,

1. The bitter tincture for the stomach, is made of two ounces of Gentian, an ounce of dried Orange peel, and half an ounce of Cardamom seeds, and a quart of spirit: or it may be made in white wine, allowing two quarts.

2. Tincture of Castor, good in hysteric complaints; and made with two ounces of Castor, and a quart of spirit.

3. Tincture of Bark, which will cure those who will not take the powder; made of four ounces of bark, and a quart of spirit.

4. Tincture of Soot, for fits; made with two ounces of wood-soot, one ounce of assafœtida, and a quart of spirit.

5. Tincture of Steel, for the stoppage of the menses; made of flowers of iron four ounces, and spirit a quart.

6. Tincture of Myrrh, good for curing the scurvy in the gums; made of three ounces of Myrrh, and a quart of spirit.

7. Tincture of Rhubarb; made of two ounces of Rhubarb, half an ounce of Cardamom seeds, and a quarter of an ounce of Saffron, with a quart of spirit.

8. Elixir Salutis; made of a pound of stoned Raisins, a pound of Senna, an ounce and a half of Carraway seeds, and half an ounce of cardamoms, in a gallon of spirit.

9. Elixir of Vitriol; made of six drachms of Cinnamon, three drachms of Cardamoms, two drachms of long pepper, and the same of ginger; and a quart of spirit: to a pint of this tincture strained clear off, is to be added four ounces of oil of vitriol: this is an excellent stomachic.

Lastly, to these it may be well to add the famous Friar's Balsam, which is made of three ounces of Benjamin, two ounces of strained Storax, one ounce of Balsam of Tolu, half an ounce of aloes, and a quart of spirit of wine, such as is burnt under lamps. This spirit may be made by putting a gallon of molasses spirit into the still, and drawing off two quarts, and this will be useful for spirit of wine and camphire, which is made by dissolving an ounce of camphire in a quart of the spirit. And what is called the Asthmatic Elixir, made with the flower of Benjamin and Opium, of each a drachm, Camphire two scruples, oil of Aniseed forty drops, Liquorice root half an ounce, honey one ounce, and a quart of spirit. This is a gentle opiate, and is much better in families than the strong laudanum.

As to the tinctures made with white wine instead of spirit, a few are sufficient. Steel wine is made of a quarter of a pound of filings of Iron, and half an ounce of Mace, and the same quantity of Cinnamon, put into two quarts of Rhenish. Hiera Picra is made of half a pound of Aloes, two ounces of Winter's bark, and five quarts of white wine. The first is a restorative cordial and strengthener: the latter is sufficiently known as a purge.—Laudanum is made of two ounces of Opium, a drachm of Cloves, and a drachm of Cinnamon, and a pint of wine.—Viper wine is made of two ounces of dried vipers, and two quarts of white wine: and the tincture of Ipecacuanha for a vomit, of two ounces of that root, half an ounce of dry Orange peel, and a quart of sack.—Lastly, what is called Elixir Proprietatis, is made of Aloes, Myrrh, and Saffron, of each an ounce, Sal Ammoniac six drachms, and Salt of Tartar eight ounces, in a quart of mountain wine.

These are all the tinctures and wines that need be kept in a family, whose charity is designed to be very extensive; the expense of the whole is a trifle not worth naming, and the trouble scarce any thing. Books are full of directions in particular for every tincture, as if every one were to be made a different way; but the best method is to give a good deal of time, and frequently shaking, and that will stand in the place of heat in most things of this kind: nevertheless, they should stand in a room where a fire is kept while they are making; and those which require heat, that is, those that take a colour most slowly, are to be placed nearest to it.

Easy as these are, they are by far the most difficult part of the task, the rest is at it were nothing. Conserves, syrups, and ointments will be wanting; but in the same manner one direction will serve for the making the whole assortment of each, and the ingredients will be at hand. As to plasters in general, they do more harm than good. Surgeons at this time make very little use of them; and in the course of this work, many herbs will be named, the bruised leaves of which are better than all the plasters in the world.

Conserves should be made of Rue, Mint, Scurvy Grass, Wood Sorrel, and Roman Wormwood. As to the four first, the leaves are to be picked off from the stalks, and beaten up with three times the weight of sugar. The tops of the young shoots of the latter are to be cut off, and they are to be beat up in the same manner. In the course of this work, many plants will be named, the green tops of which contain their virtue, these may all be made into conserves in the same manner, or as many of them added to those here named as shall be thought proper.

Conserves of the flowers of Rosemary, Mallows, Archangel, and Lavender, are to be made also in the same manner, and of Red-rose buds. These last are to be picked from the husk, and the white heels are to be cut of. They are all to be beat up with three times their weight of sugar; and in the same manner may be made conserves of Cowslip flowers, and of those of many other plants mentioned in the following pages.

The outer rind of Seville Oranges and Lemons, are also to be made into conserves in the same manner, beating them first to a pulp, and then adding the sugar; and to these must be added the conserve of Hips and Sloes, which are to be made in a particular manner. The Hips are to be gathered when fully ripe, afterwards set by in a cellar till they grow very soft; then they are to be laid upon the back of a large hair sieve, a dish being put underneath; they are to be broke with the hand or a wooden pestle, and rubbed about till all the soft matter is forced through the hair-cloth, the seeds and skins

only remaining. This soft matter is to be weighed, and to be beat up in a mortar with twice its weight of loaf sugar, first powdered. Sloes are to be gathered when they are moderately ripe, and they are to be set over the fire in water, till they swell and are softened, but not till the skin bursts; they are then to be laid upon a sieve, and the soft matter driven through, as in the other case; and three times the quantity of sugar is to be mixed with this, that it may make a conserve by beating together.

Syrups are to be made of many ingredients: they may be made indeed of any infusion, with sugar added to it in a due quantity; and the way to add this, so that the syrups shall keep and not candy, is to proportion the sugar to the liquor very exactly. One rule will serve for all this matter, and save a great deal of repetition. The liquor, of which a syrup is to be made, may be the juice of some herb or fruit, or a decoction, or an infusion; whichever it be, let it stand till quite clear; then, to every wine pint of it, add a pound and three quarters of loaf sugar, first beat to powder; put the sugar and the liquor together into an earthen pan that will go into a large saucepan; put water in the saucepan, and set it over the fire. Let the pan stand in it till the sugar is perfectly melted, scumming it all the time; then, as soon as it is cold, it may be put up for use, and will keep all the year round.

This being set down as the general method of making the liquor into a syrup, the rest of the descriptions of them will be easy. They are to be made in this manner: For syrup of Cloves, weigh three pounds of Clove, July-flowers picked from the husks, and with the white heels cut off; pour upon them five pints of boiling water. Let them stand all night, and in the morning pour off the clear liquor, and make it into a syrup, as directed above: in the same manner are to be made the syrups of Violets and Red Poppies: but less of the Violet flowers will do, and more of the Poppies may be added: thus, also, are to be made the syrups of Damask Roses, Peach-blossoms, Cowslip-flowers, and many others which will be recommended for that purpose in this book.

Syrup of Buckthorn is to be made by boiling the juice down to half its quantity, with a little cinnamon, ginger, and nutmeg, and then adding the sugar.

The Syrups of Lemon juice, Mulberries, and the like, are to be made with a pound and half of sugar to every pint of the clear juice, which is to be melted, as in the former manner.

Syrup of Garlic, Leeks, Orange-peel, Lemon-peel, Mint, and many other things, are to be made of strong infusions of those ingredients, made as before directed, with the first-mentioned quantity of sugar added, when they have stood to settle.

Syrup of Marshmallows, and of Poppy heads, and some others, are to be made in the same manner with the strongest decoctions that can possibly be made from those ingredients, with the same quantity of sugar as is first mentioned.

Syrup of Balsam is made by boiling a quarter of a pound of Balsam of Tolu, in a pint and half of water, in a close vessel, and then making the water into a syrup, with the usual quantity of sugar: and thus may be made syrups of any of the balsams.

Syrup of Saffron is made of a strong tincture of Saffron in wine. An ounce of Saffron being put to a pint of mountain, and this, when strained off, is to be made into a syrup with the usual quantity of sugar.

At one time it was a custom to keep a quantity of syrups of a particular kind under the name of honeys. They were made with honey instead of sugar, and some of them, which had vinegar in the composition, were called oxymels. A few of the first kind, and very few, are worth keeping, and two or three of the latter, for they have very particular virtues. The way of making them is much the same with that of making syrups; but, to be exact, it may be proper just to give some instances of it.

Honey of Roses is the most useful, and is to be made of an infusion of the flowers and honey in this manner. Cut the white heels from some red-rose buds, and lay them to dry in a place where there is a draught of air; when they are dried, put half a pound of them into a stone jar, and pour on them three pints of boiling water; stir them well, and let them stand twelve hours; then press off the liquor, and when it has settled, add to it five pounds of honey, boil it well, and when it is of the consistence of a thick syrup, put it by for use. It is good against sore mouths, and on many other occasions. In the same manner may be made the honey of any flower; or with the juice of any plant thus mixed with honey, and boiled down, may be made what is called the honey of that plant.

As to the oxymels, they are also made in a very uniform manner. The following are so useful, that it will be proper always to keep them in readiness.—For Oxymel of Garlic, put half a pint of vinegar into an earthen pipkin, boil it in a quarter of an ounce of Carraway seeds, and the same quantity of sweet Fennel seeds, at last add an ounce and a half of fresh Garlic root sliced; then let it boil a minute or two longer, then cover it up to stand till cold, then press out the liquor, and add ten ounces of honey, and boil it to a consistence.

For Vinegar of Squills, put into a pint of vinegar three ounces of dried Squills; let it stand two days in a gentle heat, then press out the vinegar, and when it has stood to settle, add a pound and half of honey, and boil it to a consistence. Both these are excellent in asthmas.

To these also should be added, the common simple oxymel, which is made of a pint of vinegar, and two pounds of honey boiled together to the consistence of a syrup.

Finally, as to *Ointments*, nothing can be so easy as the making them of the common herbs; and the expense is only so much hog's lard. The lard is to be melted, and the fresh-gathered leaves of the herb are to be chopped to pieces, and thrown into it: they are to be boiled till the leaves begin to feel crisp, and then the lard is to be strained off. It will be green, and will have the virtues of the herb, and must be called ointment of such an herb.

To these we shall add, the way to make two or three more, which, though not the produce of English herbs, are very useful, and no family should be without them.

1. The white ointment, called Unguentum: this is made by melting together four ounces of white wax, and three ounces of spermaceti, in a pint of salad oil, and adding, if it be desired, three ounces of ceness, and a drachm and half of camphire; but it is better, for all common purposes, without these.

2. Yellow Basilicon; which is made by melting together yellow wax, resin and burgundy pitch, of each half a pound, in a pint of oil of olives, and adding three ounces of turpentine.

3. Black Basilicon; which is made by melting together, in a pint of olive oil, yellow wax, resin, and pitch, of each nine ounces.

4. The Mercurial Ointment, which is thus made: rub together, in an iron mortar, a pound of quicksilver, and an ounce of turpentine; when they are well mixed, add four pounds of hog's-lard melted, and mix all thoroughly together. The Ointment of Tutty is prepared with levigated tutty, and as much viper's fat as will make it into a soft ointment: these

are only to be mixed together upon a marble, by working them with a thin knife. This is for disorders of the eyes; the foregoing for the itch, and other complaints, but it must be used cautiously; and those before named, for old sores.

Of the same nature with the ointments, are, in some degree, the *Oils* made by infusion of herbs and flowers in common oil. These are also very easily prepared, and an instance or two will serve to explain the making of them all.

1. The most regarded among these is the Oil of St. John's-wort, and that is thus made: pick clean a quarter of a pound of the flowers of Common St. John's-wort, pour upon them a quart of olive oil, and let them stand together till the oil is of a reddish colour.

2. Oil of Elder is made of a pound of Elder flowers, which are to be put into a quart of olive oil, and boiled till they are crisp, and the oil is to be then strained off.

3. What is called the Green Oil, is thus made: bruise in a marble mortar three ounces of green Camomile, with the same quantity of Bay leaves, Sea-wormwood, Rue, and Sweet Marjoram; then boil them in a quart of oil of olives, till they are a little crisp. The oil is then to be poured off, and when cold, put up for use.

These oils are used to rub the limbs when there is pain and swellings; their virtues will be found at large, under the several herbs which are the principal ingredients: and after one or other of these methods, may be made the oil by infusion, or by boiling of any plant, or of any number of plants, of like virtue.

Lastly though herbs are now left out of the composition of *Plaisters*, even the melilot being now made without the herb from which it was first named, it may be proper to add the way of preparing a few that are most useful, and ought to be kept in families.

1. The common plaister is thus made; boil together a gallon of oil, five pounds of powdered litharge, and a quart and four ounces of water. When the water is boiled away, the rest will be united into a plaister, but it must be stirred all the time: this used to be called diachylon. To make diachylon with the gums, add to a pound of the last described, two ounces of galbanum, and an ounce of common turpentine, and the same quantity of frankincense. Melt them all together, the gums first, and then add the plaister.

2. For a strengthening plaister; melt two pounds of the common plaister, and add to it half a pound of frankincense, and three ounces of dragon's blood.

3. For a drawing plaister; melt together yellow wax and yellow resin, of each three pounds, and a pound of mutton suet. This is used, instead of the old melilot plaister, to dress blisters; and the blister plaister itself is made of it, only by adding half a pint of vinegar, and a pound of Spanish flies in powder, to two pounds of it, just as it begins to cool from melting. The quicksilver plaister is thus made: rub three ounces of quicksilver, with a drachm of balsam of sulphur, till it no longer appears in globules, then pour in a pound of the common plaister melted, and mix them well together.

A few recipes for making *waters* without distillation, are added, which being cheap and very serviceable, ought not to be omitted.

1. Lime-water; this is made by pouring gradually six quarts of water upon a pound of quick lime; when it has stood to be clear, it must be poured off. If a pound of Lignum-vitæ wood, an ounce of Liquorice root, and half an ounce of Sassafras bark, be added to three quarts of lime-water, it is compound lime-water, and is excellent in foulnesses of the blood.

2. The blue eye-water; this is made by putting a drachm of sal ammoniac into a pint of lime-water, and letting it stand in a brass vessel, till it is of a sky-blue colour.

3. Alum-water is made by boiling half an ounce of white vitriol, and the same quantity of alum, in a quart of water, till they are dissolved.

Thus have we described all the drugs and compositions, that need be kept for family use, or to relieve the neighbouring poor in their greatest of all distresses, that of sickness. The diseases for which these remedies are to be used, will be found enumerated at large under the several heads of the principal ingredients as described in the succeeding pages. It only remains to say a few words about the manner of putting these things most conveniently together, and we then shall have prepared for all that follows.

Concerning the best Methods of putting Medicines together for present taking.

In the first place, although these several forms of syrups, conserves, and the like, have been named as what will be sometimes necessary; the great practice in the country will lie in the infusions and decoctions of the fresh plants and roots.

The strength of these infusions and decoctions is to be proportioned to the taste: for as they are made to be swallowed in quantities, if they be made so strong as to be very disagreeable, that end will be defeated: they may be rendered more pleasant by sweetening them with sugar, about an ounce of which is to be allowed to a quart; and occasionally a little white wine, or a small quantity of some of the cordial waters, may be added to them. The dose of either decoction or infusion, will be in general about half a pint, except where they are intended to purge or vomit; there they must be more carefully and exactly proportioned to the strength, than can be told in this general manner.

Of the simple waters, about a quarter of a pint is a dose; and of the cordial waters, less than half that quantity. These may be occasionally given alone; but they are mostly intended for mixing with other ingredients.

The tinctures are to be given in drops, from ten to an hundred, according to their strength and nature; but to name a general dose it is about five and twenty drops. These, however, will be also more serviceable in mixtures, than singly.

Of the purging tinctures in wine, and the elixir salutis, three, four, or more spoonfuls, is the dose.

It would be well to keep tinctures of many of the roots recommended in nervous cases, as cordials, astringents, and of many other kinds; and also to keep powders of these roots in readiness: and thus the common forms of medicines, as sent from apothecaries, will be very easy.

For julep, six ounces of one of the simple waters, two ounces of one of the compound waters, or those made with spirit, two drachms of a syrup, and fifty drops of a tincture, make a very agreeable one. Thus, for an hysteric julep, let the simple water be Pennyroyal, the strong water the strong Pennyroyal, the syrup that of Saffron, and the tincture of Castor; and it is a very pleasant julep: and so on all the rest. If a pearl cordial be desired, it is only mixing the simple and strong waters without syrup or tincture and adding two drachms of sugar, and half a drachm levigated oyster-shells.

Draughts are only little juleps, with more powerful ingredients added to them. An ounce and half of a simple water, three drachms of a strong water, one drachm of a syrup, and forty drops of a tincture, make a draught; but to these may be added a simple of some power, to increase the virtue. What waters, tinctures, syrups, or powders, shall be used, will be determined from the case itself.

Boluses are made with these powders in a certain dose. A scruple, or half a drachm, is made into a sort of paste with syrup. The common custom is to cover it with a little leaf-gold, but this is better let alone: some use leaf-brass, which is very pernicious.

Electuaries are to be made of powders, conserves, and syrups; they differ from boluses in this, as well as in the size, that the dose is smaller, although the piece taken be as large; which is owing to the conserve, that having in general little virtue in comparison of the other ingredients. This is the form most convenient for medicines that are to be taken for a continuance of time, and the dose of which needs not be so very punctually regarded.

Thus, for an electuary against an habitual looseness, when it exceeds the proper bounds; mix together an ounce of conserve of Red Roses, and six drachms of syrup of Cloves; add to these, two drachms of powdered Bistort root, one drachm of powdered Tormentil, and half a drachm of toasted Rhubarb. This makes an electuary, a piece of which, of the bigness of a nutmeg, taken once in two days, will check the abundance of stools, without stopping the customary looseness entirely: it will also be a pleasant medicine. If a draught of tincture of Roses be taken after this, it will increase the power.

In this manner any person may supply the place of the apothecary, to those who could not afford such assistance: and experience is so good a guide, that they will be able in most cases to save the expense of the doctor also; with very little danger of doing harm. The Galenical physic, perhaps, will be found effectual in many more cases, by those who stick to it solely, than they are aware who do not use it: as to the mischief of medicine, that is almost entirely chemical. It would be idle to say that chemical medicines do not do great good; but they require to be in skilful hands: when the ignorant employ them, death is more likely to be the consequence, than relief from the disorder any other way.

One useful observation may serve well to close this Introduction. Opiums, and medicines of that kind, to compose persons to rest and to take off pain, will be often necessary; but as they are the most powerful medicines the family practitioner will have to do with, they are the most capable of doing harm: the greatest care will therefore be required in the right use of them.

As there are three different preparations described in this book for answering this purpose, beside the opium, and that solution of it in wine which is called laudanum; these two latter should be used very seldom. A syrup made of the juice of the wild Lettuce, is an excellent medicine; the syrup of Diacodium, which is made of a strong decoction of Poppy heads, is a little stronger than this; and if something more powerful than these is required, there is the Asthmatic Elixir. One or other of these may almost on every occasion serve the purpose; and it is almost impossible that the use of them should be attended with danger. Let opium or laudanum therefore be very rarely used; perhaps it might be well to say, not used at all; for the others will be able in almost all cases, if not universally to answer the purpose.

Concerning the Virtues of Plants which have not yet been tried.

The number of English plants, whose virtues are ascertained, scarcely exceeds one thousand, while the catalogue of those which are natives of our own country, as published by Mr. Ray, amounts to many thousands: great numbers therefore remain yet untried, and present an ample field for our researches.

To what purpose can a man devote the hours of his leisure better, than to the discovering, among the number of the unregarded, virtues which may farther supply the catalogue of our own remedies, and make the roots and seeds brought from remote countries less necessary? What encouragement to the attempt, that there are such multitudes of objects for the trial! and that the discovering but one remedy among them all, for a disease we knew not how so well to cure before, is a source of more true honour, than can be derived from all the useless knowledge in the world.

If any suppose the trial dangerous, they mislead themselves; and to encourage so laudable an undertaking, let it be observed, how little is the hazard, and how considerable the advantages, from what we know already.

If a man were to be turned loose upon an island where no person had set foot before, he might dread to taste of any plant he saw, because he might not know but every one he saw was fatal: and supposing him to have got over this fear, the ignorance of the virtues of all would keep him backward: but this is not at all the case with him who shall at this time set about inquiring into the virtues of plants in England. The poisonous plants, native of our soil, are hardly a dozen, and these are charactered even to the eye, by something singular or dismal in the aspect. They are well known, and he has nothing to do but to avoid them. For the rest, he has so many, whose uses and qualities are already perfectly known, that he has a great foundation to go upon in the search, because he can compare those he does not know with them. Their tastes will go a great way toward informing him: but this is not all; their very outward figures will direct him; for in general those plants which agree in the external aspect, agree likewise in their virtues.

To give an instance in the Marshmallow. It is known to work by urine, and to be good against the gravel. We will suppose no more known concerning this kind. A person desirous of extending this useful knowledge, finds that by the taste of the root, which is insipid, and its mucilaginous quality, he might have guessed this to be its virtue, from what he before knew of medicine. The next plant he meets, we will suppose is the common Mallow, and afterwards the little white-flowered Mallow, which lies upon the ground; he tastes the roots of these, and he finds they are like the other: he will therefore guess that they have the same virtues, and upon trial he will find it is so.

But this is not all: if he had examined the flower of the Marshmallow, in what manner it was constructed, and how the little threads grew within it, he would have found that the flowers of these other two Mallows were, in all respects, like those of the other; and farther, he would have found, that the seeds of these two kinds were in the same manner disposed in circular bodies: from this, he might, without tasting their roots, have been led to guess that their virtues were the same: or having guessed so much from this, he might have been thence led to taste them, and by that have been confirmed in it: but he might be carried farther; he would find the same sort of round clusters of seeds in the Hollyhock in his garden; and upon examining

the single flowers, he would see they were also alike: and hence he would discover that it was of this kind; and he would rightly judge that the Hollyhock also possessed the same virtues.

There is this great use in examining other plants which have the same sort of flowers and fruits with those which we know to have virtues, that we may in this way discover plants at home, to supply the place of those we have from other countries. It is certain the sun in warmer climates does ripen the juices of vegetables faster than in ours, but yet we find the plants of the same kind, from whatever part of the world they come, to possess nearly the same kind of virtues; generally indeed they are the same, only differing in degree. Thus all the Mallows of Spain and Italy, to bring the trial to the before-named instance, possess the same virtues with the Marshmallow, Mallow, and Hollyhock of England; and the case is the same with those which are truly Mallows of the East and West Indies; though this does not hold good with respect to some of the plants of those countries which have been brought hither under that name. Thus the Senega Rattle-snake root, which was once much in use amongst us, has been discovered to belong to a kind of Milkwort, or Polygala. The roots of the common Milkwort of our pastures being tried have been found to possess the same virtues, though in a less degree. This plant would not have been regarded, if the other had not been found to be of the same kind; but to that we owe the knowledge of its virtues.

There is this great reason for seeking in our own climate, plants of the same nature, form, and kind, with those which in other countries, afford us remedies—that they are generally of the same kind, and may be fitter for our constitutions; for as it has been before observed, the productions of each respective country, are always best suited to supply the wants of its inhabitants both for food and medicine: and it is certain, that as the sun ripens the juices of plants in hotter countries to more virtue than with us, so it makes men's constitutions more able to bear their effects.

The Chinese will swallow such doses as would poison one of us. This we know in many instances, and it ought to encourage us in the present research: because, if the same doses which agree with them are too much for us, we may also find that other medicines of our own growth, and of the same kind of virtues, though in a less degree, may also be found to agree better with our constitutions. Therefore, notwithstanding that it may be necessary in some cases, and convenient in many, for us to have drugs from abroad, yet in general it will be better for us to be cured by those herbs we may find at home; and they will be found upon trial more sufficient for that purpose than we at present imagine. The means are at hand, but we have made very little use of them, proportioned to their number and their value.

The observation already made, that the external form of plants may very well give the hint for a conjecture about their virtues, is much more general than might be imagined. Almost all the plants of the same kinds are of the same virtues. But that is not all; for, in general, those of the same class possess the same qualities, though different in degree: and this is a great help to him who shall set out upon the generous and useful plan of adding to the number of the useful plants. It is also singular, that what might appear objections in this case, being brought to the trial, will often be found confirmations of the truth there is in the observation.

Thus, suppose a man, observing that Lettuce is eatable, should inquire into all the plants like Lettuce, which are those that have flowers composed of many parts, and have the seeds winged with a white downy matter, to find whether they were eatable: let us examine how he would succeed. The plants of this class native of England, are the Sowthistle, the Hawkweeds, the Dandelions, Goats-beards, Succory, and Endive, all eatables. The Hawkweeds are less agreeable in the taste, but wholesome; and as to the wild Lettuces, those who would bring the opiate quality of the principal of them as an objection, strengthen the observation, for the garden Lettuce also has an opiate quality. This wild one possesses it in a greater degree, but still in such a degree, that it is an excellent medicine, not at all dangerous. Its bitter taste would prevent people's eating it, for it is disagreeable; but its virtues are the same with those of Lettuce, only greater. There are some kinds of Hawkweed also, which have a bitter milky juice, altogether like that of this Lettuce; and they also have the same opiate quality.

This general observation may be carried a great deal farther. In general, the seeds of umbelliferous plants, that is, those which have little flowers in rounded clusters, each succeeded by two seeds, are good against colics; those of Carraway, Anise, Cummin, Coriander, and all of that kind, are produced by plants of this figure. In the same manner the verticillate plants, as they are called, that is, those which have the flowers surrounding the stalks, as in Mint and Thyme, are of a warm nature; and however they differ in degree and circumstance, they have the same general virtues. Farther, such plants as are insipid to the taste and smell, have generally little virtues; and, on the contrary, those which have the most fragrant smell and sharpest taste, have the greatest virtues, of whatever kind.

In general also, those plants which have a strong but an agreeable taste, are most worthy to be examined with respect to their virtues; for they are generally the most valuable: and, on the contrary, when a very strong taste is also a very disagreeable one; or, in the same manner, when the strong smell of a plant has also something heavy, disagreeable, and overpowering in it: there is mischief in the herb, rather than any useful quality. The poisonous plants of this country are very few; but they are for the most part characterized after this manner: so that they are known as it were at sight, or by the first offer of a trial.

Instructions

FOR FINDING ANY PLANT, KNOWN OR UNKNOWN,

IN THE FOLLOWING WORK.

WHEN you have the English name of the Plant, or the Linnean name of the Genus to which it belongs, it will only be necessary to refer to it in the alphabetical order of the Dictionary;—but if you should meet with a Flower or Plant to which you are an entire stranger, you must first determine its Class and Order, according to the Rules already laid down in the preceding Introduction; (see page 6.) *and having found them, inspect the Table of Orders and Genera at the end of this Work, observing to which Genus of its Order your Plant belongs. When this is done, you must refer to the description of the Genus by the alphabetical arrangement of the body of the Work; and if that Genus contain only one Species, that is the Plant in question; but if it contain many Species, particular attention must be paid to the circumstances which distinguish these Species; and when you have ascertained to which Section of the Genus (if it be divided into Sections) your Plant belongs, and that Section only includes one Species, which is often the case, you have found the Plant; but if each Section includes several Species, very close attention must be paid to the characteristics of each, as they are in general extremely minute, depending principally upon the shape of the leaves and the roots.*

THE

UNIVERSAL HERBAL;

OR,

BOTANICAL, MEDICAL, AND AGRICULTURAL

DICTIONARY.

VOL. I.

ABEL-Tree, or *Abelc-Tree*. See *Populus*.

Abies; the Fir-tree. See *Pinus*.

Abroma; a genus of the class Polyadelphia, order Dodecandria.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets spear-shaped, acute, spreading, permanent, *Corolla:* petals five, larger than the calix; claws obovate, arched, concave, obtuse, hairy at the end, erect, inserted at the base into the nectary; borders oval, obtuse, spreading, ciliate, contracted at the base into very short, ciliate, recurved, small claws, upon which the principal claws are placed. Nectary, short, small, pitcher-shaped, divided into five segments, which are obcordate, hairy, erect, recurved and arched, alternate with the claws of the petals. *Stamina:* filamenta five, membranaceous, very small, growing on the nectary between the segments, emarginate-trifid; antheræ on each filament three, twin, kidney-form. *Pistil:* germen almost cylindrical; styles five, awl-shaped, approximating; stigmas acute. *Pericarp:* capsule egg-shaped, membranaceous, veined, five-winged, five-beaked, five-celled, gaping at top into five parts between the beaks; partitions folded. *Seeds:* very many, nearly egg-shaped, with an oblique seed-coat, fixed in a double row to the central edge of the partitions, which is thickened, and longitudinally bearded. *Receptacle of the seeds:* none. ESSENTIAL CHARACTER. *Pistils:* five. *Capsule:* five-celled, one-valved, gaping at top. *Seeds:* subovate, incompletely arilled.——This genus contains the following species:—

1. Abroma Augusta; *Maple-leaved Abroma*, with leaves heart-shaped or angular, sharply serrulate. A tree with a straight trunk, yielding a gum when cut, and filled with a white pith like the elder.—It is a native of New South Wales and the Philippine Islands; and was introduced into England about 1770. It is propagated by cuttings, but requires a strong heat, and abundance of water. The seeds will not easily ripen with us, and can seldom be obtained in a state fit for vegetation.

2. Abroma Wheleri; *Wheler's Abroma*. Its leaves are spear egg-shaped, sharp-pointed, and slightly toothed. A shrub—native of the East Indies. It is unknown in Europe.

Abrus; a genus of the class Diadelphia, order Decandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed, bell-shaped, obscurely four-lobed; teeth blunt, the upper one broadest. *Corolla:* papilionaceous; banner roundish, entire, ascending, flatted at the sides, longer than the wings and keel; wings oblong, blunt; keel oblong, sickle-shaped, gibbous, longer than the wings. *Stamina:* filamenta nine, united into a sheath, cloven above, free at the end, unequal, rising; antheræ oblong, erect. *Pistil:* germen cylindrical, hairy; style subulate, rising shorter than the stamina; stigma in the form of a head, and small. *Pericarp:* legume like a rhomb, compressed, coriaceous, double-valved, four or five celled, sharp-pointed, with a little awl-shaped deflexed claw. *Seeds:* solitary, and nearly globular.—ESSENTIAL CHARACTER. *Calix:* obscurely four-lobed; the upper lobe broadest. *Filamenta:* nine, united into a sheath at bottom, gaping at the back. *Stigma:* blunt. *Seeds:* subglobose.——There is but one species.

1. Abrus Precatorius, or *Jamaica Wild Liquorice*, which is indigenous in the East and West Indies, Guinea, and Egypt. The seeds of this plant are commonly strung, and worn as ornaments by the natives of those countries. Linneus says they are extremely deleterious, although they are eaten in Egypt: however, authors agree that they are the hardest and most indigestible of all the pulse tribe, producing violent flatulencies in the bowels.—This plant may be propagated by seeds which have been soaked twelve or fourteen hours in water, before they are sown, which must be in a good hot-bed in the spring. If sown without soaking, they frequently lie a whole year without vegetating, but will appear in a fortnight, if the seed be good and well soaked, and the bed in a proper temperature of heat. When the plants are two inches high, they should be transplanted each into a separate pot, filled with light earth. They flower in the second year, and sometimes ripen their seeds in England.

Acæna, a thorn; a genus of the class Tetrandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth four-leaved; leaflets ovate, concave, equal, permanent. *Corolla:* none, unless the calix be termed one. *Stamina:* filamenta

equal, of middle length, opposite the calix; *antheræ* four-cornered, twin, erect. *Pistil:* germen inferior, obovate, bristled; style very small, bent in on one side; stigma a small, many-cleft, thickish, coloured membrane. *Pericarp:* a dry, obovate, one-celled berry, beset with thorns bent backwards. *Seed:* single. ESSENTIAL CHARACTER. *Calix:* four-leaved. *Corolla:* four-petalled. Berry dry, inferior. one-seeded, with spines bent backwards.——The only species in this genus is the Acæna elongata, a Mexican plant.

Acalypha; a genus of the class Monœcia, order Monadelphia.—GENERIC CHARACTER. *Male* flowers crowded above the *Females. Calix:* perianth three or four leaved; leaflets roundish, concave, and equal. *Corolla:* none. *Stamina:* filamenta eight to sixteen, short, crowded, connected at the base; antheræ roundish. *Female* flowers fewer, below the others, received into a large undivided involucre. *Calix:* perianth three-leaved; leaflets subovate, concave, converging, small, permanent. *Corolla:* wanting. *Pistil:* germen roundish; styles three, branching, usually three-parted, long; stigmas simple. *Pericarp:* capsule roundish, three-furrowed, three-celled; the valves gaping two ways. *Seeds:* solitary, roundish, very large. ESSENTIAL CHARACTER. *Male. Calix:* three or four leaved; no *Corolla;* from eight to sixteen stamina. *Female. Calix:* three leaved; no *Corolla;* three styles. *Capsule:* three-grained, three-celled. *Seed:* one.——The species are as follows:

1. Acalypha Virginica; *Virginian Acalypha:* with female involucres, heart-shaped, gashed; leaves ovate-lanceolate, longer than the foot-stalk.—It grows naturally in Virginia, and other parts of North America, and even in Ceylon. It is an annual plant, seldom above a foot high, and in its leaves much resembles Pellitory. All the culture it requires, is to keep it free from weeds, and to let it remain where sown, as it does not bear removing well. It flowers in August, and the seeds ripen in October.

2. Acalypha Virgata; *Jamaica Acalypha:* has female spikes with heart-shaped involucres, serrate; males distinct, naked; leaves spear egg-shaped.—It is a native of the warmest countries, and grows plentifully in Jamaica: it is an annual plant, which seldom exceeds a foot high in England. The leaves are very like those of the annual Nettle, and will sting as much when touched. It will not thrive in the open air in this country, but must be sown in pots, and plunged into hot-beds.

3. Acalypha Indica; *Indian Acalypha.* Female involucres heart-shaped, and slightly notched; leaves ovate, shorter than the petiole.—It grows about three feet high; and was discovered in great plenty at Vera Cruz. It inhabits marshy places; but is found upon dunghills in the East Indies: it is an annual plant, which flowers in July.

4. Acalypha Villosa; *Villous Acalypha,* Female involucres very small, toothed, and extremely villose; spikes elongate; leaves ovate, pointed, serrate, longer than the foot-stalk.—Grows in the woods of Carthegena.

5. Acalypha Australis; *South American Acalypha.* Female involucres quite entire; leaves lanceolate-obtuse.—It is a native of South America.

6. Acalypha Hernandifolia. Female spikes very long; involucres cordate, serrate; males distinct, naked; leaves subcordate, serrate, on very long petioles.—It is a native of the West Indies.

7. Acalypha Corensis. Female flowers terminating, distinct; involucres three-leaved; males, spikes axillary, involucred; leaves ovate serrate.—Grows in the West Indies.

8. Acalypha Lævigata. Female spikes with many-parted involucres; male spikes lax, naked; leaves wedge-ovate, acuminate, serrulate, very smooth.—It is found in the West Indies.

9. Acalypha Elliptica. Female spikes with involucres shorter than the germs, ovate-toothed, hirsute; males naked, lax; leaves elliptic, acuminate-toothed.—It is a native of the West Indes.

10. Acalypha Reptans. Spikes terminating, erect; flowers mixed; females lower; involucres cordate, serrate; males leafless; leaves ovate, serrate; stem creeping.—Grows in Hispaniola and Jamaica.

11. Acalypha Tomentosa. Female spikes terminating, solitary; involucres many-parted; males in spikes; leaves ovate-lanceolate, serrate, scabrous, villous, tomentose underneath.—It is a native of the West Indies.

12. Acalypha Angustifolia. Female flowers subsessile, terminating; involucres serrate; males in spikes; leaves linear, serrate.—Found in the West Indies.

13. Acalypha Scabrosa. Female spikes with cordate gashed involucres; leaves oblong-lanceolate, serrate, scabrous.—It is a native of the West Indies.

14. Acalypha Betulæfolia. Female flowers axillary, sessile; involucres cordate, crenate; males in spikes; leaves roundish, crenate, smooth.—Native of the West Indies.

These plants having neither use nor beauty to recommend them, they are preserved in botanic gardens for the sake of variety.

Acanthus; a genus of the class Didynamia, order Angiospermia.—GENERIC CHARACTER. *Calix:* perianth with leaflets in three alternate pairs, unequal, permanent. *Corolla:* one-petalled, unequal; tube very short, closed with a beard; upper lip none, under lip very large, flat, straight, very broad, three-lobed, obtuse, the length of the upper lip of the calix. *Stamina:* filamenta four, subulate, shorter than the corolla, the two upper rather longer, recurved, incurved at the top; antheræ oblong, compressed, obtuse, the lateral ones parallel, villous before. *Pistil:* germen conical; style filiform, length of the stamina; stigmas two, acute, lateral. *Pericarp:* capsule subovate with a point, two-celled, two-valved, with a contrary partition; claws alternate, curved, fastened to the partition. *Seed:* ovate, gibbous, single; sometimes two. ESSENTIAL CHARACTER. *Calix:* two-leaved, bifid. *Corolla:* one-lipped, bent down, trifid. *Capsule:* two-celled.——The species of this genius are,

1. Acanthus Mollis; *Smooth Acanthus, Brank Ursine,* or *Bear's Breech.* Its leaves are sinuate and unarmed. The flowers are white. This species is used in medicine, under the name *Branca Ursina.* Wherever it abounds, it is used for the same purposes as the Althæa, or the Marshmallow. The roots and leaves abound with a soft slippery mucilage, which is readily extracted, either by boiling, or infusing them in water; and is of singular efficacy in tickling coughs, catarrhs, defluxions on the lungs, hoarseness, erosions of the bowels, and the strangury, and for lubricating the urinary passages, in nephritic and calculous disorders. It may be propagated either by seeds, or by parting the roots. The seeds should be sown towards the end of March, and if the season be favourable, they will appear in May; they only require to be kept six inches asunder, and free from weeds, till autumn, when they should be transplanted whither they are intended to remain. They take deep root, and when once established in a garden, are hard to eradicate. It requires a warm situation. It is said that the leaves of this species of the Acanthus, found accidentally growing round a basket covered with a tile, gave occasion to Callimachus to invent the Corinthian capital.—It is a native of Naples, Sicily, Provence, and the Archipelago.

2. Acanthus Carduifolius; *Thistle-leaved Acanthus.* Leaves sinuous-toothed, thorny; spike of flowers radical.—This was found at the Cape of Good Hope: respecting its culture and propagation, see the preceding species.

3. Acanthus Spinosus; *Prickly Acanthus.* Leaves pinnatifid, thorny.—It grows wild in Italy and Provence, and flowers from July to September. It requires the same treatment in cultivation as the two preceding species.

4. Acanthus Dioscoridis; *Acanthus of Dioscorides.* Leaves lanceolate, quite entire, and thorny on the margin.—According to Rauwolff, this species, which Linneus supposed to be the genuine species of Dioscorides, grows naturally on mount Lebanon in the East.

5. Acanthus Ilicifolius; *Holly-leaved Acanthus.* Leaves repand, tooth-thorny; stem shrubby, prickly. It is an evergreen, rising about four feet high, very like the common Holly, and armed with spines in the same manner.—Native of the East and West Indies, and of some of the islands in the South Seas. It is too tender to thrive without a stove in England, and can only be propagated by seeds, which do not ripen in Europe.

6. Acanthus Integrifolius; *Entire-leaved Acanthus.* Leaves oblong, entire; stem herbaceous, procumbent.—It is a native of the Cape.

7. Acanthus Procumbens; *Procumbent Acanthus.* Leaves oblong, serrate, and ciliate; stem procumbent, shrubby.—Native of the Cape.

8. Acanthus Furcatus; *Forked Acanthus.* Leaves oblong, tooth-thorny; stem shrubby; bractes terminated by a three-forked thorn.—Native of the Cape.

9. Acanthus Capensis; *Cape Acanthus.* Leaves oblong, toothed, thorny; stem shrubby, erect; bractes terminated by a simple thorn.—Native of the Cape.

10. Acanthus Maderaspatensis; *Madras Acanthus.* Leaves four-fold; flowers axillary; calices ciliate, with an herbaceous dichotomous stem.—It is a native of the East Indies; and will not thrive in England without a stove.

Acer; a genus of the class Polygamia, order Monœcia. —Generic Character. *Hermaphrodite Flowers. Calix:* perianth one-leafed, five-cleft, acute, coloured, flat and entire at the base, permanent. *Corolla:* petals five, ovate, broader outward, obtuse, scarcely larger than the calix, spreading. *Stamina:* filamenta eight, subulate, short; antheræ simple; pollen cruciform. *Pistil:* germen compressed immersed in a convex, perforated, large receptacle; style filiform, advancing in height daily; stigmas two (or three), pointed, slender, reflex. *Pericarp:* capsules two or three, growing together at the base, roundish, compressed, each terminated by a very large membranous wing. *Seeds:* solitary, roundish. N. B. The male flowers are the same with the hermaphrodites, except that they have neither germen nor style, but only a bifid stigma. Essential Character. *Calix:* five-cleft. *Corolla:* five-petalled. *Stamina:* eight (or ten;) *Germina:* two (or three,) superior. *Style:* simple. *Capsules:* two, sometimes three, with one seed in each, terminated by a wing. *Males:* without germen or style.—This genus consists of hardy deciduous trees, easily propagated by sowing their seeds soon after they are ripe, in a bed of common earth, covering them half an inch thick with light mould. In the spring they will appear above ground, and if kept clear from weeds, and watered in dry weather, some of the sorts will grow above a foot high the first summer. The autumn or spring following, if they are close in the seed-bed, it will be proper to transplant them into a nursery, in rows at three feet distance, and two feet asunder in the rows. They may remain there three or four years, in which time they will become large enough to plant out for continuance.——The species are,

1. Acer Sempervirens; *Evergreen Maple.* Leaves ovate, quite entire, evergreen, this is thought to be a variety of the Cretan Maple: see the seventeenth species.

2. Acer Tataricum; *Tartarian Maple.* Leaves heart-shaped, undivided, serrate; lobes obscure; flowers in racemes. —It is a native of Southern Russia, by the Tanais, Volga, &c. The wood is whitish, but with some brownish veins. The seeds, boiled with mild and butter, are used as astringents by the Calmuc Tartars. It is very difficult to raise in England.

3. Acer Pseudoplatanus; *Great Maple*, or *Sycamore.* Leaves five-lobed, unequally serrate; flowers in racemes. This tree grows wild in mountainous situations, in Switzerland, Austria, Germany, and Italy. In England it is vulgarly called the *Sycamore*, and sometimes the *Mock Plane-tree*, and in Scotland it is termed the *Plane-tree.* It was formerly much used for planting walks and avenues, and is excellent for plantations near the sea, or for sheltering other trees from the spray, which they resist with less injury than most trees. In pastures, also, they are least injurious to the grass. The wood was once much in request for trenchers, being very white and soft. It is still used by turners for bowls, dishes, &c. by saddlers for saddle-trees; and is recommended for cart and plough timber, being light and tough, though inferior to Ash. It is a quick-growing wood, thriving wonderfully on warm, sound, rich land, rising so as to make excellent walks and shady bowers; useful for inward building, where better timber is wanting; and for firing, when wood grows scarce; hence it is generally reckoned proper for underwood, because it shoots fast from the stool, and makes good fuel. In spring and autumn this species will pour forth from the wounded stem abundance of saccharine juice, in the same manner as the Birch; from which Mr. Ray, on the authority of Dr. Martin Lister, says that a good wine may be made.

4. Acer Rubrum; *Scarlet-flowering Maple.* Leaves five-lobed, slightly toothed, glaucous underneath; peduncles very simple and aggregate. Of this tree there are two varieties in nurseries. 1. The Virginian Scarlet-flowering Maple. 2. Sir Charles Wager's Flowering Maple. With us it is propagated for the sake of the scarlet flowers which appear in the spring. In Pennsylvania, where it grows in the swamps, the natives use it for almost all sorts of wood-work; with the bark they dye a dark blue, and make a good black ink. The Canadians tap the tree, and make sugar and treacle from the juice.

5. Acer Saccharinum; *American Sugar Maple.* Leaves five-parted, palmate, point-toothed, pubescent. These trees grow forty feet high. In North America, they tap the trees early in the spring, and make a very good sort of sugar in large quantities by boiling the juice. Large tracts of that country are covered with this tree, which yields a sugar equal to the best cane, and in great quantities, with no other labour than what women and girls can bestow, in drawing off and boiling the liquor. Dr. Rush assures us, that this tree is so far from being injured by the tapping, that it has flourished after forty-two annual operations; it is therefore concluded, by judicious persons, that the inhabitants of that country can, not only supply their own demands, but even make sugar for exportation. In all sugar plantations, it will be necessary to cut out the different sorts of timber which grow intermixed with the Maple-tree, and even such of that species as are not thriving trees. The timber so cut will serve as fuel for the boilers, and leave openings for the rays of the sun to enter which improve and enrich the sap. The season for tapping is in February, March, and April, according to the weather. Warm days and frosty nights are the most favourable to a plen-

tiful discharge of the sap. The perforation is made with an axe or an augur, but the latter is preferred. The augur is introduced about three quarters of an inch in an ascending direction; and is afterwards deepened gradually to the extent of two inches. A spout is introduced about half an inch, and projects from three to twelve inches; it is generally made of the Sumach or Elder. The tree is first tapped on the south side, and afterwards on the north side; and the sap flows from four to six weeks, according to the temperature of the weather. Troughs large enough to contain three or four gallons are placed under the spout to receive the sap, which is taken every day to a large receiver, from whence it is conveyed to the boiler, after having been strained.

6. Acer Dissectum; *Cut-leaved Maple.* Leaves many-parted, palmate; the divisions sub-pinnatifid and serrate.—It was found by Thunberg in Japan. It flowers in May.

7. Acer Japonicum; *Japanese Maple.* Leaves many-parted, gashed, and villous; flowers sub-umbelled.—It flowers in April and May; and is a native of Japan.

8. Acer Palmatum; *Hand-leaved Maple.* Leaves palmate serrate, smooth; flowers in umbels.—It flowers in May; and was discovered by Thunberg in Japan.

9. Acer Septemlobum; *Seven-lobed Maple.* Leaves seven-lobed, smooth; lobes pointed, regularly and sharply serrate.—This species also was seen by Thunberg in Japan.

10. Acer Pictum; *Painted Maple.* Leaves seven-lobed, smooth; lobes pointed, entire.—It was found by Thunberg, in Japan.

11. Acer Platanoides; *Norway Maple.* Leaves five-lobed pointed, sharply toothed, smooth; flowers in corymbs. This treee grows to a large size. Hanbury says, it is quick of growth, arrives at great bulk, and is one of the best trees for sheltering habitations. Linneus recommends it for walks and plantations; as yielding a juice from which sugar may be made, if it be wounded in the winter; and as cutting out into a white smooth wood, fit for the stocks of guns, and for the joiner and turner. Dr. Hunter observes, that as it is a quick grower, arrives at a great bulk, and answers all the purposes of the Sycamore, the raising it for use, as well as ornament and variety, should not be neglected.—Norway Maple is found on the mountains in the north of Europe, in Germany, Switzerland, Stiria, Carniola, and Savoy.

12. Acer Montanum; *Mountain Maple.* Leaves slightly five-lobed, acute, serrate; racemes compound; calices hairy.—It is a native of North America.

13. Acer Pennsylvanicum; *Pennsylvanian Maple.* Leaves three-lobed, acuminate, sharply double-serrate; racemes simple; calices smooth. It is a small tree, which in some situations may be considered rather as a shrub.—It is a native of Pennsylvania, Virginia, and Canada. The thickness of the shade, the beauty of the bark, and the tree not being liable to insects, would make it desirable for plantations, were it not for the litter occasioned by the abundance of the leaves and fruit which it produces, and its being subject to be torn by storms. It delights in a firm dry mould.

14. Acer Campestre; *Common* or *Small Maple.* This species is chiefly seen in hedgerows and coppices. Its timber is far superior to that of the Beech, for all the uses of the turner, particularly dishes, cups, trenchers, and bowls; and when it abounds in knots, as it very frequently does, it is highly esteemed by the joiners for inlaying, &c. The wood is often used by musical instrument makers for its lightness; for gun stocks, on account of its hardness; and it was formerly in great request for tables, on account of its whiteness. This tree will flourish in very coarse land.

15. Acer Opalus; *Italian Maple.* Leaves roundish, five-lobed, loosely serrate; capsules ovate, smooth, almost upright.—This tree was first discovered at the foot of the Alps, and afterwards in abundance near Pissevache in the valley of Trient; and near Olon: it is common in many parts of Italy, particularly near Rome and Viterbo. It acquires a considerable stature, and as its leaves are large, and afford a great shade, it is frequently planted on the road side and near habitations, for which purposes it well deserves the attention of ornamental planters, especially as although it be seldom seen in England, it is nevertheless hardy enough to bear the open air of our climate.

16. Acer Monspessulanum; *Montpelier Maple.* Leaves three-lobed, very entire, smooth, annual. Its leaves resemble the Common Maple, but are of a much thicker substance, smaller, and of a shining green colour. They retain their verdure very late in autumn, which renders this tree more valuable, although it is not common in England.—It abounds in the south of France and in Italy.

17. Acer Creticum; *Cretan Maple.* Leaves three-lobed, very entire, pubescent, perennial. This tree resembles the Montpelier Maple, and attains to the same height. Its leaves are distinguished by a thinner texture, and their footstalks are covered with a soft hairy down. When well sheltered, they continue green most part of the year.—It is a native of the Levant.

18. Acer Trifidum; *Trifid-leaved Maple.* Leaves undivided and trifid, without indentations on the edge. It is of inferior growth, seldom attaining to more than between twenty and thirty feet.

19. Acer Negundo; *Virginian Ash-leaved Maple.* Leaves compound; flowers racemed. Three and four pistilla have been observed in the female flower; no corolla, and four or five stamina, in the males. This is a strong-shooting tree, of quick growth, and in Virginia and Carolina is one of the largest trees of this kind. Its leaves fall soon in autumn, and when planted, it must not be exposed to violent winds as it is subject to sprit. The wood is used for the same purposes as the Sycamore and Norway Maple, but it is soft and brittle. The tree grows to the height of forty feet and upwards, and is fit for large plantations.

20. Acer Pinnatum; *Wing-leaved Maple.* Leaves pinnate; leaflets oblong, quite entire.—This is a native of the woods of Cochin-China. It is a middling-sized tree, with spreading branches, white flowers, and a very hard wood.

Achania; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth double. Outer many-leaved; leaflets linear, permanent, slightly coalescing at the base. Inner one-leafed, subcylindric, streaked half way, five-cleft, permanent. *Corolla:* almost club-shaped convoluted; petals five, obovate-oblong, erect, with a lobe at the base on one side, involving the column of stamina. *Stamina:* filamenta numerous, coalescing into a writhed tube, longer than the corolla, free at top, capillary; antheræ oblong. *Pistilla;* germen subglobular; style filiform, the same length with the tube of the stamina, ten-cleft at the top, the segments spreading; stigmas headed. *Pericarp:* berry subglobular, fleshy, five-celled. *Seeds:* solitary, convex on the one side, angular on the other. Essential Character. *Calix:* double; outer many-leaved. *Corolla:* convolute. *Berry:* five seeded.——Plants of this genus are generally propagated by cuttings; because the seeds do not often ripen here. These are placed in pots of light earth, and plunged into a gentle hot-bed, where, if the air be kept from them, they soon take root, and may afterwards be gradually inured to the open air. When placed abroad, they seldom succeed well even in sheltered situations. It requires a moderate stove to preserve

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

T. Smith sculp.

38

them during the winter; and unless kept warm in summer they will not flower, much less ripen fruit.——The species are,

1. Achania Malvaviscus; *Scarlet Achania*, or *Bastard Hibiscus*. Leaves somewhat scabrous, acuminate; leaflets of the outer calix erect.—It flowers most part of the year; and is a native of Mexico and Jamaica.

2. Achania Mollis; *Woolly Achania*. Leaves tomentose; leaflets of the outer calix spreading.—A native of South America, and the West India Islands.

3. Achania Pilosa; *Hairy Achania*. Leaves hairy, obtuse, and acute. The flowers are small, and the corolla closed.—It is a native of Jamaica.

Achillea; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common, ovate, imbricate; scales ovate, acute, converging. *Corolla:* compound radiate; corollets hermaphrodite, tubular, in the disk. Females ligulate, five to ten in the ray. Proper of the hermaphrodite, funnel-shaped, five-cleft, spreading. Female obcordate, spreading, trifid; the middle cleft less than the others. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindrical, tubular. *Pistil:* in the hermaphrodites; germen small; style filiform, the length of the stamina; stigma obtuse, emarginate. In the females, germen small; style filiform, the length of the stamina; stigmas two, obtuse, reflex. *Pericarp:* none. *Calix:* scarcely changed; receptacle filiform, elongate, as the disk of the seeds, ovate, twice the length of the calix. *Seeds:* solitary, ovate, furnished with flocks, but having no down. *Receptacle:* chaffy, elevated; chaffs lanceolate, the length of the florets. Essential Character. *Calix:* ovate, imbricate. *Florets* of the ray, about four. *Down:* none. *Receptacle:* chaffy. Every species of this genus may be propagated by parting the roots either in spring or autumn. Many of them ripen their seeds, and may therefore be increased that way, by sowing them in March or April, and transplanting them at Michaelmas. They will flower the summer following. Some also will grow from slips or cuttings, planted in a shady border in summer. They are in general hardy, and need little care in the cultivation. Those commonly seen in gardens are, the purple variety of Common Milfoil, the double variety of common Sneezewort, called Double Ptarmica, and Woolly Milfoil. Whatever merit the Alpine sorts may possess as medicines, it cannot answer to cultivate them with that view in gardens, for they owe their efficacy to their peculiar situation: but they who are desirous of having them for variety, will find that they are very hardy, and will thrive almost in any soil, but that they love an open exposure.——The species are,

* *With yellow Corollas.*

1. Achillea Santolina; *Lavender-Cotton-leaved Milfoil*. Leaves bristle-shaped, toothed; toothlets nearly entire, subulate, reflex. The leaves of this plant are like those of Lavender-cotton, which, when rubbed, emit a strong oily odour.—It flowers in June and July; and is an inhabitant of the Levant.

2. Achillea Ageratum; *Sweet Milfoil*, or *Maudlin*. Leaves lanceolate, obtuse, sharply serrate.—This plant is a native of Italy, and Spain, by the road sides. It was brought into England in 1570, but being now seldom used in medicine, it is not cultivated in the gardens for sale; or if asked for, the market people give the *thirteenth* species of this genus, which is a hardier plant, and more easily propagated: for though the Sweet Maudlin will bear cold well, yet wet winters often kill the roots in good ground; although when the plants grow out of the joints of a wall, or in rubbish, they will live many years without care. It has a sweet smell, a bitter taste, and is aromatic. Linnæus calls it obsolete and superfluous. Allione recommends it in all disorders of the nerves, and prefers it before Tansy. Culpeper commends it as a *diuretic*, and says that the seeds, as well as an infusion of the flowers in white wine, are excellent for the worms in children, when given in *two ounces per dose*. Meyrick and Hill agree that "the whole plant has a pleasant smell, and may be used either fresh or dried, but is most efficacious in its recent state." A strong infusion of it, taken for a length of time, is good in obstructions of the liver, and considerably increases the discharge by urine.

3. Achillea Falcata; *Sickle-leaved Milfoil*. Leaves linear, toothed, obtuse, flat; toothlets crenate.—This species is a native of the East, and is there used in medicine.

4. Achillea Tomentosa; *Woolly Milfoil*. Leaves pinnate, hirsute; pinnas linear, toothed. This plant is about a foot high, its whole flower is of a fine yellow colour, with a pleasant aromatic smell. It is often planted in gardens for the sake of variety, as the flowers retain their beauty for a long time.—It grows naturally in Spain, the south of France, the Valais, and Italy; but bears the open air very well in England.

5. Achillea Pubescens; *Downy Milfoil*. Leaves pinnate; leaflets lanceolate, gash-serrate, wool-bearing beneath.—This plant is a native of the Levant. It has no chaffs to the receptacle, and in that respect differs from the generic character. This and the following species are easily propagated and cultivated both by roots and seeds: they are sufficiently hardy to endure the open air, and when intermixed with other plants, form a pleasing diversity by their hoary leaves; and as their flowers are of long continuance, they produce an agreeable contrast, though not remarkable for beauty in themselves.

6. Achillea Abrotanifolia; *Southernwood-leaved Milfoil*. Leaves pinnate, super-decompound; divisions linear, distant.—It is a native of the Levant, and flowers in June and July.

7. Achillea Bipinnata; *Bipinnate Milfoil*. Leaves bipinnate, tomentose; leaflets ovate, entire.—Native of the Levant.

8. Achillea Ægyptiaca; *Egyptian Milfoil*. Leaves pinnate; leaflets obtusely lanceolate, serrate-toothed.—This plant, which is also a native of the Levant, rises from nine inches to a foot in height. It has finely-cut silvery leaves, which remain all the year; and the plant growing close and low, makes a pretty appearance at all seasons. The flowers are produced in corymbs on the top of the stalks, and appear from June to September, and some of them frequently continue the greatest part of the winter. It rarely perfects seeds in England, and is therefore propagated by slips. In a dry soil and a warm situation, it will endure the cold of our ordinary winters in the open air; but being often destroyed in very severe frosts, a few plants ought to be sheltered under a frame.

** *Corollas white in the ray.*

9. Achillea Macrophylla; *Feverfew-leaved Milfoil*. Leaves pinnate; pinnas gash-serrate, the outmost larger, and connected. It has many stalks which rise near three feet high, with loose branching corymbs of white flowers, like those of the common Sneezewort, which they also resemble in smell, but are much pleasanter.—It is a native of the Alps, very hardy, thrives in almost any soil, but loves an open exposure; flowers in July and August, and deserves a place in gardens.

10. Achillea Impatiens; *Impatient Milfoil*. Leaves pinnate; pinnas distant, linear lanceolate, acute from the base upwards.—This species is frequent throughout Siberia.

11. Achillea Clavennæ; *Silver-leaved Milfoil*. Leaves jagged, flat, obtuse, tomentose. This plant scarcely rises six inches in height; its flowers are white, and grow in flat corymbs, and appear in June and July. The leaves are

very hoary, something like those of the common Wormwood, growing close to the ground, and decaying in autumn.—It is a native of the Alps of Switzerland, Austria, Pannonia, and Carinthia. As it never perfects its seeds in England, it is propagated by slips; which should be planted in a dry soil, because much wet in winter will cause it to rot.

12. Achillea Ptarmica; *Sneezewort Milfoil.* Leaves lanceolate, acuminate, finely serrate. It is found wild in all the temperate parts of Europe, and in England in meadows, by the sides of ditches, on the balks of corn-fields, in moist woods and shady places. It grows two feet high, has daisy-like flowers, and narrow dentated leaves, from the form of which it is sometimes called *Goose-tongue.* The roots have a biting acrid taste, and so likewise have the young leaves; these, powdered, and snuffed up the nose, excite sneezing, and are excellent in inveterate head-aches. A piece of the dried root held in the mouth soon fills it with rheum, and removes the tooth-ache, in the same manner as Pellitory of Spain. The young tops are pleasant in the spring, when they are eaten as a salad, and reckoned wholesome. In Siberia a *decoction* of the *whole herb* is said to be used with success in internal hemorrhages. When planted in pots so as to confine the roots from creeping, the stalks will grow closer together, and then it makes a tolerable appearance when flowering, which takes place in July and August.

13. Achillea Alpina; *Alpine Milfoil.* Leaves lanceolate, tooth-serrate, toothlets very finely serrate. It is very nearly allied to the preceding species, which it somewhat resembles, but it has longer leaves, more deeply cut on their edges, and of a darker green.—It is very hardy, and a native of Switzerland, Savoy, and Siberia.

14. Achillea Serrata; *Notch-leaved Milfoil.* Leaves linear-lanceolate, sessile, tomentose, deeply serrate, jagged at the base.—The flowers resemble those of Sneezewort: they appear in August and September.

15. Achillea Cristata; *Slender-branched Milfoil.* Leaves linear, serrate; serratures transverse crested; stem branched, weak.—It is a native of the East; and flowers here in July and August.

16. Achillea Atrata; *Camomile-leaved,* or *Black Milfoil.* Pinnules comb-like, almost entire; peduncles villous.—This plant is found on the mountains of Switzerland, the Valais, and Austria. It was introduced by Drs. Pitcairn and Fothergill in 1774, but will not admit of cultivation, nor can be reconciled to a garden, whatever pains you take with it.

17. Achillea Moschata; *Musk Milfoil,* or *Swiss Genipi.* Leaves pinnate, dotted; pinnas remote, linear subulate, almost entire, rays the length of the calix. This can only be distinguished from the preceding species by its aromatic smell. It is the true *Genipi* of the Swiss, though called *Genipi bâtard* in Savoy. This plant promises to be of essential efficacy in disorders arising from a debility of the solids; it is an excellent sudorific, though hot, and frequently injurious in the pleurisy when the fever is high; and it is also a grateful food to all sorts of cattle. Hill says, "the seed is the only part used, and that very rarely." It is said to be good against the head-ache, but we seldom meet with it fresh enough to have any virtue.—It is found wild in Switzerland, on the high Alps, and in Savoy, Piedmont, and Austria.

18. Achillea Nana; *Dwarf Milfoil.* Leaves pinnate, toothed, extremely hirsute; flowers glomerate-umbelled. It is a very small plant, and has a fainter smell than the preceding species, for which it is often sold.—It grows on the high Alps of Switzerland, the Valais, and Savoy; and Allione observes, that the higher and colder the situation in which it is found, the thicker is the *tomentum* or flock which covers it. It is hardy, will thrive with us in almost any soil, and deserves a place in gardens.

19. Achillea Magna; *Great Milfoil,* or *Yarrow.* Leaves bipinnate, rather hairy, the divisions linear and toothed; earlets decussated.—It is a native of Italy, hardy, and requires little culture.

20. Achillea Millefolium; *Common Milfoil,* or *Yarrow.* Leaves bipinnate-naked; divisions linear-toothed; stems furrowed towards the top. This plant has been generally execrated as a noxous weed in pastures: sheep, however, are found to eat it; and Anderson has even recommended it for cultivation. It is frequently found in our meadows, pastures, and by road-sides; flowering in June, and the following summer months, until September. It creeps greatly by its roots, and multiplies by seeds, so that it is a troublesome weed in gardens. There is a variety with purple flowers, which are apt to lose their colour by cultivation. The whole plant is used fresh-gathered, but the best part is the tops of the shoots; these are to be boiled in water, and the decoction sweetened with fine sugar: though generally neglected, it is an excellent medicine in the overflowing of the menses, bloody fluxes, and bleeding of the piles. It increases the urinary discharges, and removes ulcers of the kidneys or urethra. Sir John Hill says, "the best way of taking it, is in strong decoctions of the whole plant." Linneus recommends the bruised herb fresh, as an excellent vulnerary and styptic, and many foreign physicians still esteem it in hemorrhages. An ointment is made of it for the piles, and it is reckoned good against the scab in sheep. An essential oil is extracted from the flowers, but the plant is excluded from the present medical practice.

21. Achillea Nobilis; *Noble Milfoil.* Leaves bipinnate; the lower one naked, flat; the upper obtuse, tomentose; the flowers in convex and very crowded corymbs. This strongly resembles the Common Milfoil, but its leaves are not so long or so much cut, they have a pale green colour, and a strong sweet scent when bruised. This scent, as well as its other qualities, are stronger than those of the preceding species.—It is a native of Italy, Germany, Switzerland, Narbonne, and Tartary.

22. Achillea Odorata; *Scented Milfoil.* Leaves bipinnate, oval, almost naked; corymbs fastigiate, crowded.—Its stem is scarcely a palm in height: it is a native of Spain, Narbonne, Switzerland, &c.

23. Achillea Cretica; *Cretan Milfoil.* Leaves linear; pinnas roundish, imbricate backwards; stem tomentose.—It is, as its name imports, a native of the island of Crete.

24. Achillea Squarrosa; *Rough-headed Milfoil.* Leaves lanceolate-linear, pinnatifid; pinnas ovate, wedge-shaped, gash acuminate, vertical; stem somewhat villose.—It was introduced into England in the year 1755.

25. Achillea Herbarota; *Herbarota Milfoil.* Leaves wedge-shaped, entire, toothed at the top. The whole plant is green, and has a strong smell, like Maudlin. It is in general esteem among the peasants of the Alps, and is recommended as a sudorific, against worms, flatulencies, and intermittent fevers.

26. Achillea Ligustica; *Marjoram-scented Milfoil.* Leaves pinnate; pinnas sharply-toothed, flat, smooth.—The stems are eighteen inches high, the leaves rather thick and juicy; and, like the preceding species, it has a very strong smell, like Maudlin.

27. Achillea Tanacetifolia; *Tansy-leaved Milfoil.* Leaves pinnate; pinnas laciniate, flat, gashed, and entire: the stem of this plant is eighteen inches high. It is a native of the Grisons, and not uncommon in the pastures and valleys of the Alps.

Achras; a genus of the class Hexandria, order Monogynia. —Generic Character. *Calix:* perianth six-leaved; leaflets ovate, concave, erect; outer broader, shorter; inner coloured. *Corolla:* one petalled, ovate, of the same height with the calix: border cut into six subovate flat divisions; scales at the jaw of the corolla equal in length to the divisions, narrower, spreading, emarginate. *Stamina:* filamenta short, awl-shaped, at the jaws of the corolla, alternate with the divisions, bent inwards; antheræ sharp. *Pistil:* germen roundish, flatted; style awl-shaped, longer than the corolla; stigma obtuse. *Pericarp:* a globose very succulent pome, with twelve cells. *Seeds:* solitary, ovate, shining, scarred on one side, and pointed at the base. Essential Character. *Calix:* six-leaved. *Corolla:* ovate, sexfid, with six scales alternate, more within. *Pome:* ten-celled. *Seeds:* solitary, with a scar on the edge, and a tail or a process at the top.—The trees of this genus are natives of very warm countries, and cannot be preserved in England unless they are placed in the warmest stoves, and managed with great care.——The species are,

1. Achras Mammosa; *Mammee Sapota.* This has a sixth part less in the parts of fructification than the other species of this genus. It is also called *nippled* Sapota, or American Marmalade; it grows in America, to the height of thirty-five or forty feet, having a straight trunk covered with an ash-coloured bark. The flowers are cream-coloured, and are succeeded by large oval or top-shaped fruit, covered with a brownish skin, under which is a thick pulp of a russet-colour, very luscious, called natural marmalade, from its resemblance to marmalade of quinces. This tree is commonly planted in gardens for the fruit, in Jamaica, Barbadoes, Cuba, and most of the West India islands. It is esteemed one of the best timber trees in Jamaica. The bark of this and the following species is called *Cortex Jamaicensis,* or Jamaica bark. It is an excellent astringent, but very different from the Jesuits' bark, for which it was mistaken, and given to the negroes, with very ill effect, and has been also tried in England. There is a wild Mammee, which bears a fruit of no value; but the tree is straight, tall, and tough, and therefore principally used for masts.

2. Achras Sapota; *Common Sapota.* Flowers solitary; leaves lanceolate-ovate. A large, tall, straight tree, without knots or branches for sixty or seventy feet or more. The fruit is bigger than a quince, round, and covered with a thick grey rind: it tastes and smells well: the flesh is yellow as a carrot, with two large rough stones, each bigger than an almond, in the middle; the kernels of which are bitter, and may be used in strengthening emulsions. This tree is larger and taller than the preceding species.

3. Achras Dissecta; *Cloven-flowered Sapota.* Flowers crowded; corollas cloven into eight parts; leaves obovate, bluntly notched at the end. This is a lofty tree, with a thick upright trunk. The flowers are white; and all its herbaceous parts milky. In Malabar it is cultivated for the fruit, which is succulent, and of a sweetish acid flavour. The leaves bruised, and boiled with the root of Curcuma and the leaves of ginger, are used for catapalsms to tumors.—It is supposed to be a native of the Philippine Islands, and also to grow in China; Forster found it flowering in September upon the island of Tongatabu.

4. Achras Salicifolia; *Willow-leaved Sapota.* Flowers crowded; leaves lanceolate-ovate, acuminate.—This species is called the White Bully-tree, or Galimeta-wood, in Jamaica, where it grows to a considerable height, commonly straight and tapering, and most frequently found in the lower lands. The wood is pale yellow, and reckoned good timber, but is mostly used in such parts of the building as are least exposed to the weather.

Achyranthes; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth, outer three-leaved, lanceolate, acute, permanent; inner five-leaved, permanent. *Corolla:* none; nectary of five valves, surrounding the germen, bearded at the top, concave, caducous. *Stamina:* filamenta filiform, the length of the corolla; antheræ ovate, incumbent. *Pistil:* germen superior, turbinate; style filiform, the length of the stamina; stigma bifid, villose. *Pericarp:* capsule roundish, one-celled, not gaping. *Seed:* single, oblong. Essential Character. *Calix:* five-leaved. *Corolla:* none. *Stigma:* bifid. *Seeds:* solitary. —These plants have not much beauty to recommend them; they are preserved in botanic gardens, and the greater number must be placed in a stove, to preserve them through the winter.——The species are,

1. Achyranthes Aspera; *Rough Achyranthes.* Stem shrubby, erect; calices reflex, pressed to the spike.—It is found in Sicily, Malabar, Ceylon, Jamaica, and almost every where within the tropics. It has been long known in England, and may be raised on a hot-bed from the seeds; and when the plants have acquired strength, they may be removed into the full ground, where the flowers will appear in July, and the fruit ripen in September. If kept in pots, set into a warm green-house in winter, they will live two or three years.

2. Achyranthes Lappacea; *Burry Achyranthes.* Stem shrubby, diffused, prostrate; spikes interrupted; lateral flowers having a bundle of hooked bristles on each side.—It is a lofty plant, native of Malabar and Ceylon.

3. Achyranthes Muricata; *Prickly Achyranthes.* Stem shrubby, patulous; leaves alternate; flowers in remote ovate spikes; calices squarrose.—It is a native of India.

4. Achyranthes Patula; *Spreading Achyranthes.* Stem shrubby, patulous, pubescent; flowers in orbicular spikes, hedgehog-hooked. This plant is three feet high. In a state of sleep, the opposite leaves are bent down under the branch, and approximate to the under surface.—Native of the East Indies.

5. Achyranthes Alternifolia; *Alternate-leaved Achyranthes.* Stem herbaceous, erect; flowers in subglobular burrs. The flowers have two stigmas; the germen is globose; and the style purple. Native of the East Indies.

6. Achyranthes Corymbosa; *Corymbed Achyranthes.* Leaves fourfold, linear; panicle dichotomous, corymbed. This herb is a foot in height; its stem is round and jointed. —A native of Ceylon.

7. Achyranthes Dichotoma; *Dichotomous Achyranthes.* Stems suffruticose; leaves opposite, linear, flat, acute; cyme dichotomous.—It resembles the preceding species; and is a native of Virginia.

8. Achyranthes Prostrata; *Prostrate Achyranthes.* Stems prostrate, shrubby; spikes oblong; floscules in pairs, with a hooked fascicle on each side. The stems of this species are often creeping.—It is a native of India.

9. Achyranthes Nivea; *White,* or *Snowy Achyranthes.* Leaves verticillated, ovate, tomentose; corymbs compact, dichotomous; flowers corolled.—This species, which will live in a green-house, was introduced into England in 1780, from the Canary Islands. It flowers from May to July.

10. Achyranthes Altissima; *Tall Achyranthes.* Stem suffruticose, scandent; panicles terminating and axillary, branched. The stalks of this species climb up trees to the height of twenty feet. Browne calls it Bastard Hoop-withe. It is common among low bushes about Spanish Town and Kingston in Jamaica, and in the woods of St. Domingo.

11. Achyranthes Polygonoides; *Many-cornered Achy-*

ranthes. Stem decumbent, four-cornered; leaves ovate-cordate; spikes lax, short. The stems are frequently eighteen inches high.—It is a native of Arabia.

Acia; a genus of the class Monadelphia, order Dodecandria.—Generic Character. *Calix:* perianth one-leafed, turbinate, curved; border five-parted; parts roundish, spreading; the uppermost and two lowest larger; the two middle ones smaller. *Corolla:* petals five, oblong, rounded; the three upper longer, ascending; the two lower shorter. *Stamina:* filamenta twelve, unequal, uniting at the bottom in a linear fleshy membrane, inserted into the calix between the two smaller petals; antheræ roundish, small. *Pistil:* germen ovate, above the base adhering by the membrane of the stamina, to a rib internally prominent from the bottom of the calix: style filiform, curved; stigma acute. *Pericarp:* drupe ovate, fibrous, chincked, large. *Seed:* nut, ovate, with a brittle shell. Essential Character. *Calix:* five-parted. *Corolla:* five petalled, unequal. *Drupe:* full of chinks.——The only known species is,

1. Acia Guianensis; the *Guiana Acia.* A tree with a trunk sixty feet in height, and three or four feet in diameter, covered with a smooth gray bark. The fruit is of the size of a walnut, covered with a thick, woody, fibrous, coriaceous skin, of a brown colour, cracking irregularly, and adhering to the stone, which is thin, and easily breaks. It encloses a large kernel of an irregular form, dividing into two parts. The Creoles at Cayenne eat it when brought to market in August; they reckon it good fruit, and extract an oil as sweet as that of almonds from it: they call the tree *Coupi.* The wood is hard and heavy, of a white colour inclining to yellow.

Acidoton; a genus of the class Monœcia, order Polyandria.—Generic Character. *Male flowers. Calix:* perianth five-leaved; leaflets ovate-lanceolate, reflex. *Corolla:* none. *Stamina:* filamenta numerous, thirty-five to forty, placed on a globular receptacle; the outer shorter, the inner longer; antheræ cordate-ovate, upright, small. *Females on the same or a different tree. Calix:* perianth six-leaved: leaflets linear-lanceolate, spreading. *Corolla:* none. *Pistil:* germen three-cornered; style short, acute, thick, trifid at the top; stigmas tomentose, reflex. *Pericarp:* capsule three-grained, hirsute, three-celled. *Seeds:* solitary, ovate. Essential Character. *Male. Calix:* five-leaved. *Corolla:* none. *Stamina:* fixed to a globular receptacle. *Female. Calix:* six-leaved. *Corolla:* none. *Style:* trifid. *Capsule:* three-grained.——The only known species is,

1. Acidoton Urens. It is eight or nine feet high; trunk round, straight, and woody, the size of the little finger, covered with a smooth brownish bark. This plant, described by Sloane, seems to have been young, as he never saw either flower or fruit.—A native of Jamaica.

Acnida; a genus of the class Dicœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth five-leaved; leaflets ovate, concave, acute, membranaceous on the edge. *Corolla:* none. *Stamina:* filamenta five, capillary, very short; antheræ versatile, bilocular, forked each way. *Female. Calix:* involucre many-leaved, linear, deciduous; perianth two-leaved, linear, very small, permanent. *Corolla:* none. *Pistil:* germen superior, ovate; styles five, long, reflex, pubescent; stigmas simple. *Pericarp:* fruit ovate, compressed, many-angled, furrowed, covered with a succulent calix. *Seeds:* solitary, round, compressed. Essential Character. *Male. Calix:* five-leaved. *Corolla:* none. *Female. Calix:* two-leaved. *Corolla:* none. *Styles:* five. *Seed:* one, covered with the succulent calix.——The only known species is,

1. Acnida Cannabina; *Virginian Hemp.* This plant grows naturally in Virginia, and in some other parts of North America, but is rarely cultivated in Europe, except in some few botanic gardens. It is near of kin to Hemp, but there is little beauty in it, and hitherto no use has been made of it.

Aconite, Winter. See *Helleborus.*

Aconitum; a genus of the class Polyandria, order Trigynia.—Generic Character. *Calix:* none. *Corolla:* petals five, unequal, opposite, in pairs. 1. The highest helmet-tubed, inverted, the back upwards, obtuse; the top reflected to the base, acuminate, to which top the connecting base is opposite. 2, 3. The two lateral ones broad, roundish, opposite, converging. 4, 5. The two lowest oblong, pointing downwards. Nectaries two, concealed under the first petal, fistulous, nodding; mouth oblique; tail recurved; sitting on long subulate peduncles; six little very short coloured scales, in the same circle as the nectaries. *Stamina:* filamenta subulate, very small, broader at the base, inclining towards the first petal; antheræ erect, small. *Pistil:* germina three, (five) oblong, ending in styles the length of the stamina; stigmas simple, reflex. *Pericarp:* capsules as many as the styles, ovate-subulate, straight, one-valved, gaping inward. *Seeds:* very many, angular, wrinkled. Essential Character. *Calix:* none. *Petals:* five, the highest arched, shaped like a hood or helmet. *Nectaries:* two. *Peduncle* recurved; *Capsules:* three or five.—All the species of this genus may be propagated by seeds, which, if sown in a shady situation during autumn, will appear in the following spring. The ground must be kept free from weeds, and the plants watered in dry weather, for the first year, when they may be transplanted to where they are intended to remain; all the attention they will there require, is, to cut down the stalks in autumn, after they have done flowering. They are all hardy perennials, require little care or culture, and, having most handsome spikes of spacious flowers, are very desirable plants for shrubberies and wilderness quarters.——The species are,

* *With three Capsules*

1. Aconitum Lycoctonum; *Great Yellow Monk's Hood.* or *Wolf's bane.* Leaves palmate, multifid, villose. The stem is eighteen inches high or more, very little branched, and leafy. It is reckoned among the earliest spring flowers of Sweden; where a decoction of the powder of the root is used for destroying flies and other insects. Linneus says, it is eaten in Medelpadia, a province of Sweden, without injury. It seems, indeed, to be milder than some of the other species, and hence goats and horses are said to eat it. It was cultivated here by Gerarde, in 1596.—The mountains of Switzerland, Germany, Austria, Carniola, Italy, and Siberia, produce it in a wild state.

2. Aconitum Japonicum; *Japanese Monk's Hood.* Leaves trifid, palmate; divisions gashed, blunt. The stem is round and smooth, and the spike of flowers short.—It is a native of Japan, and is there called *Soo Huso.*

3. Aconitum Napellus; *Common Monk's Hood,* or *Wolf's-bane.* Divisions of the leaves linear, broader above, and scored with a line. The species has the root simple, woody, tuberous, unequal; stem erect, firm, covered with leaves eighteen inches high. This plant is allowed on all hands to be a most deadly poison, a criminal having been put to death by taking one drachm of the root. It has nevertheless been so subdued as to become a powerful remedy in some of the most troublesome disorders incident to the human frame. Baron Stoerck began by administering it in violent pains of the side and joints, in glandulous schirrhi, tumors, ulcerous tubercles of the breast, &c. to the quantity of from ten to thirty grains in a dose, of an extract made with the juice of this plant by a gentle evaporation, and then

adding two drachms of lump sugar, in powder, to two grains of the extract. Its principal sensible effect was in exciting a copious perspiration. A much larger dose has also been safely administered, but it is recommended to begin with a small quantity. Dr. Murray asserts its chief virtue to be in rheumatic and other chronic disorders, for which the above extract is the best preparation. It is said to have been serviceable in confirmed venereal cases, and even to have discussed nodes, and cured obstinate ulcers. Its efficacy in the *gutta serena* has been commended, but probably not with such certainty as in the forementioned disorders.—Those which have *blue* flowers are said to be more potent than those which are yellow or white. The variety of this species, is the most common in our English gardens, being cultivated for the specious appearance of its long spikes of blue flowers. It grows nearly four feet in height, the spikes are above two feet long; and being very hardy, growing in any soil or situation, and multiplying greatly by its roots, it has been allowed a place in most gardens and plantations of shrubs. It ought, however, to be admitted with great caution where children and ignorant persons frequent. It flowers in May and June, and the seeds ripen in September.

4. Aconitum Pyrenaicum; *Pyrenean* or *Fennel-leaved Monk's Hood*, or *Wolf's-bane*. Leaves many-parted; divisions linear, incumbent, and squarrose.—This plant grows wild on the Pyrenees, in Tartary, and Siberia. The spike nods before the time of flowering, which in our gardens is in July: it attains to four feet high, and has a long spike of yellow flowers of a middling size. It may be allowed a place among shrubs, or such parts of a garden as are not frequented by children.

** *With five Capsules.*

5. Aconitum Anthora; *Salutary Monk's Hood*. Flowers with five pistils; divisions of the leaves, linear. The flowers are not so large as those of the common sort; they are of a sulphur colour, and make a pretty appearance in the borders of a flower-garden. This plant, though absurdly called Salutary Monk's Hood, is only poisonous in a less degree than the rest of the same genus. It was supposed to be a remedy against poison, particularly that of the other Aconites; but that dangerous error is now happily exploded. The taste of the root is sweet, with a mixture of bitterness and acrimony. The smell is pleasant. It purges vehemently when fresh, but loses its qualities when dried; it is not used in modern practice.—Its native places are, the Alps of Switzerland, Savoy, Piedmont, Dauphiny, Austria, Carniola, Siberia, &c.; flowering from August to September.

6. Aconitum Variegatum; *Variegated*, or *Small Blue Monk's Hood*. Flowers with five pistils; divisions of the leaves parted half way, broader above. This species seldom grows more than two feet high. The corollas will change from variegated to plain: it flowers at the end of June.—Native of Italy and Bohemia.

7. Aconitum Album; *White Wolf's-bane*, or *Monk's Hood*. Flowers with five pistils; leaves smooth, three-parted; segments acutely gashed; the claw of the upper petal longer than the side ones.—It is rare in Europe, was brought from the Levant; and is characterized by Mr. Miller as having a tall stem upwards of six feet high, palmate leaves, and large white flowers.

8. Aconitum Cammarum; *Purple Monk's Hood*, or *Wolf's-bane*. Flowers mostly with five styles; divisions of the leaves wedge-shaped, gashed, acute.—It is found wild in Switzerland, Austria, Stiria, Piedmont, &c.; and generally has a stem six feet high. Flowers white, or pale blue.

9. Aconitum Uncinatum; *American Monk's Hood*, or *Wolf's-bane*. Flowers mostly with five styles; leaves many-lobed; helmet extended very far.—It is a native of Pennsylvania.

Acorus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* spadix cylindric, entirely simple, covered with floscules; spathe none; perianth none, unless the calix be so named. *Corolla:* petals six, obtuse, concave, loose, thicker at the top, and in a manner truncate. *Stamina:* filaments thickish, a little longer than the corolla; antheræ thickish, twin, terminal, adnate. *Pistilla:* germen gibbous, rather oblong, the length of the stamina; style none; stigma a prominent point. *Pericarp:* a short triangular capsule, attenuated to both ends, obtuse, three-celled. Seeds many, ovate, oblong. Essential Character. Spadix cylindric, covered with floscules. *Corollas:* five-petalled, naked. *Style:* none. *Capsule:* three-celled.——The species are,

1. Acorus Calamus; *Common Sweet Rush*. The point of the scape very long and leafy. This species is distinguished by its long sword-shaped leaves, resembling those of the flag, but narrower, and of a brighter green. The root has a strong aromatic smell, and a warm, pungent, bitterish taste: the flavour is greatly improved by drying them. The roots are said to have cured agues when the Peruvian bark has failed. No cattle whatever will eat this plant, which grows naturally on the banks of rivers, and in shallow standing waters.—It is found wild in many parts of England, grows plentifully in the dykes of Holland, and is common in many other parts of Europe. This plant will succeed very well in a garden, if the ground be moist; but never produces its spikes unless it grows in the water. It continues flowering from June till August, and multiplies itself fast by creeping roots.

2. Acorus Gramineus; *Grass-leaved Sweet Rush*, or *Chinese Sweet Grass*. The point of the stalk scarcely extending beyond the top of the spadix. The whole of this herb has an aromatic smell when bruised, much resembling our English sweet-flag; for the sake of which it is cultivated.—It is probably a native of China, as the Chinese frequently have it in pots about their habitations. It flowers in the spring, must be kept in a dry-stove, and does not require a great degree of heat.

Acrostichum; a genus of the class Cryptogamia, order Filices.—Generic Character. The fructifications cover the whole under surface of the frond.——Few of these species have yet been introduced into gardens. Those of Europe may be either preserved in pots filled with gravel and lime rubbish, or planted on walls and artificial rocks: but most of them being natives of very hot climates, must be planted in pots, and plunged into the bark pit.

**Frond simple, undivided.*

1. Acrostichum Lanceolatum. Fronds linear-lanceolate, acute; shoot climbing.—It is a native of the East Indies and Cochin-china, adhering to trees.

2. Acrostichum Citrifolium. Fronds lanceolate-ovate, quite entire; shoot-climbing.—A native of America.

3. Acrostichum Heterophyllum. Fronds quite entire, smooth, petiolate; barren ones roundish, fertile linear.—It is found in the woods of the East Indies, Cochin-china, and Africa.

4. Acrostichum Crinitum. Fronds ovate, obtuse, hirsute, crinite above.

5. Acrostichum Punctatum. Fronds heart-tongued, acuminate, quite entire, dotted above. This species very much resembles Hart's-tongue.—It is a native of China, where it is used medicinally.

6. Acrostichum Spicatum. Frond simple, petiolate, lanceolate, attenuated to both ends, quite entire; spike terminal, linear.—Found on the island of Mauritius.

7. Acrostichum Lingua. Fronds oblong, obtuse, entire, petiolate; shoot creeping; stipe three-cornered, villous, erect.—A native of Japan.

8. Acrostichum Hastatum. Frond simple, hastate.—Also a native of Japan.

** *Frond simple, divided.*

9. Acrostichum Septentrionale. Fronds naked, linear-laciniate.—This species grows in tufts, at first sight resembling rushy grass, on clefts of rocks and old walls, in Yorkshire, Westmoreland, Wales, and Scotland.

10. Acrostichum Australe. Stipes naked, quite smooth, dichotomous at top, with five or six subulate rays, and flowering from the sides.—This much resembles the preceding species, but is silvery and more regularly divided. Found in the isles of France and Bourbon.

11. Acrostichum Pectinatum. Naked, perfectly simple: spike crescent-shaped on one side, ascending, compressed.—A native of the Cape.

12. Acrostichum Dichotomum. Naked dichotomous spikes on one side, ascending, reflex, compressed.—It is a native of China and the Society Islands.

13. Acrostichum Digitatum. Stipes naked, three-sided; frond digitate, linear, quite entire, equal. The stipe is linear, a foot high, smooth, contracted at top.—Native of Ceylon.

14. Acrostichum Ferrugineum. Fronds pinnatifid; pinnas linear, acute, spreading, quite entire, connate; stipe smooth.—This strongly resembles the following species.

15. Acrostichum Polypodioides. Fronds pinnatifid; pinnas linear, obtuse, quite entire, spreading, crowned; stipe scaly. This species has the appearance of Common Polypody.—Native of Jamaica and Virginia.

*** *Frond pinnate.*

16. Acrostichum Aureum. Pinnas alternate, tongue-shaped, quite entire, smooth. The stipes of this plant grow in bundles of a very dark rufous colour, smooth, about the thickness of the little finger, and nine feet in height.—It is a native of Jamaica, Dominica, and the Society Isles.

17. Acrostichum Rufum. Pinnas oblong, ovate, quite entire, pubescent. It is eighteen or twenty inches high, leafy almost from the root.—A native of Jamaica.

18. Acrostichum Punctatum. Leaflets alternate, lanceolate, quite entire, the lowest eared, the upper ones decurrent, the upper surface dotted, smooth.—It is a native of the island of Bourbon, and strongly resembles the preceding species.

19. Acrostichum Sorbifolium. Pinnas oblong-ovate, entire serrate, acute; stipes scaly.—It is found in Jamaica and St. Domingo.

20. Acrostichum Areolatum. Pinnas alternate, linear, serrate at top. The little floriferous buds in this species are divided with two phalanxes by the longitudinal nerves of the leaf; and are disposed in several parts transversely on each side.—A native of Virginia and Maryland.

21. Acrostichum Marginatum. Pinnas oblong, quite entire, waved, acuminate; stipes naked. This is said to be only a barren frond of Pteris Grandifolia.

22. Acrostichum Sanctum. Fronds lanceolate; pinnas linear-lanceolate, gash-serrate, the lower serratures largest. This species is a Polypodium.

23. Acrostichum Platyneuron. Pinnas alternate-ovate, crenate, sessile, bowed, upwards about a palm in height.—This species, which is a native of Virginia, has the appearance of Common Polypody.

24. Acrostichum Trifoliatum. Leaflets ternate-lanceolate.—This species is about a foot high, and is a native of Jamaica.

**** *Frond subpinnate.*

25. Acrostichum Siliquosum. Pinnas alternate, pinnulate upwards, linear, the lower ones two-parted.—A native of Ceylon.

26. Acrostichum Thalictroides. Pinnas alternate, on each side pinnatifid, the barren ones broader.—Supposed to be the same with the preceding species; and is a native of Ceylon.

27. Acrostichum Marantæ. Fronds subbipinnate; pinnas oppositely coadunate, very hirsute underneath, a little toothed at the base. Its stipes are about seven inches in height, sometimes they reach a foot; they are hairy, and of a blood-red colour. Its fronds are like those of Common Spleenwort.—Native of the southern countries of Europe.

28. Acrostichum Ilvense. Fronds subbipinnate; pinnas oppositely coadunate, obtuse, hirsute underneath, quite entire at the base. This has a great resemblance to the foregoing, but it is scarcely longer than the finger, and never so high as seven inches. The stipe is green and not red. It is allied to the Polypodies, by having the fructifications in dots, but they are closely crowded.—It is found growing upon rocks in the northern counties of England, in Scotland, and in Wales; and is said to be found also in Jamaica.

29. Acrostichum Ebeneum. Pinnas sessile, oblong, sinuate, the uppermost shortest and quite entire. This is only a young plant of the Acrostichum Calomelanos. See the thirty-fourth species.—Native of Jamaica.

30. Acrostichum Furcatum. Dichotomous: leaflets pinnate; pinnas parallel-lanceolate, approximating, quite entire. This species is a Polypodium, and is seldom found in flower.—Native of Jamaica.

***** *Frond bipinnate.*

31. Acrostichum Aculeatum. Fronds super-decompound; pinnas bifid; stipes prickly.—This is a species of Trichomanes; and a native of Jamaica.

32. Acrostichum Cruciatum. Leaflets opposite, lanceolate, the lowest appendaged, crosswise.—A native of Dominica.

33. Acrostichum Barbarum. Leaflets opposite; pinnas lanceolate, obtuse, serrate, sessile, alternate; stipes smooth, upright, and two or three feet high.—Native of Africa.

34. Acrostichum Calomelanos. Pinnas alternate-lanceolate, acuminate, pinnatifid. The stipe is black, but the leaves silvery white underneath.—It is a native of South America and Jamaica.

35. Acrostichum Viviparum. Fronds viviparous; pinnas in pairs, one-sided; pinnules pinnatifid, forked, subulate, bearing the fructifications on the inner margin.—This species is a native of the isles of France and Bourbon.

36. Acrostichum Velleum; *Woolly Acrostichum.* Fronds bipinnate; all the pinnas ovate, cordate, gashed on the side, and very hirsute underneath.—A native of Madeira.

37. Acrostichum Simplex. Fronds entire, smooth, petiolated; the barren ones lanceolate acuminate, the fertile ones linear lanceolate.—This species is a native of Jamaica.

38. Acrostichum Petiolatum. Fronds entire, smooth, petiolated; the barren ones linear-lanceolate, the fertile ones linear.—Also a native of Jamaica.

39. Acrostichum Latifolium. Fronds petioled, broad lanceolate, very smooth, entire, margined; the fruit-bearing ones ovate lanceolate; shoots creeping.—Native of Jamaica.

40. Acrostichum Villosum. Fronds broad-lanceolate, somewhat crenulate, villous on both sides.—Native of Jamaica.

41. Acrostichum Muscosum. Fronds petioled, entire, scaly; the barren ones oblong-lanceolate, blunt; the fertile ones linear-lanceolate.—This species is also a native of Jamaica.

42. Acrostichum Serrulatum. Fronds linear, toothed, fruit-bearing at the tip; shoots very short, rooting.

43. Acrostichum Graminoides. Fronds naked, linear, subdichotomous, and fruit-bearing at the tip.

44. Acrostichum Sulphureum. Pinnas alternate-ovate, pinnatifid; leaflets retuse, serrate.—This and the two foregoing, are natives of Jamaica.

Actæa, a genus of the class Polyandria, order Monogynia. —Generic Character. *Calix:* perianth four-leaved, leaflets roundish, obtuse, concave, caducous. *Corolla:* petals four, acuminate to both ends, larger than the calix, caducous. *Stamina:* filamenta usually about thirty, capillary, broader at top; antheræ roundish, twin, erect. *Pistilla:* germen superior, ovate; style none; stigma thickish, obliquely depressed. *Pericarp:* a berry, oval-globose, smooth, one-furrowed, one-celled. *Seeds:* very many, semi-orbicular, lying over each other in two rows. Essential Character. *Calix:* four-leaved. *Corolla:* four-petalled. *Berry:* one-celled. *Seeds:* semi-orbicular in two rows.—These plants may be propagated by seeds, which should be sown on a shady border soon after they are ripe, where they can be obtained fresh; for if they are kept out of the ground till spring, the plants will not appear till the year after. As they seldom come all up at the same time, the border should not be disturbed till the following autumn, when they should be transplanted to another shady border, where they may remain to flower.—— The species are,

1. Actæa Spicata; *Common Black-berried Herb Christopher*, or *Bane berry*. Raceme ovate; fruits berried. This species grows naturally in several places in the north of England. It grows two feet and a half high. The footstalks of the leaves arise from the root; these divide into three smaller footstalks, and are so divided again that each leaf is composed of twenty-seven lobes, or small leaves. The flower-stem which arises from the root, has leaves of the same form, but smaller. The flowers grow in ramose spikes, and are of a pure white. It flowers in June, and in autumn ripens its fruits, which are black and shining, about the size of pease, and very poisonous. Indeed the whole plant is of an acrid and poisonous nature, and therefore, though a powerful repellent, and having a root useful in some nervous cases, must be administered with caution. The juice of the berries, mixed with alum, yields a black dye. Toads seem to be allured by the smell of this plant; but Dr. Withering observes, that this may be owing to its fondness for the same damp shady situations as the toad.—There are two varieties of this species, one an American plant with white berries; the other of British origin, and being only distinguished from the rest of the same species by its berries being red instead of black.

2. Actæa Racemosa; *American Black* or *Wild Snake-root*. Racemes very long; fruits dry. The root of this plant is much used in America in many disorders, and is supposed to be an antidote against poison, and the bite of the rattle-snake.—It is a native of North America, where it is called Black Snake-root, to distinguish it from Common Snake-root. The Seeds are annually sent to Europe, and should be sown as soon as the season will permit. It flowers in June, or early in July, but does not perfect seed in England. During the flowering time it makes a good appearance; and therefore deserves a place in shady borders, or among shrubs, where if it be not overhung by them, it thrives well, and, being hardy, will only require the same care as the shrubs themselves.

3. Actæa Japonica; *Japanese Herb Christopher*. Spikes very long; leaflets gashed, palmate, undivided.

4. Actæa Aspera; *Rough-leaved Herb Christopher*. Stem climbing; leaves lanceolate, rough; spikes interrupted.—This species is a native of Canton, near China; and its leaves being extremely rough, the Chinese use them for polishing, particularly tin-ware.

Adam's Needle. See *Yucca*.

Adansonia; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth one-leafed, semiquinquefid, cyathiform; divisions revolute, deciduous. *Corolla:* petals five, roundish, nerved, revolute, connected by the claws with each other and the stamina. *Stamina:* filamenta united at bottom into a tube, which they crown; expanding horizontally; antheræ kidney-shaped. *Pistilla:* germen ovate; style very long, tubulous, variously intorted; stigmas many, (ten,) prismatic, villous, radiate-expanded. *Pericarp:* capsule ovate, woody, not gaping, ten-celled, with farinaceous pulp, the partitions membranaceous. *Seeds:* numerous, kidney-shaped, rather bony, involved in a friable pulp. *Observe.* This genus is very nearly allied to *Bombax*; the fructification differing only in the seeds being covered with meal instead of wool or cotton. Essential Character. *Calix:* simple, deciduous. *Style:* very long. *Stigmas:* many. *Capsule:* woody, ten-celled, with farinaceous pulp, and many seeds.——The only species is,

1. Adansonia Digitata; *Ethiopian Sour Gourd*, or *Monkies' Bread*.—This tree was found in Africa of the amazing size of from sixty-five to seventy-eight feet in circumference, but their usual height was not extraordinary, only from twelve to fifteen feet. The fresh fruit is very pleasant, of an acid flavour, and is eaten with sugar. The pulp or juice mixed with sugar, or a syrup made of it, is used in putrid and pestilential fevers. At Cairo they reduce this pulp to a powder, and use it in the lientery, dysentery, and all sorts of fluxes. —It is propagated by seeds, which it does not produce in Europe. They must be sown in pots, and plunged into a hot-bed, where they will appear in about six weeks; and soon after be fit to transplant, which should be done, and each removed into a separate pot filled with light sandy earth, and put into a fresh hot-bed, observing to shade them until they have taken root, after which they should have free air every day in warm weather They reach to the height of six feet, and some have even attained to twelve and fifteen feet; but they cannot with us endure the open air.

Adder's Tongue. See *Ophioglossum*.

Adelia; a genus of the class Diœcia, order Monadelphia. —Generic Character. *Male. Calix:* perianth one-leafed, three-parted; leaflets oblong, curved back. *Corolla:* none. *Stamina:* filamenta many, capillary, the length of the calix, united into a cylinder at the base; antheræ roundish. *Female. Calix:* perianth five-parted; parts oblong, permanent. *Corolla:* none. *Pistil:* germen roundish; styles three, very short, divaricate; stigmas torn. *Pericarp:* capsule tricoccous, roundish, three-celled. *Seeds:* solitary, roundish. Essential Character. *Male. Calix:* three-parted. *Corolla:* none. *Stamina:* many, united at the base. *Female. Calix:* five-parted. *Corolla:* none. *Styles:* three, torn. *Capsule:* tricocous.—These plants are propagated by seeds, which they do not produce of good quality in England: they must be sown upon a hot-bed in the spring. As the flowers are of little beauty, the plants are seldom found except in botanic gardens.——The species are,

1. Adelia Bernardia; *Villous-leaved Bernardia*. Leaves oblong, tomentose, serrate.—It grows naturally in the island of Jamaica, and is near of kin to the Croton.

2. Adelia Ricinella; *Smooth-leaved Bernardia*. Leaves obovate, quite entire. It grows to the height of eight or ten feet, and has slender flower-stalks.—Native of Jamaica.

3. Adelia Acidoton; *Box-leaved Adelia.* Branches flexuose; spines gemmaceous. It seldom rises above four feet in height, and has much the appearance of a young Ebony.—It flowers in June with us; and in Jamaica, of which it is a native, early in April and May.

Adenanthera; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed; five-toothed, very small. *Corolla:* five-petalled, bell-shaped; petals lanceolate, sessile, convex inwards, concave underneath. *Stamina:* filamenta subulate, erect, a little shorter than the corolla; antheræ roundish, incumbent, bearing a globose gland at the outer tip. *Pistil:* germen oblong, gibbous downwards; style subulate, the length of the stamina; stigma simple. *Pericarp:* a legume, long, compressed, membranaceous. *Seeds:* very many, roundish, remote. Essential Character. *Calix:* five-toothed. *Petals:* five; globose glands, affixed to the outer tip of the antheræ. *Legume* membranaceous.——The species are,

1. Adenanthera Pavonina. Leaves smooth on both sides.—This is one of the largest trees in the East Indies, and the timber is in common use on account of its solidity. It flowers in September, bears fruit at the beginning and end of the year, and is never without leaves. Its duration is two hundred years. The natives use the powder of the leaf in their ceremonies; and of the bruised leaves they make a drink, which they esteem good against pains in the loins. The seeds, besides being eaten by the common people, are of great use to the jewellers and goldsmiths, on account of their equality for weights, each of them weighing four grains; they also make a cement by beating them up with water and borax.—In England it must be raised from the seeds on a hot-bed, and afterwards placed in the bark-stove, where the fine branching leaves will make a handsome appearance. It has never been known to flower in Great Britain.

2. Adenanthera Falcata. Leaves tomentose underneath.—This species is little known, never having been cultivated in England:—Native of the East Indies.

3. Adenanthera Scandens. Leaves pinnate, two paired; leaflets ovate, oblique, smooth; claspers terminal, bifid.—It has never been cultivated in England, and is therefore little known.—Native of Mallicollo, in the S. Seas.

Adiantum; a genus of the class Cryptogamia, order Filices.—Generic Character. Fructifications assembled in oval spots at the end of the fronds which are turned back; or at the reflex tip of the frond underneath.—A large genus of Ferns, chiefly the growth of hot climates.

* *Frond simple.*

1. Adiantum Reniforme; *Kidney-leaved Maiden-hair.* Fronds kidney-shaped, stalked, many-flowered.—It is a native of the island of Madeira; has been cultivated in England, and must be confined to the green house.

2. Adiantum Philippense; *Philippine Maiden-hair.* Fronds kidney-shaped, alternate, petiolate, lobate, many flowered. Native of the Philippine Islands.

3. Adiantum Repens; *Creeping Maiden-hair.* Fronds trapezium-shaped, cordate, pinnatifid; divisions lance-shaped, serrate at the tip, the lower ones gashed.—A native of the Isle of France.

** *Frond compound.*

4. Adiantum Radiatum; *Rayed Maiden-hair.* Frond digitate; leaflets pinnate; pinnas one-flowered.—This elegant little plant rises by a simple stalk to the height of six or eight inches, and then divides in five or more simple branches, disposed in a radiated expanded form; and sustained by a few simple leaves placed in the manner of an umbrella, under their insertions. It is a native of Jamaica and St. Domingo.

5. Adiantum Pedatum; *Canadian Maiden-hair.* Fronds pedate; leaflets pinnate; pinnas gibbous before, gashed, fruit-bearing. The leaves of this plant resemble the comb of a cock. It has been cultivated in England, and will live through the winter in the open air, if the season be moderate.—It grows naturally in Canada in such quantities, that when the French were in possession of that country, they sent it to France as a package for goods, and the Parisian apothecaries used it instead of the true Maiden hair. It is also found in Japan and the Society Isles, and flowers in August and September.

6. Adiantum Lanceum; *Surinam Maiden-hair.* Fronds pinnate; pinnas opposite, oblong, the end ones triangularly hastate.—It is a native of Surinam.

7. Adiantum Hastatum; *Hastate-leaved Maiden-hair.* Fronds pinnate; pinnas hastate-trilobate, straight. This plant seldom exceeds six inches in height.—Native of the Cape.

8. Adiantum Trilobum; *Three-lobed Maiden-hair.* Pinnas three-parted, obtuse, gashed, many-flowered.—A native of America.

9. Adiantum Serrulatum; *Serrate-leaved Maiden-hair.* Fronds bipinnate; pinnules deltoid-oblong serrate; fructifications solitary, superior.—This species is about six inches high; and a native of Jamaica.

10. Adiantum Caudatum; *Tail-leaved Maiden-hair.* Fronds pinnate, sickle-tailed at the top.—Native of the East Indies and Japan.

*** *Frond decompound.*

11. Adiantum Flabellulatum; *Fan-leaved Maiden-hair.* Fronds decompound; pinnas alternate, rhombed, rounded, many-flowered; stipes pubescent above.—Native of China.

12. Adiantum Trifoliatum; *Ternate-leaved Maiden-hair.* Fronds decompound; leaflets alternate, ternate, linear, one-flowered.—Native of America.

13. Adiantum Chusanum; *Chinese Maiden-hair.* Fronds decompound; pinnas alternate, pinnatifid; lobes unequal.—Native of China.

14. Adiantum Capillus Veneris; *True Maiden-hair.* Fronds decompound; leaflets alternate; pinnas wedge-shaped, lobed, pedicelled. It is a very succulent plant, yielding almost its whole weight of juice; but neither its taste nor smell promise any efficacy, although a decoction of the fresh plant is recommended as a gentle diuretic, which removes obstructions of the lungs and other viscera; and, made into a syrup, as an excellent medicine for coughs, hoarsenesses, and other disorders of the breast. Haller says, that if the syrup of Capillaire made from this plant be good for any thing, it is from the orange-flower water which they put into it; though Sir John Hill asserts, that as we cannot easily have the plant fresh, and that it loses a great deal of the virtue in drying, the best expedient is to use the fine syrup of Capillaire, which is made of an infusion of the plant when in its perfection, with pure Narbonne honey. We, continues he, suppose this is a trifle; but barley-water sweetened with it, is one of the best remedies for a violent cold.—This is a native of the south of Europe, and of the Levant, and is found, though but rarely, in Wales and Scotland, growing wild on rocks; but that which is met with at the druggists is procured from France. The plant is in perfection in the latter end of summer. It may be preserved in pots filled with gravel, lime, and rubbish, in which it will thrive much better than in good earth.

15. Adiantum Villosum; *Hairy-stalked Maiden-hair.*—Fronds bipinnate; pinnas rhombed, fructifying before and without; stipe villous.—It is two feet in height; a native of Jamaica; and requires a stove in England

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 63c.

GOMPHRENA. *Globe Amaranth.*

P.67

AGRIMONIA. *Sweet scented Agrimony.*

P.79

ALOE. *Barbadoes Aloe.*

P.61

ADONIS. *The Common Adonis or Pheasants Eye.*

Published by Henry Fisher, Caxton, London. 1823.

16. Adiantum Pulverulentum; *Dusty Maiden-hair.* Fronds bipinnate; pinnas oval, truncate, before one-flowered, stipe shaggy.—Native of South America.

17. Adiantum Cristatum; *Crested Maiden-hair.* Fronds bipinnate; lowest leaflets two-parted; pinnas crescent-shaped, many-flowered above.—A native also of South America.

18. Adiantum Furcatum; *Forked Maiden-hair.* Frond bipinnate; pinnas generally two-parted, linear; line of fructification single. Stem smooth, and two feet high.—Native of the West Indies.

19. Adiantum Caffrorum; *Caffrarian Maiden-hair.* Fronds bipinnate; pinnas ovate, gash-toothletted, chaffy underneath.—Native of Jamaica.

20. Adiantum Fragrans; *Sweet-scented Maiden-hair.* Fronds bipinnate; pinnas ovate, sublobed, obtuse, naked underneath.—This species is a native of Madeira. It may be kept with us in a green-house, where alone it has been found able to endure our climate.

21. Adiantum Truncatum: *Truncate-leaved Maiden-hair.* Fronds decompound, with pinnate leaflets; pinnas alternate, wedge-shaped, rather sickle-shaped, truncate, quite entire.—Native of the West Indies.

**** *Frond super-decompound.*

22. Adiantum Clavatum; *Clubbed Maiden-hair.* Leaflets alternate; pinnas wedge-shaped, quite entire, alternate, one-flowered.—A native of Dominica.

23. Adiantum Aculeatum; *Prickly-stiped Maiden-hair.* Pinnas palmate, many-flowered, stipe-prickly.—It is a native of Jamaica and Dominica.

24. Adiantum Trapeziforme; *Rhomb-leaved Maiden-hair.* Leaves alternate; pinnas rhombed, gashed, fruit-bearing on each side.—It is a native of New Zealand, and of the countries between the tropics. It has been introduced into England, but cannot be preserved except by a stove; its shining black stalks and oddly-shaped leaves, will there afford an agreeable variety among other exotic plants.

25. Adiantum Hexagonum; *Hexagon-leaved Maiden-hair.* Pinnas hexangular, emarginate, quite entire, one-flowered on both sides.—It is said to be *Pteris heterophylla.*

26. Adiantum Pteroides; *Heart-leaved Maiden-hair.*—Pinnas ovate entire, crenulate; stipe polished, seven inches high, purple and smooth.—Native of the Cape.

27. Adiantum Æthiopicum; *Cape Maiden-hair.* Pinnas rounded, entire crenulate, petioles capillary.—It is a native of the Cape, and of Japan.

New Species.—* *Frond compound.*

28. Adiantum Triphyllum; *Three-leaved Maiden-hair.* Frond three-leaved; leaflets sessile, lanceolate, pinnatifid, crenate.—This is a very beautiful little fern, tender, entirely smooth, a span high; and was found by Commerson at Buenos Ayres in South America.

29. Adiantum Cuneatum; *Wedge-leaved Maiden-hair.* Fronds pinnate; leaflets opposite; subpinnate pinnas wedge-shaped, retuse, alternate.—This species seems to be little known.

30. Adiantum Pumilum; *Dwarf Maiden-hair.* Frond pinnnate; stipe capillary; pinnas alternate, roundish, serrulate, the uppermost larger trapezium-shaped, fructifications interrupted.—This plant seldom rises above two or three inches from the root; its leaves and stalks are very delicate, and the fructifications but few.—Found in dry and rocky places in Jamaica, of which it is a native.

31. Adiantum Deltoideum; *Deltoid-leaved Maiden-hair.* Frond pinnate; pinnas alternate, deltoid, obtuse; the uppermost triangular; fructifications continued above and in front.—This species is a native of Jamaica.

32. Adiantum Macrophyllum; *Large-leaved Maiden-hair.* Frond pinnate; pinnas opposite, rhomboid acute, the lower larger, the lowest sub-hastate, reflex fructifications continue in front and below.—It is a native of Jamaica, in moist and shady places.

** *Frond decompound.*

33. Adiantum Scandens; *Climbing Maiden-hair.* Leaflets wedge-shaped, equally gashed; stem climbing.—A native of Cochin-China.

34. Adiantum Striatum; *Striated Maiden hair.* Frond bipinnate; pinnules rigid, sickled-ovate; fructifications superior, interrupted; stipe round, rough.—Native of Jamaica.

35. Adiantum Strictum; *Stiff Maiden-hair.* Frond bipinnate; pinnas four-cornered, fastigiate, erect; pinnules alternate, polished, entire; fructifications superior continued.—Also a native of Jamaica.

36. Adiantum Microphyllum; *Small-leaved Maiden-hair.* Frond bipinnate; leaflets alternate, oblong, obtuse, crenate, the lowest pinnatifid. It attains to the height of nine inches. Native of Jamaica; and is found among the rocks by the river near St. Jago de la Vega.

37. Adiantum Denticulatum; *Tooth-leaved Maiden-hair.* Pinnas alternate, trapezoid, acuminate, crenate, notches tooth-letted; fructifications superior, interrupted.—This species is a native of Jamaica.

*** *Frond super-decompound.*

38. Adiantum Fragile; *Brittle Maiden-hair.* Frond bipinnate, at top; pinnas obovate wedge-shaped, entire; fructifications interrupted.—Native of Jamaica.

39. Adiantum Tenerum; *Tender Maiden-hair.* Pinnules alternate, rhomb wedge-shaped, blunted, gashed; fructifications interrupted.—It is a native of Jamaica, has a black, shining, branched stipe, from fourteen to eighteen inches high, and is found in shady places.

Adiantium Nigrum. See *Asplenium.*

Adonis; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* perianth five-leaved; leaflets obtuse, concave, a little coloured, deciduous. *Corolla:* petals five to fifteen, oblong, obtuse, shining. *Stamina:* filaments very short, subulate; antheræ oblong, inflex. *Pistilla,* germs numerous, in a head; styles none; stigma, acute, reflex. *Pericarp,* none. Receptacle oblong, spiked. *Seeds* numerous, irregular, angular, gibbous at the base, reflex at the top, a little prominent, naked. Essential Character. *Calix:* five-leaved. *Petals:* five or more, without a nectary. *Seeds:* naked.—The leaves are multifid in some species, in others biternate. The flowers are terminating, varying in the number of petals, from five to twelve or more: these are long, narrow, red or yellow, without any nectary, as in Anemone, which genus the Adonis-flower resembles, though its fruit approaches more to the Ranunculus; having the seeds on a receptacle, more or less lengthened out, forming a bunch, pretty much as in that genus.——The species are,

1. Adonis Æstivalis; *Tall Adonis.* Corollas five-petalled, heads of seeds ovate.—This species is a native of the southern counties of Europe, and is found among corn. It flowers in May and June, is an annual plant, and if sown in autumn, will appear in the following spring. They thrive best in a light soil, and the seed should be sown where they are intended to remain, as the plant will not bear transplanting.

2. Adonis Autumnalis; *Common Adonis, Bird's Eye, Pheasant's Eye, Red Maithes,* or *Red Morocco.* Its stalks is about a foot high.——It is a native of the southern parts of Europe, but grows in Kent by the side of the Medway, between Rochester and Maidstone, where it is met with in great plenty. Among spring corn, there is rarely a plant of

it to be found; which shows the propriety of sowing the seeds in gardens in autumn; for those fields of spring corn, if suffered to remain undisturbed after the harvest, will abound with this plant in the following year. It is supposed to have been conveyed from the gardens to the fields by means of the dung-heap, as it is not probably of long standing, not being recorded as indigenous by our old botanical writers. Great quantities of the flowers are annually sold in London by the name of *Red Morocco*. They flower in the beginning of June, and the seeds ripen in August and September. For the mode of propagating them, see the preceding species.

3. Adonis Vernalis; *Perennial*, or *Spring Adonis*. Flower twelve-petalled; heads of seeds ovate.—This species is a native of Oeland, Switzerland, Austria, Carniola, Silesia, Prussia, Bohemia, the Palatinate, and other parts of Germany, where the root is often used for the true Black Hellebore. Its large yellow flowers are produced at the end of March or the beginning of April, and the seeds ripen in August, and should be sown soon after, otherwise they seldom succeed. The plants must be kept free from weeds, and if refreshed with water in dry weather, it will promote their growth. They should remain where sown till the second year, for they make but slow progress when young. The best time to transplant them is in autumn, when they ought to be planted where they are to remain, for if often removed, they will not produce many flowers, and even those will be much the weaker for it. They may be increased by parting the roots, either in autumn or spring. Being hardy and easily cultivated, and producing their showy flowers early in the season, they are desirable plants for the garden.

4. Adonis Apennina: *Apennine Adonis*. Flowers fifteen petalled. The stem is about a foot and a half in height.—It is found wild in the Apennines, and in Siberia. For its culture and propagation, see the preceding species.

5. Adonis Capensis; *Cape Adonis*. Flowers ten-petalled, heads depressed, leaves biternate, leaflets serrate, heart-shaped. Found wild near the Cape.

6. Adonis Vesicatoria; *Blister Adonis*. Flowers ten-petalled; leaves biternate; leaflets serrate, smooth.—This plant is perfectly smooth, and has hard firm leaves. It is also a Cape plant, and receives its name from the Africans using it for raising blisters.

Adoxa; a genus of the class Octandria, order Tetragynia.—Generic Character. *Calix:* perianth inferior, bifid, flat, permanent. *Corolla:* monopetalous, flat, quadrifid; clefts ovate, acute, longer than the calix. *Stamina:* filaments subulate, the length of the calix; antheræ roundish. *Pistilla:* germ below the receptacle of the corolla; styles simple, erect, the length of the stamina, permanent; stigmas simple. *Pericarp:* a globose berry, between the calix and the corolla, the calix being united below with the berry umbilicate, four-celled. *Seeds* solitary, compressed.—Observe, such is the terminal fructification, but all the lateral ones add a fifth part of the whole number. Essential Character. *Calix:* bifid, inferior. *Corolla:* four or five cleft, superior. *Berry:* four or five celled, united with the calix.—The roots of plants of this genus may be transplanted any time after the leaves are decayed, till winter. They must be planted in the shade under shrubs; for if they are exposed to the open sun, they will not thrive.——The following species only has been discovered.

1. Adoxa Moschatellina; *Bulbous Fumitory*, or *Hollow Root*, and *Tuberous Moschatell*. It has a perennial root, and grows naturally in shady places, and woods; as in Hampstead and Charlton woods, &c. The flowers appear at the end of March, or beginning of April, and the berries ripen in May, soon after which the leaves decay. These and the flowers smell like musk, from whence some have called it *Musk Crowfoot*.

Ægiceras; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leaved, bell-shaped, half five-cleft, coriaceous, permanent. *Corolla:* petals five. *Stamina:* filaments five. *Pistil:* germ oblong; style single. *Pericarp:* capsule bowed, coriaceous, one-celled, one-valved, gaping on the convex side. *Seed:* single. Essential Character. *Calix:* bell-shaped, half five-cleft. *Capsule:* bow-shaped, one-celled, gaping on the convex side. *Seed:* inverted.——The following are the species:—

1. Ægiceras Majus; *the Greater Ægiceras*. Leaves ovate, quite entire; legumes long, sickle-shaped. This is a shrub about twelve feet high, with several stems a foot in thickness, putting out many twigs and suckers. Its flowers have an agreeable smell.—Native of the Molucca Islands.

2. Ægiceras Minus; *the Lesser Ægiceras*. Leaves ovate, sometimes notched; legumes short, crescent-shaped.—A native of Ceylon.

Ægilops, a genus of the class Polygamia, order Monœcia.—Generic Character. Two lateral flowers hermaphrodite. *Calix:* a large bivalvular glume, sustaining three flowers; valves ovate, truncate, streaked, with various awns. *Corolla:* a bivalvular glume; the outer valve ovate, terminated by a double or triple awn; the inner lanceolate, erect, awnless, with the edge bent in longitudinally; nectary two-leaved; leaflets ovate, flat, transparent, very small. *Stamina:* filaments three, capillary, with oblong antheræ. *Pistil:* germ turbinate; styles two, reflex, with hairy stigmas. *Pericarp:* none. *Seeds:* oblong, convex on one side, grooved on the other, with the inner valve of the corolla adhering to it, and not opening. One male flower between the two former. Essential Character. *Calix:* a glume, subtriflorous, cartilaginous. *Corolla:* a glume, terminating in a three-fold awn. *Stamina:* three. *Styles:* two. *Seed:* one.——All the species of this genus of Grasses appear to be annual: they are,

1. Ægilops Ovata. Spike-awned, all the calices with three awns.—This grass grows wild in the southern countries of Europe.

2. Ægilops Caudata. Spike-awned, all the calices with two awns.—This grass is a native of Crete.

3. Ægilops Truncialis. Spike-awned, the lower calices with two awns.—This species of grass grows about Montpelier, Marseilles, Nice, and Smyrna.

4. Ægilops Squarrosa. Spike awl-shaped, longer than the awns.—This species of grass has been found in the Levant by Tournefort, and by Cavanilles in Spain.

Ægilops. See *Quercus*.

Æginetia. See *Orobanche*.

Ægiphila, a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leaved, bell-shaped, four-toothed, loose, very short, permanent *Corolla:* one-petalled, salver-shaped; tube cylindric, narrower and longer than the calix, border quadrifid, flat, equal; clefts oblong. *Stamina:* filaments capillary, inserted into the mouth of the tube, erect; antheræ roundish. *Pistil:* germ roundish, superior; style capillary, deeply bifid; stigmas simple. *Pericarp:* a roundish two-celled berry, surrounded with the permanent calix. *Seed:* either in pairs or solitary. Essential Character. *Calix:* four-toothed. *Corolla:* quadrifid. *Style:* semi-bifid. *Berry:* four-seeded.——The species are,

1. Ægiphila Martinicensis. Leaves ovate-lanceolate, acuminate, smooth; branches diffused; panicles terminating or

axillary, calices smooth.—This is a shrub six feet high, with panicles terminating and axillary, leafy, compound, and stiff; the flowers white.—Found on the edges of woods in the island of Martinico. It flowers in November.

2. Ægiphila Elata. Leaves eliptic, acuminate, membranaceous, panicles terminating; calices pubescent. This plant is a climber, and frequently rises to the height of six or seven feet or more. It is a native of Jamaica.

There are two other species, Fœtida and Trifida, with leaves ovate-lanceolate, the first having them hirsute beneath, the last smooth.

Ægopodium; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix*: umbel universal manifold, convex: partial, similar, but flat. Involucre, none. Proper perianth scarcely observable. *Corolla*: universal uniform, with every floscule fertile; particular with five petals, obovate, concave, inflex at the tip, and equal. *Stamina*: filaments simple, twice as long as the corolla, with roundish antheræ. *Pistilla*: germ inferior; styles simple, erect, the length of the corollas, with headed stigmas. *Pericarp*: none. *Fruit*: ovate-oblong, streaked, bipartite. *Seeds*: two, ovate-oblong, convex and streaked on one side, flat on the other. Essential Character. *Fruit*: ovate-oblong, streaked.——One species only is known, viz.

1. Ægopodium Podagraria; *Herb Gerard, Gout-weed, Ash-weed,* or *Ground-ash,* and *Wild Masterwort.* This weed is not uncommon in hedges, orchards, &c. It is a perennial plant; and, as it is a great creeper, cannot be admitted into gardens without great caution. It requires no care, but to plant it in the shade, and confine the roots. The stem grows two or three feet high. The flowers are white, and appear from May to July. Although it is aromatic, like most umbellate plants, it is not admitted into medical use; nor has it any title to its name of *Goutweed,* though formerly used by the Germans to assuage the pains of the gout and piles. Linneus says it is eaten in Sweden, boiled for greens, when tender in the spring. Culpeper says, "It is not to be supposed that Goutwood hath its name for nothing, but upon experiment to heal the gout and sciatica; as also joint-aches, and other cold griefs. *The very bearing of it about one easeth the pains of the gout, and defends him that bears it from disease!*" Meyrick and Hill, are, however, more reasonable: the former calls the roots and leaves "a good external application for the sciatica and other pains, whether they are employed as a fomentation or a poultice; and though many extol their efficacy in the gout, he says they are well omitted in that complaint, as they are seldom productive of any lasting good effects, and may sometimes be the occasion of much distress and mischief." The latter, (Hill) recommends the root, and fresh buds of the leaves, as excellent fomentations and poultices for pains, and says he has seen a good effect from a quantity of the leaves and roots boiled soft together, and applied to the hip in the sciatica, keeping a fresh quantity hot to renew the other as it grew cold, but he advises not to make any use of it for the gout.

Ægopricon; a genus of the class Monœcia, order Monandria.—Generic Character. Male flowers small, in an ovate ament. *Calix*: one-leafed, tubulous, trifid. *Corolla*: none. *Stamina*: filament one, longer than the calix, erect; with an ovate anthera. Female flowers upon the same plant, solitary. *Calix* and *Corolla*: same as above in the male. *Pistil*: germ ovate, superior; styles three, divaricate; with simple permanent stigmas. *Pericarp*: a globular berry, tricoccous and trilocular within, with a bifid point. (Capsule tricoccous elastic.) *Seeds*: solitary, angular on one side. Essential Character. *Male,* an ament. *Calix*: common trifid; partial tubulous. *Anthera*: four-lobed. *Female flowers,* solitary. *Calix*: as in the male. *Corolla*: none. *Styles*: three, coadunate at the base. *Capsule*: tricoccous.—One species only is known.

1. Ægopricon Betulinum. A tree, is very much branched. Branchlets alternate, bent different ways, leafy, flowering at the ends. Bark somewhat wrinkled, except in the younger shoots.—Dalberg noticed it at Surinam; and Aublet in Guiana.

Æschynomene, a genus of the Diadelphia class, order Decandria.—Generic Character. *Calix*: perianth one-leafed, bell-shaped, sub-bilabiate; lips equal, upper bifid, lower three-toothed. *Corolla*: papilionaceous; banner subcordate, scarcely gaping, large; wings subovate, obtuse, shorter than the banner; keel lunate, acuminate, the length of the wings. *Stamina*: filaments ten, (single and nine-cleft;) antheræ small. *Pistil*: germ oblong, villous, columnar; style subulate, rising; stigmas simple, rather obtuse. *Pericarp*: legume, long, flat, jointed, rough, one-celled, opening at the truncate joints. *Seeds*: solitary between the joints, kidney-shaped. Essential Character. *Calix*: bilabiate. *Legume*: with truncate one-seeded joints.—All the plants of this genus are propagated by seeds, which should be sown on a hot-bed early in the spring; and when the plants have strength enough to be removed, they should be put each into a separate small pot, filled with light earth, and plunged into a fresh hot-bed, from whence, as they advance in growth, they should be shifted into larger pots, but not be too large, otherwise the plants will not thrive.——The species are,

1. Æschynomene Grandiflora; *Great-flowered Æschynomene.* Stem arborescent, flowers very large, legumes filiform. It is a shrub from ten to fifteen feet in height. It is a native of the East Indies; and called *Pois du Duc de Choisuel* by the French. It has been cultivated in England, and is frequent in the gardens at Jamaica; domestic fowls are partial to the seeds. It is difficult to preserve this plant through the winter in this country. The seedling plants should be brought forward on a hot-bed, and then plunged into the bark-bed in the stove, where, if they be tenderly treated, they will survive the winter, and flower in the summer following.

2. Æschynomene Arborea; *Arborescent Æschynomene.*—Stem aborescent, smooth; joints of the legumes semi-cordate, smooth. This plant attains the height of six or seven feet. It requires the same treatment as the preceding species, flowers early in the summer, and ripens its seeds in the autumn. As their stalks are succulent, they must be kept dry in winter, otherwise they are very apt to rot.

3. Æschynomene Coccinea; *Scarlet-flowered Æschynomene.* Stem arborescent; leaves pinnate; leaflets numerous, linear, obtuse, dusty; legumes compressed, equal. This species is smaller and lower than the first, but the head and leaves are more dense.—Native of the East Indies; and of the islands Otaheite and Huaheine in the South Seas.

4. Æschynomene Aspera; *Rough-stalked Æschynomene.* Stem herbaceous, rugged; joints of the legumes rugged in the middle. This species reaches the height of four or five feet, with a single herbaceous stem, which is in some parts rough.—It is a native of the East Indies.

5. Æschynomene Americana; *Hairy Æschynomene.* Stem herbaceous, hispid; joints of the legumes semicordate; leaflets acuminate, bractes, ciliate. The root of this species is annual, its stem one, two, and sometimes even three feet high. It is somewhat sensative, folding its leaves together during the night, and at the approach of rain.—It is found in dry pastures, on the south side of the island of Jamaica, of which it is a native. Propagated in England in the same manner as the first species.

6. Æschynomene Indica; *Indian Æschynomene.* Stem herbaceous, smooth; legumes smooth, swelling on one

side, obtuse; leaflets obtuse.—It is a native of the East Indies, and may be propagated in the same manner as the first species.

7. Æschynomene Sesban; *Egyptian Æschynomene.* Stem herbaceous, smooth; legumes cylindric, equal; leaflets obtuse.—It is a native of Egypt, flowers in July and August.

8 Æschynomene Pumila; *Dwarf Æschynomene.* Stem herbaceous, smooth; legumes serrate on one side, rough in the middle; leaflets acuminate. This is an annual plant, a foot and half high, branching at bottom, and a native of the East Indies. For the method of propagating it with us, see the first species.

9. Æschynomene Sensitiva. Stem shrubby, smooth; leaflets obtuse; legumes smooth and even, obtuse; stipules acute, deciduous.—Native of the West Indies; it flowers in July, and the seeds ripen in October.

10. Æschynomene Heterophylla. Stem shrubby, lower leaves ternate-ovate, upper pinnate, roundish.—The stem of this species is arboreous, weak, with spreading tomentose branches.—A native of northern Cochin China.

11. Æschynomene Lagenaria. Stem herbaceous, leaflets obtuse, in several pairs; legumes muricate. The stem of this plant, which is a native of marshy places in Cochin China, is there used for stopping bottles, where are no corks. It is herbaceous, three feet high, upright, thick, round, spongy, and elastic.

12. Æschynomene Cannabina. Stem herbaceous; leaflets obtuse, acuminate; pedunceles solitary; legumes compressed, smooth, and even.—In the East Indies, where it is indigenous. If treated as hemp, as its name signifies, it may be applied to the same purposes.

Æsculus; a genus of the class Heptandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, ventricose, small, five-toothed. *Corolla:* petals five, roundish, plaited, and waving about the edge, flat, spreading claws narrow, inserted into the calix, irregularly coloured. *Stamina:* filaments subulate, the length of the corolla, declining; antheræ ascending. *Pistil:* germ roundish, ending in a subulate style; stigma acuminate. *Pericarp:* capsule leathery, roundish, three-celled, three-valved. *Seeds:* two, subglobular. *Observe,* one seed only commonly occurs in the capsule, but, on inspection of the embryos, it is evident that the natural number is two. Essential Character. *Calix:* one-leafed, five-toothed, ventricose. *Corolla:* five-petalled, irregularly coloured, inserted into the calix. *Capsule:* three-celled.——The species are,

1. Æsculus Hippocastanum; *Common Horse Chesnut.* The flowers with seven stamina; leaves digitate, with seven entire leaflets; capsules prickly.—This tree is well known, and was formerly in greater esteem for walks and avenues than at present, which is owing to the litter made by its leaves when falling; it affords, notwithstanding, a noble shade very early in the year, and no tree has more beauty during the time of its flowering, for the extremities of the branches are terminated by fine spikes of flowers, so that every part of the tree seems covered with them, and being intermixed with the large digitate leaves, they make a noble appearance, continuing in beauty for nearly a month. In Turkey the nuts are ground, and mixed with the provender of those horses which have coughs or are broken-winded. Some assert that swine will fatten on them; and Haller says that sheep have been fed with them whole, and poultry with them boiled, and that both have done well; but this is disputed by others. They may be used to save soap in washing, having a saponaceous quality; and the bark has been successfully used in Italy as a medicine for intermittent fevers; and has answered very well in dyeing several sorts of yellow colours. Notwithstanding the bad character Mr. Miller gives of the timber of this tree, it is said to be useful in making pipes to convey water under ground, as it will last longer than harder woods. Dr. Hunter says it is used for turnery, and is worth sixpence per foot in the north of England. Mr. Hanbury confirms Hunter's account, and adds, that the tree grows speedily to a great magnitude, and sells at such a price as to make it well worth planting for the sake of the timber, and that it ought to be felled in November or December. This species was brought from the northern parts of Asia nearly three centuries ago, and is more common now than it was an hundred years since.—These trees are propagated by sowing the nuts early in the spring, but they must be preserved in sand during the winter, otherwise they will mould and rot. They will shoot nearly a foot the first summer, and if they stand close, should be transplanted the next autumn into the nursery, and remain there two years; they should then be removed where they are intended to remain, and well secured by a fence of good stakes against young cattle and violent winds. It requires little care in the management, is never injured by the cold of this climate, and will thrive in most soils and situations, but in a sandy loam makes the greatest progress.

2. Æsculus Flava; *Yellow-flowered Horse Chesnut.* Leaves digitate, with five leaflets; the lamina of the corolla cordate, roundish; the claws twice the length of the calix.—This species flowers in May and June; and is a native of North Carolina.

3. Æsculus Pavia; *Scarlet Horse Chesnut.* Flowers with eight stamina; leaves digitate, with five or six serrate leaflets; capsules smooth; laminas of the corolla obovate; claws the length of the calix. This species rises to the height of twenty feet, but does not spread its branches to any extent. The flowers appear in June, and are sometimes succeeded by fruit, but the seeds rarely ripen in England.—It grows naturally in Brazil, Carolina, Japan, and several parts of the East; from which countries those who wish to propagate it must procure the nuts, and plant them early in the spring, in pots which must be plunged into a moderate hot-bed. The nursery-men, who propagate this tree for sale, commonly graft or bud it upon common Horse-chesnut stocks; but as the stock greatly outgrows the bud or graft, the trees make a bad appearance, and do not last long.

Æthiopis. See *Salvia.*

Æthusa; a genus of the Pentandria class, order Digynia.—Generic Character. *Calix:* umbel universal spreading, the rays gradually shortening towards the middle; partial also spreading, but small. Involucre universal, none; partial placed on the outside, only consisting of three very long, linear, pendulous leaflets. Proper, perianth scarcely observable. *Corolla:* universal nearly uniform, with all the floscules fertile; partial has the petals bent in, heart-shaped, and unequal. *Stamina:* filaments simple, with roundish antheræ. *Pistil:* germ inferior; styles reflex, with obtuse stigmas. *Pericarp:* none. *Fruit:* roundish, streaked, bipartite. *Seeds:* two, roundish, streaked, except on a third part of the surface, which is plane. Essential Character. *Partial involucre:* halved, three-leaved, pendulous. *Fruit:* streaked.——The species are,

1. Æthusa Cynapium; *Common Fool's Parsley.* Leaves conform.—This species has a stem from one to two feet high, and is a common weed in kitchen gardens, and in a slight degree poisonous. It is easily mistaken for true Parsley and Chervil when young. The leaves emit, in a slight degree, a disagreeable smell. The safest way to avoid all doubt is to cul-

tivate the *curled Parsley*, for which this cannot be mistaken. Most cattle eat it; but it is said to be noxious to geese. This is an annual plant, and may be easily restrained in gardens by not suffering it to seed, which it does abundantly.

2. Æthusa Bunius; *Coriander-leaved Fool's Parsley.* Radical leaves pinnate, cauline manifold-setaceous.—This is a perennial plant, native of the Pyrenees. It flowers in July.

3. Æthusa Meum; *Spicknel, Mew,* or *Bawd Money.* All the leaves manifold setaceous.—This is a perennial plant, rising a foot and a half high, with channelled stalks, terminated by an umbel of flowers that are white with a tincture of green, and are succeeded by oblong smooth seeds. It grows wild in the mountains of Switzerland, Germany, Austria, Carniola, Italy, and Spain: also in the high pastures of Westmoreland, Cumberland, Lancashire, and Merionethshire. It blossoms in May. The roots and seeds are aromatic and acrid; they are recommended as carminatives and stomachics; in the stone, stoppage of urine, and all uterine disorders; sometimes they are given to cure tertians. Spicknel is an ingredient in theriaca and mithridate; and appears to be of the same nature as lovage. It is a powerful diuretic, and remover of obstructions in the viscera, consequently good against the gravel, jaundice, obstructions of the menses, &c. The root is the part to be made use of for these purposes, and an infusion of it is the best preparative; dried and given in powder, it strengthens the stomach, creates an appetite, and is good against the colic. This is a hardy plant, and may be increased by parting the roots at Michaelmas, or sowing the seeds soon after they are ripe, which is in July and August. They should have a shady situation and a moist soil.

4. Æthusa Fatua; *Fine-leaved Fool's Parsley.* All the leaves many-parted, setaceous; leaflets subverticillate; stem many-leaved; sheaths of the petioles narrow; universal involucre many-leaved. This species flowers in August and September: it is not known of what country it is a native.

African Bladder Nut. See *Royena.*

African Flea-Bane. See *Turchonanthus.*

African Marygold. See *Tagetes.*

African Ragwort. See *Othonna.*

Agallocha. See *Excoecaria.*

Agapanthus, a genus of the Hexandria class, Monogynia order.—Generic Character. *Calix*: Spathe common gaping at the side. *Corolla:* one-petalled, funnel-shaped, regular; tube cornered, as if composed of six claws; border six-parted; parts oblong spreading. *Stamina:* filaments six, inserted into the throat, shorter than the corolla, declinate, antheræ kidney-shaped, incumbent. *Pistil:* germ superior, oblong, three-cornered; style filiform, length of the stamina, declinate; stigma simple. *Pericarp:* capsule oblong, three-sided, three-celled, three-valved; valves navicular, with contrary dissepiment. *Seeds:* numerous, oblong, compressed, enlarged with a membrane. Essential Character. *Corolla:* inferior, funnel-shaped, hexapetaloid, regular.

——Of this genus the following species only is known,

1. Agapanthus Umbellatus; *African Blue Lily.*—It is a native of the Cape; and is propagated by offsets, which come out of the sides of the old plants; and may be taken off at the latter end of June, planted each in a separate pot, and placed in a shady situation, where they can have the morning sun and free air, and be watered twice a week. They only require protection from frost and wet, and as they flower at the end of August, or in the beginning of September, they will frequently continue in beauty till spring.

Agaricus, a genus of the class Cryptogamia, order Fungi.—Generic Character. *Pilcus* or *cap;* with gills underneath. *Gills:* differing in substance from the rest of the plant, composed of two laminas. *Seeds:* in the gills. In order to cultivate Agarici or *Mushrooms,* the small white knobs which are always found near their roots, in August or September, and are the offsets, or young mushrooms, should be carefully gathered with the earth about them; and as this spawn cannot be found in the pastures except during the mushroom season, you will probably find it in old dunghills where there has been much litter and little wet, also in old hot-beds, shooting out in long strings. The beds for these spawn should be made of dung, with good store of litter, on dry ground, three feet wide at bottom, and long in proportion to the quantity desired. The dung must be laid a foot thick, covered with four inches of strong earth, and upon this two more layers of dung ten inches thick, succeeded by another layer of earth, contracting the sides of the bed like the roof of a house. When finished, the bed should be covered with litter or old thatch, to keep out the wet, and prevent the bed from drying. In eight or ten days the bed will be moderately warm, and fit to receive the spawn; then the thatch or litter being removed, a covering of rich light earth, about an inch deep, should be laid all over the bed, placing the lumps of spawn upon it, four or five inches asunder, which must be covered with the same light earth, half an inch deep; and the old thatch or litter then replaced, to keep out the wet, as before. In warm weather the mushrooms will probably appear in a month; but if the weather be cold it will be much longer. The great skill is, to keep up a due degree of moisture in these beds; in warm weather showers of rain may be admitted, in winter they must be kept as dry as possible. A bed thus managed, if the spawn take kindly, will remain good for several months, and produce better mushrooms than can be gathered in the fields. When destroyed, the spawn for a new bed may be taken out of it, and plenty of mushrooms may thus be ensured throughout the year.—In many parts of Europe several sorts are eaten, which we deem poisonous. Even *Agpiperatus,* the most acrid and suspicious species of this genus, is eaten in large quantities by the Russians. They season or pickle them with salt in autumn, and eat them in Lent. Caution is nevertheless very indispensable, as several species would be highly injurious, if taken in any considerable quantity. See *Fungi.*—Authors differ exceedingly in their enumerations of the species of this genus: the following are the most worthy of notice, viz:

Agaricus Campestris; *Common Mushroom,* or *Champignon.* Gills crowded, irregular, pink changing to liver colour; cap convex, white to brown; stem white, cylindrical; curtain white. The stem of this species is solid, from two to three inches high, and half an inch in diameter. It is esteemed the best and most savoury of the genus; and is in much request for the table in England. It is eaten fresh, either stewed or broiled, and preserved either as a pickle or in powder: the sauce vulgarly called *Catchup,* is made from its juice with salt and spices. The wild mushrooms, fresh from undunged pastures, are more delicate than those raised on artificial beds, the flesh of the latter being less tender; and those who are much accustomed to them, can distinguish them from each other by the smell. Those artificially raised are certainly more sightly, and more easily procured in a proper state for eating; they are also firmer, and better for pickling.

Agaricus Georgii, of Linnæus, resembles this, but is far inferior to it in flavour, though not poisonous, as it is generally supposed. It is very common; and the caps turn yellow, but the gills are always white.

Agaricus Procerus, or *Tall Mushroom,* which is common

in woods and dry hilly pastures, is sometimes exposed to sale in Covent Garden market. It may be easily distinguished from the genuine sort by the sponginess of its flesh, and from all others by its tallness, bulbous base, and large volva or ruffle, and the scaly texture of its spongy cap.

Agaricus Cæsareus, or *Imperial Agaric*, is the most splendid of all the species. It is common in Italy, where it is exposed in the markets for sale. The ancient Romans esteemed it one of the greatest luxuries; and Juvenal and Martial have celebrated it as the vehicle whereby Claudius Cæsar was poisoned by his wife Agrippina. It was first found wild in this country in the year 1791.

Agaricus Orcades; a small pale-brown, or rather buff-coloured mushroom, very frequent in dry pastures, and particularly in fairy rings; which Dr. Withering is satisfied are entirely produced by their growth. It is found in woods and hedges, but is then inferior in flavour. Those from dry pastures are the best, have a pleasant smell, and a most luscious flavour, either stewed alone, or in hashes and ragouts. They make excellent *Catchup*, and are admirable in the form of a powder. The *cap* is of a pale brown buff colour; and the *stem* solid and white, an inch and half high, and about the thickness of a crow-quill. It is in season during September and October, but may be so dried as to be in use for the table all the winter. They should be gathered young, and early in the morning.

Agathopyllum; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth very small, truncate, entire, permanent. *Corolla:* petals six, ovate, somewhat villose within, inserted into the calix. *Stamina:* filaments twelve, broadish, very short, alternately placed at the base of the petals, and alternately on the calix; antheræ roundish. *Pistil:* germ superior, very small; style very short; stigma pubescent. *Pericarp:* drupe somewhat globose, crowned with the calix. *Seed:* nut somewhat globose, terminated by a truncate point, half six-celled kernel convex, beneath six-lobed, with coriaceous partitions separating the lobes. Essential Character. *Calix:* superior, very short, toothless. *Corolla:* six-petalled, somewhat villose. *Stamina:* alternately inserted into the calix and petals. *Drupe:* juiceless, with a half six-celled nut, and one seed. ——The only species known is,

1. Agathopyllum Aromaticum. This is a large bushy tree, with a pyramidical head like the Clove-tree, and a reddish odorous bark; the wood is hard, heavy, white, with some reddish fibres, and has no smell. Its fruit, which is the size of a large cherry, is shaped like a pear; it consists of a nut divided into six parts, as a walnut is divided into four, covered with a hard coriaceous shell, and that with a green thin bark very closely adhering to it, both of which are aromatic; but the nut has an acrid biting taste, which is almost caustic. The tree bears at five or six years of age, flowers in January and February, and is ten months in ripening its fruit. The natives of Madagascar, who call it *raventsara*, gather it before it is ripe, as a spice for the purpose of seasoning their meat. When fresh, it has a fine aromatic smell; and the caustic taste may be diminished by keeping it some months, then throwing it into boiling water for four or five minutes, and afterwards drying it in the sun. The leaves may be prepared as a spice in the same manner.

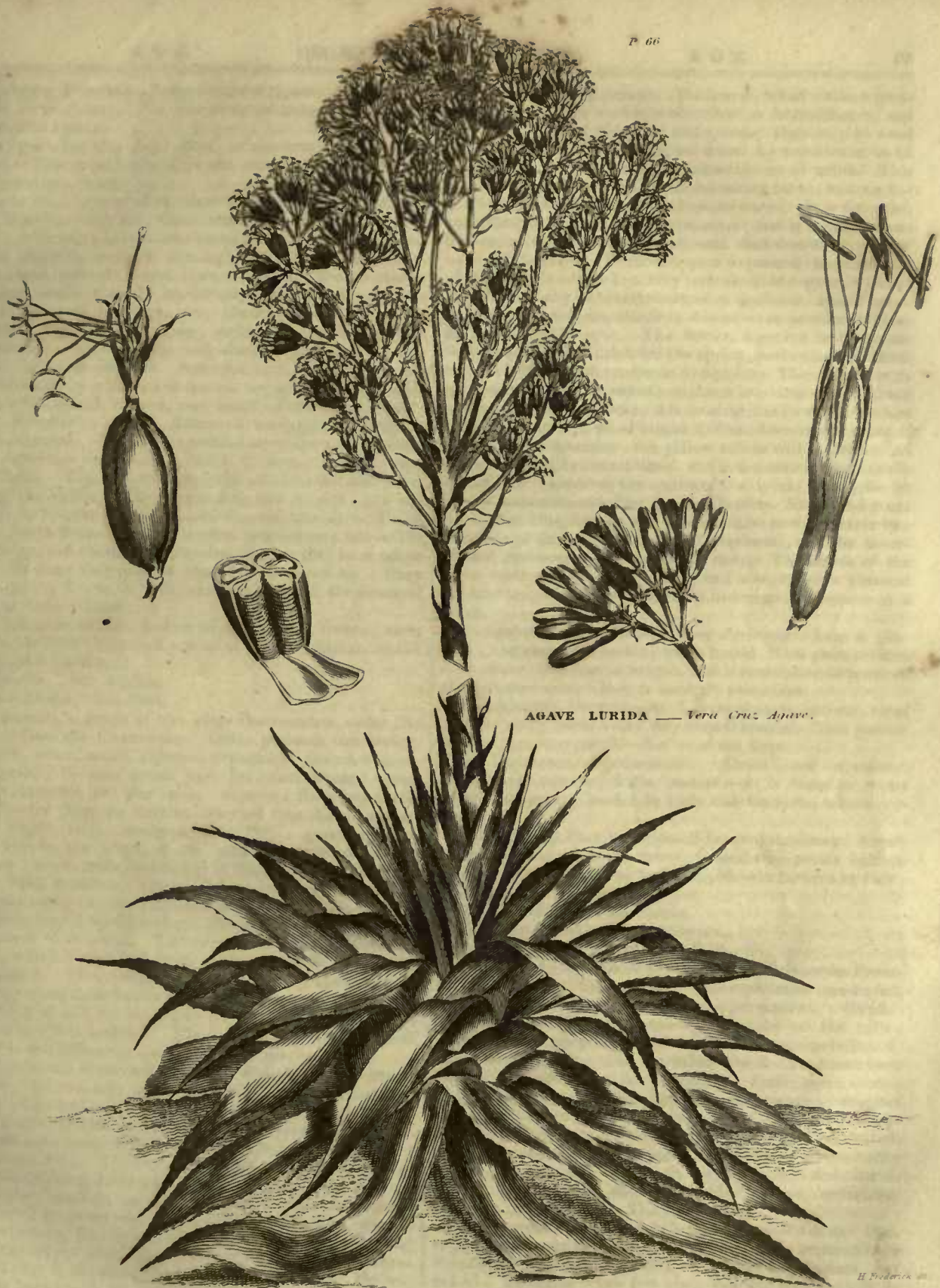
Agave; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* one-petalled, funnel-shaped; border six-parted, equal; parts lanceolate erect. *Stamina:* filaments filiform, erect, longer than the corolla; antheræ linear, shorter than the filaments, versatile. *Pistil:* germ oblong, growing thinner towards both ends, inferior; style, filiform, the length of the stamina, three-cornered; stigma-headed. *Pericarp:* capsule oblong, three-cornered, three-celled, three-valved. *Seeds:* numerous. Essential Character. *Corolla:* erect, superior. *Filaments:* longer than the corolla, erect.——The species are,

1. Agave Americana; *Common American Agave.* Stemless; leaves tooth-thorny. When vigorous the stems generally rise twenty feet high, and branch out so as to form a kind of pyramid, composed of greenish-yellow flowers, which stand erect, and come out in thick clusters at every joint. This plant has been long known in England, where it will flower in gardens, but not ripen seed. When they flower they make a fine appearance, and continue a long time in beauty; and if protected from the cold in autumn, will continue to flower for three months in favourable seasons. It has been erroneously said, not to flower until it is an hundred years old; but this is a mistake, as it flowers in a few years in warm countries, but in colder climates, where the growth is slow, it will be much longer before it shoots up a stem. In Portugal and Spain there are hedges of this plant: it also flourishes about Naples, and in other parts of Italy. The leaves are very useful as a succedaneum for soap; they are cut and passed (points foremost) between the rollers of a mill, the expressed juice being conducted into wide shallow receivers through a coarse cloth or strainer; it is then placed in a hot sun until reduced to a thick consistence by the exhalation of the aqueous part, after which it is made up into balls with lye-ashes, and will then lather with salt water as well as fresh. This soap may be made by pounding the leaves in a wooden mortar, and reducing them to a consistence by the sun or by boiling. A gallon of juice yields a pound of soft extract: the juice must always be carefully strained, and never combined with tallow or other unctuous materials. The leaves are also used for scouring pewter, and other kitchen utensils and floors. The inward spongy substance of the decayed stalk is used for tinder. The fibres of the leaves, separated by bruising and steeping in water, and afterwards beating them, make a strong thread for common uses. It is a hardy plant. This, and the third species, should be planted in pots or tubs filled with light sandy earth, and housed in winter with Oranges, Myrtles, &c.; and during that season should have but little wet. They may remain abroad during summer, and until the end of October.

2. Agave Vivipara; *Viviparous* or *Childing Agave.* Stemless, leaves toothed. This never grows to a large size; it is so tender that it will not thrive out of the stove even in summer: and as it never produces off-sets or suckers from the roots, it cannot be propagated that way except when in flower, when there will be an abundance of them. They require a light sandy earth, and should have little wet in winter, but may be gently watered twice a week in summer, and be allowed a great share of free air. Every summer they must be shifted, but not have large pots, and have fresh earth: unless the roots are confined, the plants will not thrive.

3. Agave Virginica; *Virginian Agave.* Stemless, herbaceous; leaves tooth-thorny. This is very like the first sort, but does not rise so high: both sorts have lived in the open air for some years in mild seasons; but in severe winters they are always killed if not sheltered. The third species seldom puts out so many suckers as the first, though it generally produces sufficient for propagation.

4. Agave Lurida. Subcaulescent; leaves tooth-thorny.—This also greatly resembles the first species, but the leaves are thinner, and their spines blacker. This is propagated like the second species; which see.



AGAVE LURIDA ___ *Vera Cruz Agave.*

Published by Fisher, Son & C° Caxton London. 1826

5. Agave Tuberosa; *Tuberous-rooted Agave.* Caulescent, leaves tooth-thorny. For the mode of propagating it, see the second species.

6. Agave Fœtida; *Fetid Agave.* Caulescent leaves, quite entire.—This is propagated in the same manner as the second species; which see.

Ageratum; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common oblong; with many lanceolate subequal scales. *Corolla:* compound uniform; corollets hermaphrodite, tubulous, numerous, equal, scarcely longer than the calix. Proper monopetalous, funnel-shaped; border quadrifid, spreading. *Stamina:* filaments capillary, very short; anthera cylindric, tubular. *Pistil:* germ oblong; style filiform, the length of the stamina; stigmas two, very slender, erect. *Pericarp:* none. *Calix:* unchanged. *Seed:* solitary, oblong, angular, crowned with a chaffy, five-leaved, upright, awned calicle. *Receptacle:* naked, convex, very small. Essential Character. *Receptacle:* naked. *Down:* five-awned. *Calix:* oblong, subequal. *Corollets:* quadrifid.——The species are,

1. Ageratum Conyzoides; *Hairy Ageratum.* Leaves ovate, stem hairy. This has an annual root; and its leaf resembles that of the Nettle. It flowers in July and August; is a native of Africa, the islands of America, and the isle of Tanna in the South Seas.—The seeds must be sown on a hot-bed in the spring, and should be transplanted after they have taken root. In June they may be inured to the open air. They will begin to flower in July, and continue till the frosts of autumn destroy them.

2. Ageratum Ciliare. Leaves ovate, crenate, obtuse; stem smooth, two feet high.—A native of the East Indies, and of China, near Canton.

Ageratum. See *Achillea.*

Agnus Castus. See *Vitex.*

Agrimonia; a genus of the class Dodecandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, acute, small, superior, permanent, fenced with an outer calix. *Corolla:* petals five, flat, emarginate; claws narrow, inserted into the calix. *Stamina:* filaments capillary, shorter than the corolla, inserted into the calix; antheræ small, twin, compressed. *Pistil:* germ inferior, styles simple, the length of the stamina; stigmas obtuse. *Pericarp:* none; calix contracted at the neck, and hardened. *Seeds:* two, roundish. Observe, the number of stamina is very uncertain, 12, 10, 7. Essential Character. *Calix;* five-cleft, fenced with another. *Petals:* five. *Seeds:* two, at the bottom of the calix. This is a genus of hardy perennial plants, which if kept free from weeds will thrive in any soil or situation. They are propagated by parting their roots in autumn, when their leaves begin to decay, that the young plants may be well established by the spring; and they should be kept two feet asunder. The seeds sown in autumn will appear in the following spring.——The species are,

1. Agrimonia Eupatoria; *Common Agrimony.* Stem-leaves pinnate; the end-lobe petiolate; fruits hispid.—This plant is only a foot and a half in height; it is a native of woods, shady places, hedges and borders of corn-fields in Great Britain, and most parts of Europe. It is perennial, and flowers in June and July. The root in spring is sweet-scented; and the fresh-gathered flowers smell like apricots. Kalm informs us that the Canadians use an infusion of the root in burning fevers with great success. Dr. Hill affirms, that an infusion of six ounces of the crown of the root, in a quart of boiling water, sweetened with honey, and half a pint of it drank three times a day, is an effectual cure for the jaundice. He advises to begin with a vomit, afterwards to keep the bowels soluble, and to continue the medicine as long as any symptoms of the disease remain. The leaves, which make a pleasant tea, are said to be serviceable in hemorrhages, and in obstructions of the liver and spleen: they may be used either fresh or dried. They are found by experience to be salutary in the diabetes, and incontinence of urine. This plant is also one of the famous vulnerary herbs, and an ingredient in the genuine arquebusade-water. It is frequent, according to Meyrick; in dry pastures; and is a mild corroborant, of great efficacy in all such disorders as arise from a lax habit of body: its roots appear to possess the properties of the Peruvian bark in a very considerable degree, without manifesting any of its inconvenient qualities; and if taken in pretty large doses, either in decoction or powder, seldom fails to cure the ague. The leaves, digested in whey, afford an useful diet-drink for the spring, particularly for such as are troubled with scorbutic complaints. The country people also use them by way of cataplasm in contusions and fresh wounds. If gathered when it is coming into flower, this plant will dye wool of a good bright full nankeen colour; but if gathered in September, the yellow colour will be darker. As it gives a good dye at all times, and is a common plant easily cultivated, it deserves the notice of the dyers: in the Berlin Acts it is recommended for dressing leather. Sheep and goats eat it; but kine, horses, and swine, refuse it.—There are two varieties of this species, the *White Agrimony,* and the *Sweet-scented Agrimony,* both natives of Italy. The leaves of the latter emit an agreeable odour, and also make a pleasant cooling tea, which is an excellent beverage for persons in a fever.

2. Agrimonia Repens; *Creeping Agrimony.* Leaves pinnate; the end-lobe sessile; fruits hispid. This plant seldom rises above two feet in height, and it multiplies faster than the common sort, which it strongly resembles.

3. Agrimonia Decumbens. Leaves pinnate, hirsute; stem procumbent; fruits every way hispid-hooked. This species is usually monogynous.—Native of the Cape.

4. Agrimonia Agrimonoides; *Three-leaved Agrimony.* Stem-leaves ternate; fruits smooth.—It is found in moist woods and among bushes in Italy and Carniola, where it is a native.

5. Agrimonia Parviflora; *Small-flowered Agrimony.* Stem-leaves pinnate; leaflets many, lanceolate; petals half as long again as the calix; fruits hispid.—It flowers in July; and is a native of North America.

Agrimonoides. See *Agrimonia.*

Agrimony, Hemp. See *Eupatorium.*

Agrimony, Water Hemp. See *Bidens.*

Agrostemma; a genus of the class Decandria, order Pentagynia,—Generic Character. *Calix:* perianth one-leafed, coriaceous, tubulous, five-toothed, permanent. *Corolla:* petals five; claws the length of the tube of the calix; border spreading, obtuse. *Stamina:* filaments awl-shaped, five alternately later than the other five, inserted into each claw of the petals; antheræ simple. *Pistil:* germ ovate; styles filiform, erect, the length of the stamina; stigmas simple. *Pericarp:* capsule oblong, ovate, covered, one-celled, five-valved. *Seeds:* very many, kidney-shaped, dotted. *Receptacles:* free, as many as seeds, the interior ones gradually longer. Essential Character. *Calix:* one-leafed, coriaceous. *Petals:* five, clawed; border obtuse, undivided. *Capsule:* one-celled.——The species are,

1. Agrostemma Githago; *Corn Campion,* or *Cockle.* Hirsute, calix longer than the corolla, *which is not crowned as in the other species;* petals entire, or slightly emarginate, and naked. The stem is two feet high, and the root annual; it is a common weed in corn-fields, enlivening them at the expense of the careless husbandman, along with Poppy and

Blue-bottle; it flowers in June and July. The seeds are diuretic; they promote the menses, and are serviceable in the dropsy and jaundice, but the use of them must be continued for a considerable length of time. Hill says, the seeds are used; they work by urine, and open all obstructions, promote the menses, and are good in dropsy and jaundice: the best way of giving them is powdered, and put into an electuary, to be taken for a continuance of time; for those medicines whose virtues are against chronic diseases, do not take effect at once.

2. Agrostemma Coronaria; *Rose Campion.* Tomentose, leaves ovate-lanceolate; petals slightly emarginate, crowned, serrate.—This is a native of Italy, the Valais, and Siberia, and is a biennial plant. It has long been an inhabitant of the English gardens, whereby its seed having scattered, it is become a kind of weed. There are three varieties of this plant, one with a deep red, another with a flesh-coloured, and the third with a white flower; but all little esteemed, as the double rose Campion, being a fine flower, has turned the others out of most gardens. The single rose Campions propagate themselves best by their seeds; but the variety with double flowers is propagated by parting the roots in autumn, after the flowers are past.

3. Agrostemma Flos Jovis; *Umbellate Rose Campion,* or *Flower of Jove.* Tomentose: petals emarginate; flowers in a corymb. The flowers, which are of a bright red, appear in July, and the seeds ripen in September.—It grows naturally on the Swiss and Piedmontese mountains, and in the Palatinate. This requires a shady situation and moist soil.

4. Agrostemma Cœli Rosa; *Smooth Campion.* Smooth; leaves linear-lanceolate; petals emarginate, crowned.—An annual plant, the stem a foot or eighteen inches high; native of Italy, Sicily, and the Levant; and having little beauty is only preserved in botanic gardens.

Agrostis; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* a one-flowered, bivalve, acuminate glume. *Corolla:* bivalve, acuminate, one valve larger than the other. *Stamina:* filaments longer than the corolla, with forked antheræ. *Pistil:* germ roundish; styles reflex, villous, with stigmas longitudinally hispid. *Pericarp:* corolla growing to the seed, not gaping. *Seed:* roundish, pointed at both ends, the corolla adhering closely to it. Essential Character. *Calix:* bivalve, one-flowered, a little less than the corolla. *Stigmas:* longitudinally hispid.—This is said to be an artificial genus, the species of which are in general very ill ascertained. For the method of propagating and cultivating these grasses, see the article *Grass.*——The species are.

* *Awned.*

1. Agrostis Spica Venti; *Silky Bent Grass.* The outer petal has a very long stiff awn; the panicle is spreading.—This is from three to four feet high, annual, frequent in sandy corn-fields, and flowering from June to August.

2. Agrostis Interrupta; *Interrupted Spike Bent Grass.* The outer petal awned; the panicle attenuated, contracted, interrupted.—It is an annual; and native of France, Italy, Switzerland, Carniola, and Germany.

3. Agrostis Miliacea; *Millet Bent Grass.* The outer petal terminating in a straight stiff awn of a moderate length.—This resembles the first species; and is a native of Montpellier, Spain and Siberia.

4. Agrostis Bromoides; *Brome-like Bent Grass.* Panicle simple, narrowed; corolla pubescent; awn straight, longer than the calix; culm a foot and half high.—A perennial; growing wild about Montpellier.

5. Agrostis Australis; *Southern Bent Grass.* The panicle approaching to a spike; the seed ovate, pubescent; awn the length of the calix.—This species is three feet high; and a native of Portugal.

6. Agrostis Arundinacea; *Reedy Bent Grass.* Panicle oblong; outer petal villous at the base, and furnished with a writhed awn, longer than the calix. Very erect, height sometimes two and sometimes four feet.—It is perennial, and native of many parts of Europe. The Calmuc Tartars weave mats, and thatch their huts, with it. Goats will almost starve rather than eat this species of grass.

7. Agrostis Calamagrostis; *Branching Bent Grass.* Panicle thickened; whole of the outer petal woolly, awned at the tip; culm branching.—Reaches three feet in height, is a perennial, and native of Germany, Switzerland, and about Verona. It resembles the preceding.

8. Agrostis Serotina; *Late Bent Grass.* Floscules oblong mucronate; culm covered with very short leaves.—This species is about a foot high; and was observed by Seguier near Verona.

9. Agrostis Rubra; *Red Bent Grass.* Flowering part of the panicles very spreading; outer petal smooth; awn terminal, spiral, recurved.—This species is common in Sweden and Scotland.

10. Agrostis Spiciformis; *Spiky Bent Grass.* Panicle resembling a spike; flowers two-awned; one awn inserted into the receptacle, jointed and longer than the other, which is straight, and inserted below the tip of the corolla, which is rough. This species is nine inches in height, erect, very smooth, and the culms perfectly simple.—It has been observed in the island of Teneriffe.

11. Agrostis Hirsuta; *Hairy Bent Grass.* Panicle approaching to a spike; culm and leaves hirsute; glumes of the corolla awned on the back, and bifid at the tip. This species is easily distinguished by its shagginess.—Native of the island of Teneriffe.

12. Agrostris Matrella. The flowers in racemes; outer valve of the calix bent in, the tip of the keel only gaping.—This differs somewhat from the other species in character, and is found in the sandy lands of Malabar.

13. Agrostis Canina; *Brown Bent Grass.* Calix elongate; a recurved awn on the back of the petals; culms prostrate, a little branching. This species is perennial.

** *Naked,* or *Awnless.*

14. Agrostis Stolonifera; *Creeping Bent Grass.* Branches of the panicle spreading, naked; culm creeping; calices equal. This is known by its creeping stems, putting out roots, and producing new plants.—It is a native of most parts of Europe, flowering from June to August, and is found in moist meadows.

15. Agrostis Capillaris; *Fine Bent Grass.* Panicle capillary, spreading, flexuose; calices subulate, equal, smooth, coloured.—Native of Lapland, common in pastures and by road-sides. Perennial.

16. Agrostis Sylvatica; *Wood Bent Grass.* Panicle contracted; calices equal, those of the barren flower shorter than the corolla, those of the fertile ones twice as long.—It is perennial; and is found in moist woods, as in Bishop's Wood, and Hornsey Wood, near London.

17. Agrostis Alba; *White Bent Grass.* Panicle loose; calices equal; culm creeping; it has purple antheræ.—Grows in ditches, marshes, and moist meadows; and is perennial.

18. Agrostis Pumila; *Dwarf Bent Grass.* Panicle on one side; culms erect in bunches.—It is a perennial plant, native of Iceland, Sweden, Germany, Switzerland, of dry places in England, and of Wales and Scotland.

19. Agrostis Minima; *Least Bent Grass.* Panicle filiform. This is an annual spring plant, which flowers early, and ripens its seeds in May.—Native of France and Germany, and has been seen in Wales.

20. Agrostis Tenacissima; *Tough Bent Grass.* Panicle contracted, filiform; flowers linear, valves parallel.—A perennial, and native of the East Indies.

21. Agrostis Virginica; *Virginian Bent Grass.* Panicle contracted; leaves rolled inwards, subulate, rigid, standing out.—An elegant little plant, the stalk somewhat compressed, and seldom rising above four or five inches from the root.

22. Agrostis Mexicana; *Mexican Bent Grass.* Panicle oblong, heaped; calix and corolla acuminate, and nearly equal. Culms numerous, a foot high, smooth, erect. This species is difficult to determine.—It is a native of South America, flowers the second year, and has the appearance of *Cinna.*

23. Agrostis Purpurascens; *Purple Bent Grass.* Panicle contracted, elongate; branches pressed close, upright; florets unequal, acuminate.—A native of Jamaica.

24. Agrostis Indica; *Indian Bent Grass.* Panicle contracted; racemes lateral, erect, alternate.—A native of India.

25. Agrostis Ciliata; *Ciliate Bent Grass.* Glume of the calix angular, and ciliate.—A native of Japan.

26. Agrostis Panicea; *Bearded Bent Grass.* Panicle subspiked; branches and branchlets fascicled; valves of the calix, and one of the corolla, awned; that of the corolla very short.—This grows in marshes and wet pastures.

27. Agrostis Lenta; *Forked Bent Grass.* Spikes subtern, umbellate; floscules awnless, oblong, acute; calycine valves subequal; leaves and sheaths smooth.—It is annual, a native of the East Indies, and flowers in July and August.

28. Agrostis Complanata; *Flat-stalked Bent Grass.* Spikes umbelled, smooth; outer calycine valves awned; flatted leaves, and sheaths smooth.—This species is perennial, flowers in July and August, and is a native of Jamaica.

29. Agrostis Pungens; *Prickly Bent Grass.* Panicle contracted; leaves involute, stiff, pungent; the upper ones obliquely opposite; culm branching.—Perennial; and a native of Arabia, Barbary, and the dry countries near the coast of the country of Nice. The Arabs use it as a medicine for the piles.

30. Agrostis Vinealis; *Short-awned Bent Grass.* Culms ascending; calix coloured; awn nearly straight, from below the middle of the back, about as long as the calix.—Native of Switzerland, and the north of England.

31. Agrostis Ovata; *Ovate-panicled Bent Grass.* Outer petal awned below the tip; panicle ovate, contracted, spikeform.—A native of New Zealand.

32. Agrostis Odorata; *Sweet Bent Grass.* Spikes with the florets pointing one way, heaped together; culm six inches high.—A native of Cochin-China, near the coast. This grass is highly esteemed by the Cochin-Chinese for the permanency of its odour; they dry it to perfume their clothes with.

33. Agrostis Plicata; *Plaited-leaved Bent Grass.* Leaves plaited; spike linear, awnless. Culm a foot and half high.—Native of the suburbs of Canton.

34. Agrostis Cinna. Panicle contracted, awnless; flowers acuminate, with one, two, or three stamina; leaves flat, scabrous.

35. Agrostis Diandra. Panicle elongate, contracted; flowers subulate, two-stamined; leaves convolute.—Native of the East Indies, whence it was sent by Koenig under the name of Cinna.

Agyneia; a genus of the class Monœcia, order Monadelphia.—Generic Character. Male flowers below the female. *Calix:* six-leaved; leaflets oblong, obtuse, equal, permanent. *Corolla:* none. In the *male,* instead of filaments, a column shorter than the calix; three or four antheræ, oblong, growing to the column below the top. In the *female* flowers, germ of the size of the calix, subovate, obtuse, perforated at top with a six-notched hole; neither style nor stigma. *Pericarp:* supposed to be a tricoccous capsule. Essential Character. *Calix:* six-leaved. *Corolla:* none. *Male:* three antheræ, growing to the rudiment of a style. *Female:* germ perforated at top; without style or stigma.—Species.

1. Agyneia Impubes.—Leaves smooth on both sides.—An erect shrub, a native of China.

2. Agyneia Pubera. Leaves down underneath. Also a native of China.

Ailanthus; a genus of the class Polygamia, order Monœcia.—Generic Character. *Male. Calix:* perianth one-leafed, five-parted, very small. *Corolla:* petals five, lanceolate, acute, convolute at the base, spreading. *Stamina:* filaments ten, compressed, the length of the corolla; antheræ oblong, versatile. *Female. Calix:* as in the male, permanent. *Corolla:* as in the male. *Pistil:* germs three to five, curved inwards; styles lateral; stigmas capitate. *Pericarp,* capsules as many as there are germs, compressed, membranaceous, sabre-shaped, acute, on one of the edges emarginate. *Seeds:* solitary, lens-shaped, bony, close to the emargination. *Hermaphrodite. Calix:* as in the male and female. *Corolla:* as in the male. *Stamina:* filaments two or three, as in the male. *Pistil:* pericarp and seed as in the female. Essential Character. *Male. Calix:* five-parted. *Corolla:* five-petalled. *Stamina:* ten. *Female. Calix* and *Corolla:* as in the male. *Germs:* three to five. *Styles:* lateral. *Pericarp:* membranaceous, one-seeded. *Hermaphrodite. Calix* and *Corolla:* as in the male. *Stamina:* two to three.——One species only is known, viz.

1. Ailanthus Glandulosa; *Tall Ailanthus.* This tree rises with a straight trunk to the height of forty or fifty feet; the bark is grey, slightly furrowed, and has white marks on it; the young twigs are covered with a fine velvet down. The flowers are numerous, and exhale a disagreeable odour.—It is a native of China, grows very fast in our climate, and being a handsome and lofty tree, is proper for ornamental plantations. If the bark be wounded, a resinous juice flows out, which hardens in a few days. The wood is hard, heavy, glossy, like satin, and susceptible of a very fine polish.

Aira; a genus of the class Triandria, order Digynia. Generic Character. *Calix:* a two-flowered, two-valved glume; valves ovate-lanceolate, acute, equal. *Corolla:* bivalve; valves like those of the calix; nectary two-leaved; leaflets acute, gibbous at the base. *Stamina:* filaments capillary, the length of the flower, with oblong antheræ, forked at each end. *Pistil:* germ ovate, styles setaceous, spreading, with pubescent stigmas. *Pericarp:* none. *Seed:* subovate, covered by the corolla. Essential Character. *Calix:* two-valved, two-flowered, without any rudiment of a third.—For the method of propagation and culture, see *Grass.*——The species are,

* *Naked,* or *awnless.*

1. Aira Arundinacea; *Reedy Aira-grass.* Panicle oblong, on one side, imbricate; leaves flat.—It is found in the Levant, and in Cochin-China.

2. Aira Minuta; *Minute Aira-grass.* Panicle loose, almost level-topped, very branching.—This is an annual grass, scarcely an inch high, and a native of Spain.

3. Aira Aquatica; *Water Aira-grass.* Panicle spreading; flowers smooth, longer than the calix; leaves flat. The root of this species is perennial; it runs to a considerable distance in the water, throwing off roots and young shoots as it passes along. It flowers in June and July, but is not worthy of cultivation.—The sandy lands near Exmouth, about Northfleet in Kent, and in Yorkshire and Lancashire, produce it.

** *Awned.*

4. Aira Subspicata; *Spiked Aira-grass.* Leaves flat; pa-

nicle spiked; flowers awned on the middle; awn reflex, loose. —It is a perennial, and is found upon the mountains of Switzerland, Savoy, Denmark, and Lapland.

5. Aira Cæspitosa; *Turfy Aira-grass.* Leaves flat; panicle spreading; petals villous, and awned at the base; awn straight, short. The culm of this grass is about a yard high. In marshes it is frequently viviparous, and growing in tufts it occasions irregularities, tussocks, or hassocks, as they are vulgarly called, in meadows. Cows, goats, and swine, eat it, but horses are not fond of it.—It is perennial; and found in meadows, fields, and woods.

6. Aira Flexuosa; *Heath Aira-grass.* Awned; leaves setaceous; culms almost naked; panicle divaricated; peduncles flexuose.—Perennial; and a native of heaths, barren pastures, and rocky moors. Horses, kine, and sheep, eat it.

7. Aira Montana; *Mountain Aira-grass.* Leaves setaceous; panicle narrowed; flowers hairy at the base, and awned; awn twisted, and very long.—This is a native of high heaths and barren pastures: it is perennial, and sheep are very fond of it. Supposed to be a variety of the foregoing.

8. Aira Alpina; *Alpine Aira-grass.* Leaves subulate; panicle dense; flowers hairy at the base, and awned; awn short.—This species grows on the mountains of Germany, Savoy, and Lapland.

9. Aira Villosa; *Villose Aira-grass.* Leaves subulate; panicle long and narrow; flowers sesquialteral, shaggy, awned; awn straight, short.—Native of the Cape.

10. Aira Canescens; *Gray Aira-grass.* Leave setaceous, the upper one involving the panicle at bottom like a spathe. This may be known at first sight from most other grasses by its paleness.—It is a native of sandy shores, the walls of Basil, and the sandy fields of Germany and Piedmont.

11. Aira Præcox; *Early Aira-grass.* Leaves setaceous; sheaths angled; flowers panicle-spiked, and awned at the base. This species has a sweet taste; horses and sheep eat it, and cows are very fond of it.—It grows in ditches, in wet meadows, and on the banks of streams; it flowers in June and July.

12. Aira Caryophyllea; *Silver Aira-grass.* Leaves setaceous; panicle divaricated; flowers awned, distant.—This is an annual plant; and is a native of the sandy pastures and heaths of England, France, Switzerland, Piedmont, Germany, and Denmark.

13. Aira Antarctica; *South Sea Aira-grass.* Leaves flat; panicle compound, spreading; calices three-flowered; floscules awned in the middle; awn elongated, straightish.—A native of New Zealand.

14. Aira Involucrata; *Involucred Aira-grass.* Panicle spreading, involucred, with bristles at the base; floscules awnless.—Native of Spain, on the barren hills near Madrid; it is annual, and flowers in June and July.

Aitonia; a genus of the class Monadelphia, order Octandria.—Generic Character. *Calix:* perianth one-leafed, erect, four-parted, short, divided into four ovate sharp segments. *Corolla:* has four, erect, equal, broadly-ovate, concave, very obtuse, petals. *Stamina:* filaments joined as far as the middle; divided above into eight; awl-shaped, furrowed, standing out of the corolla; and having ovate furrowed antheræ. *Pistil:* germ superior, ovate, smooth, subangular; style one, filiform, of the same length with the stamina; stigma obtuse, undivided. *Pericarp:* an ovate, dry, membranaceous, four-cornered, one-celled, brittle berry; the corners are produced and sharp. *Seeds:* many, fixed to a column, globular, and smooth. *Observe.* It varies with five cleft, ten-stamined flowers. Essential Character. *Style:* one. *Calix:* four-parted. *Corolla:* four-petalled. Berry dry, quadrangular, one-celled, many-seeded.——Only one species is known, viz.

1. Aitonia Capensis. This shrub is slow of growth with us, and seldom exceeds three feet in height. It is raised only from seeds, which are sparingly produced in this country; and it must be kept in the greenhouse or cape-stove. When it is of sufficient age, it produces flowers and fruit, which is large, and of a fine red colour through most of the year.

Ajuga; a genus of the class Didynamia, and order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, short, cut half way into the five-clefts, with the segments nearly equal. *Corolla:* monopetalous, ringent; tube cylindric, bent in; upper lip very small, erect, bifid, obtuse; middle division very large and obcordate; side ones small. *Stamina:* filaments subulate, erect, longer than the upper lip; antheræ twin. *Pistil:* germ four-parted; style filiform, situation and length as in the stamina; stigmas two, slender, the lowest shorter. *Pericarp:* none; the calix, which is converging, fosters the seeds. *Seeds:* somewhat oblong. Essential Character. *Corolla:* upper lip very small *Stamina:* longer than the upper lip.——The species are,

1. Ajuga Orientalis; *Eastern Bugle.* Flowers inverted. The stem is a foot and half high: there are several varieties, differing only in the colour of their flowers.—It is found in the Levant, Japan, and Cochin-China; and requires a little protection in winter, and as much free air as possible, except in hard frosts. They are propagated by seeds, and also by offsets; but the latter is a very slow method.

2. Ajuga Pyramidalis; *Pyramidal Bugle.* Spike a quadrangular, villous pyramid; leaves approximating; root-leaves very large; bractes nearly entire. The stem is four or five inches high. The plant is biennial, and flowers in April.—It is a native of Italy, France, Germany, Switzerland, Sweden, Denmark, Wales, and Scotland.

3. Ajuga Alpina; *Alpine Bugle.* Stem simple; stem-leaves equalling the radical ones.—This plant requires a moist and shady situation; it grows naturally on the Alps, and is admitted into some gardens for the sake of variety, where it propagates plentifully by its trailing stalks.

4. Ajuga Genevensis; *Geneva Bugle.* Leaves downy, streaked with lines, lowermost narrower; calices shaggy; bractes generally three-lobed. This species nearly resembles the common Bugle. There are two varieties, one with a white, the other with a red flower.—It grows wild about Geneva, and in many of the southern countries of Europe.

5. Ajuga Reptans; *Common Bugle.* Smooth, and creeping by runners. This species is so plentiful in a wild state, that it is seldom admitted into gardens. Its stalk is six inches high, upright, hairy, and purple. The corolla is blue, coloured with white veins. It flowers from May to June, and grows naturally in woods and moist meadows, in most parts of England, and of the south of Europe. There are two varieties, one with a white, the other with a pale purple flower, growing in different parts of Westmoreland, but they only differ in mere colour from the blue sort.—It is numbered among cooling and gently astringent vegetables, and is recommended both as an internal and external vulnerary. The leaves, when first chewed, have a sweetish taste, which soon changes into an austere and bitter one. An infusion of them, or their expressed juice, is good for wounds and bruises, whether internal or external, and is also esteemed a good diuretic. The leaves are of a wild astringent corroborating nature, and may be advantageously used in fluxes and all disorders of that kind, as they do not, like many other plants of the same nature, produce costiveness, but rather operate as gentle laxatives. The roots of this plant appear to be more astringent than

any other part by their striking a black colour with vitriol of iron. Some foreign physicians of eminence have recommended a decoction of this herb in the quinsy; it is not employed among us, but is constantly found mixed with the vulnerary herbs imported from Switzerland.

6. Ajuga Decumbens; *Japanese Bugle.* Decumbent and villous; leaves obovate, toothed. The flowers in whorls, small, and blue.—This plant sends up many stems: it may be propagated in the same manner as the first species.

Aizoon; a genus of the class Icosandria, order Pentagynia. —Generic Character. *Calix:* perianth one-leafed, divided into five lanceolate permanent segments. *Corolla:* none. *Stamina:* filaments very many, capillary, inserted by bunches into the sinuses of the calix; antheræ simple. *Pistil:* germ five-cornered, superior; styles five, simple; stigmas simple. *Pericarp:* capsule five-celled, five-valved, swelling, and retuse. *Seeds:* several, roundish, or kidney-shaped. Essential Character. *Calix:* five-parted. *Petals:* none. *Capsule:* superior, five-celled, five-valved.—— The species are,

1. Aizoon Canariense; *Purslane-leaved Aizoon.* Leaves wedge-ovate; flowers sessile.—This species is an annual plant, and a native of the Canary islands; it must be raised on a moderate hot-bed in the spring, and when fit to remove, should be carefully planted in a small pot filled with light fresh earth, and plunged into another bed, shaded from the sun, until they have again taken root; after this they must be gradually hardened to the open air, into which they should be removed in June, placing them in a sheltered situation, where they will flower and ripen seed in September, soon after which they die.

2. Aizoon Hispanicum; *Spanish Aizoon.* Leaves lanceolate; flowers sessile.—An annual plant, whose branches trail on the ground, growing naturally in Spain and Africa; and which, as the flowers have no beauty, is only preserved by those who are curious in collecting rare plants. It is propagated like the preceding, in which they produce better flowers, requiring a poor sandy soil.

3. Aizoon Lanceolatum; *Panicled Aizoon.* Leaves lanceolate; flowers panicled.—This is of humble growth, and perishes soon after the seeds are ripe; grows naturally at the Cape; and may be propagated in the same manner as the two preceding species.

4. Aizoon Sarmentosum. Leaves linear, filiform; panicle dichotomous; flowers solitary, peduncled.—Native of the Cape.

5. Aizoon Paniculatum; *Panicled Aizoon.* Shaggy; leaves lanceolate; flowers sessile; branches erect.—Native of the Cape.

6. Aizoon Perfoliatum; *Perfoliate Aizoon.* Downy; leaves inversely ovate, conjoined, crystalline dotted; flowers peduncled.—Native of the Cape.

7. Aizoon Glinoides; *Hairy Aizoon.* Shaggy, herbaceous, procumbent; leaves ovate; flowers sessile, distinct.—Native of the Cape.

8. Aizoon Secundum. Shag-hoary, herbaceous, procumbent; leaves ovate; flowers sessile, imbricate, one-ranked. —This species also is a native of the Cape.

9. Aizoon Fruticosum; *Shrubby Aizoon.* Shrubby, erect, smooth; leaves lanceolate; flowers sessile.—A native of the Cape.

10. Aizoon Rigidum; *Stiff Aizoon.* Shrubby, procumbent, downy; leaves ovate; flowers sessile, remote.—A native of the Cape.

Aizoon. See *Sedum.*

Alaternoides. See *Cluytia.*

Alaternus. See *Rhamnus:*

Albuca; a genus of the class Hexandria, order Monogynia. —Generic Character. *Calix:* none. *Corolla:* petals six, oblong-oval, permanent; the three outer spreading, the three inner converging. *Stamina:* filaments shorter than the corolla, three opposite to the inner petals, linear-subulate, complicate a little about the base, then flat; three opposite to the outer petals thicker; antheræ on the former oblong, fixed to the inflexed tip of the filament below the middle, upright; on the latter, similar but barren, or none. *Pistil:* germ oblong, triangular; style three-sided; stigma a triangular pyramid. *Pericarp:* an oblong, obtuse, triangular, three-celled, three-valved capsule. *Seeds:* numerous, flat, lying over each other, and widening outwards. Essential Character. *Corolla:* six-petalled; the inner ones difform. *Stamina:* three of the six castrated. *Stigma:* surrounded by three cusps.—The roots of these plants are kept in pots filled with light earth, and sheltered under a hot-bed frame in winter; but thrive best in a border in front of the greenhouse. ——The species are,

* *Three Stamina only fertile.*

1. Albuca Altissima; *Tall Albuca.* Interior petals glandulose, and bent in at the tip; leaves subulate, channelled, convolute.—This species flowers in April and May.

2. Albuca Major; *Great Albuca.* Interior petals glandulose, and bent in at the tip; leaves linear-lanceolate, flattish. —It is a native of the Cape, and flowers in May.

3. Albuca Minor; *Small Albuca.* Interior petals glandulose, and bent in at the tip; leaves linear-subulate, channelled It flowers in May and June.

4. Albuca Coarctata; *Channel-leaved Albuca.* Interior petals vaulted at the tip; leaves smooth, linear-subulate, channelled; peduncles the length of the bractes. The flowers are yellow, and appear in May.

5. Albuca Spiralis; *Spiral-leaved Albuca.* Interior petals vaulted at the tip; leaves spiral.—Native of the Cape.

** *All the Stamina fertile.*

6. Albuca Fastigiata; *Upright-flowered Albuca.* Interior petals vaulted at the tip; leaves smooth; peduncles very long. This species flowers in May.

7. Albuca Viscosa; *Viscose Albuca.* Interior petals vaulted at the tip; leaves hairy-glandulose. This species flowers in May and June.

8. Albuca Abyssinica; *Abyssinian Albuca.* Leaves linear, channelled, smooth.

Alcea; a genus of the class Monadelphia, order Polyandria. —Generic Character. *Calix:* double, each one-leafed; the outer cut half way into six parts, permanent, and very spreading; the inner cut half way into five parts, larger and permanent. *Corolla:* five obcordate, emarginate, spreading petals, coalescing at their bases. *Stamina:* filaments uniting into a sort of five-angled cylinder at bottom, loose at top, and inserted into the corolla; antheræ almost kidney-shaped. *Pistil:* germ orbiculate; style cylindric, short; stigmas about twenty, setaceous, the length of the style. *Pericarp:* many jointed arils in a ring round a columnar flatted receptacle, parting and opening on the inside. *Seed:* one, flat, kidney-shaped, in each aril. Essential Character. *Calix:* double; outer six-cleft. *Arils:* many, one-seeded.— Plants of this genus are propagated by seeds, which should be selected from those plants whose flowers are the most double, and of the best colours. They must be gathered dry, kept from damp in winter, and sown an inch deep in a bed of light earth in the middle of April. When the young plants have six or eight leaves, they should be transplanted to nursery beds, and placed a foot asunder, observing to water them

until they have taken root; after which they require no further care, except to weed them until October, when they may be planted out wherever they are intended to remain. ——The species are,

1. Alcea Rosea; *Common Hollyhock.* Leaves sinuate-angular.—This species grows naturally in China, whence its seeds are frequently imported, so that they are become very common. They flower from July until September, and often rise to nine feet high in good ground, six feet of which is garnished with flowers, which when *double*, and of a good colour, make a beautiful appearance, especially if the various colours be properly intermixed. Meyrick says, that a decoction of the roots operates by urine, and is serviceable in the stone, gravel, and all other disorders of the urinary vessels, such as the stranguary, heat of urine, &c. It is a good ingredient in poultices, fomentations, and clysters, for any of the aforesaid purposes, and appears to possess nearly the same virtues with the Marshmallow.

2. Alcea Ficifolia; *Fig-leaved Hollyhock.* Leaves palmate. —The seeds of this species were received from Istria, by Mr. Miller: like the common Hollyhock, though a native of warm countries, it is hardy enough to bear the open air of England: and is one of the greatest ornaments of our gardens towards the latter end of summer. Both this and the first species require tall stakes to secure them from violent winds, and produce a succession of flowers for two months.

3. Alcea Africana; *African Hollyhock.* Leaves three-lobed, crenate; flowers solitary, axillary; both calices six-parted. The stem of this species rises upright four feet high. —It is a native of the eastern shore of Africa.

Alcea. See Malva.

Alchemilla; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubulous, permanent; edge flat, divided into eight segments. *Corolla:* none. *Stamina:* filaments erect, awl-shaped, very small, on the edge of the calix; antheræ roundish. *Pistil:* germ ovate; style filiform, length of the stamina, inserted at the base of the germ; stigma globular. *Pericarp:* none; the neck of the calix closes and never opens. *Seeds:* solitary, elliptic, compressed. Essential Character. *Calix:* eight-cleft. *Corolla:* none. *Seed:* one. —The best way to propagate this genus of plants, is by parting their roots in autumn, that they may be established before the drying winds of spring come on. They require a moist soil and shady situation, or they will not thrive in the southern parts of England.——The species are,

1. Alchemilla Vulgaris; *Common Ladies-Mantle*, or *Bears-foot.* Leaves lobed.—This plant grows naturally in high pastures of several parts of England, but is not very common near London; it rises about a foot high, and its leaves are scalloped round the edges, resembling the scalloped mantles of the ladies, from which it has its name. Cows are not partial to it; but horses, goats, and sheep eat it. In Sweden, a tincture of the leaves is given in spasmodic or convulsive diseases: they are also esteemed to be vulnerary, drying, and binding, and are of great force to stop inward bleeding. The root is the most valuable part of the plant; and a strong decoction of it fresh taken up is excellent for immoderate discharges of the menses, the bloody flux, and all other bleedings. Dried and reduced to powder, it answers the same purposes, and is also good for common purges when they continue too long. Some say it has its name from its being used by the women in the north of England, to reduce their breasts to form after they have been swelled with milk, which is effected by an external application of the leaves. It is a perennial plant.

2. Alchemilla Alpina; *Cinquefoil*, or *Alpine Ladies-Mantle.* Leaves digitate, serrate.—This is found growing naturally on the mountains of Yorkshire, Westmoreland, and Cumberland, generally upon moist boggy places. It is also a native of Sweden, Denmark, the Alps, and other cold parts of Europe; and is admitted into gardens for its elegance. The leaves are of a fine white, consisting of from five to nine folioles, and the stem seldom exceeds six inches in height.

3. Alchemilla Aphanoides. Leaves many-parted; stem erect.—This is a small plant, resembling the Aphanes Arvensis or Parsley Piert, and was found in South America by Meutis.

4. Alchemilla Pentaphyllea; *Five-leaved Ladies-Mantle.* Leaves quinate, multifid, smooth.—This species grows naturally on the high Alps, as Gothard, Furca, Speluga, Pilat, &c.; and is only to be found in some few curious botanic gardens in this country.

Alchornea; a genus of the class Diœcia, order Monadelphia. —Generic Character. *Male. Calix:* perianth three or five leaved; leaflets ovate, concave, equal, coloured, deciduous. *Corolla:* none. *Stamina:* filaments eight, equal, scarce longer than the calix, slightly connate at the base; antheræ ovate, upright. *Pistil:* a rudiment. *Female. Calix:* perianth one-leafed, four or five toothed; teeth equal, small. *Corolla:* none. *Pistil;* germ twin, superior; styles two, very long, filiform; stigmas simple, acute. *Pericarp:* capsule berried, two-seeded, two-celled, two-valved. *Seeds:* solitary, large, oblong. Essential Character. *Male. Calix:* three or five leaved. *Corolla:* none. *Female. Calix:* five-toothed. *Corolla:* none. *Style:* two-parted. *Capsule:* berried, dicoccous.—One species only is known, viz.

1. Alchornea Latifolia. *Note*, This genus was named after Mr. Stainsby Alchorne, apothecary, of London; but there are no particulars of its qualities or use, in Miller's Gardener's Dictionary, edited by Professor Martyn, Lond. 1807.

Alder-Tree. See *Betula Alnus.*

Aldrovanda; a genus of the Pentandria class, order Pentagynia.—Generic Character. *Calix:* perianth five-parted, erect, equal, permanent. *Corolla:* petals five, oblong, acuminate, length of the calix, permanent. *Stamina:* filaments length of the flowers; antheræ simple. *Pistil:* germ globose; styles very short; stigmas obtuse. *Pericarp:* a globose capsule, with five blunt angles, five-valved, one-celled. *Seeds:* ten, longish, fixed to the inner wall of the pericarp. Essential Character. *Calix:* five-parted. *Petals*; five. *Capsule*; five-valved, one-celled, ten-seeded.——There is but one species.

1. Aldrovanda Vesiculosa. Root perennial, flowers solitary, and the stem seeming to terminate in a peduncle, whilst that continues the stem, or produces a branch from the side. Stamina between the petals. Antheræ yellow, twin.—This plant is found in marshes, both in Italy and India.

Ale-cost. See *Tanacetum.*

Alectra; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, two-lipped, upper lip two-cleft, lower three-cleft; clefts ovate, obtuse, shorter than the tube. *Corolla:* one-petalled, tubular; tube by degrees widened a little; border expanding, five-parted; parts broad-lanceolate, obtuse. *Stamina:* filaments four, inserted into the tube, filiform, bearded, length of the tube; two of them are a little shorter; antheræ twin. *Pistil:* germ ovate; style filiform, length of the filaments; stigma incurved, a little thicker than the style, and of the same length, striated on both sides. *Pericarp:* capsule ovate-obtuse, twin, smooth, two-celled, two-valved. *Seeds;* solitary, ovate. Essential Character. *Corolla:*

20. Agrostis Tenacissima; *Tough Bent Grass.* Panicle contracted, filiform; flowers linear, valves parallel.—A perennial, and native of the East Indies.

21. Agrostis Virginica; *Virginian Bent Grass.* Panicle contracted; leaves rolled inwards, subulate, rigid, standing out.—An elegant little plant, the stalk somewhat compressed, and seldom rising above four or five inches from the root.

22. Agrostis Mexicana; *Mexican Bent Grass.* Panicle oblong, heaped; calix and corolla acuminate, and nearly equal. Culms numerous, a foot high, smooth, erect. This species is difficult to determine.—It is a native of South America, flowers the second year, and has the appearance of *Cinna.*

23. Agrostis Purpurascens; *Purple Bent Grass.* Panicle contracted, elongate; branches pressed close, upright; florets unequal, acuminate.—A native of Jamaica.

24. Agrostis Indica; *Indian Bent Grass.* Panicle contracted; racemes lateral, erect, alternate.—A native of India.

25. Agrostis Ciliata; *Ciliate Bent Grass.* Glume of the calix angular, and ciliate.—A native of Japan.

26. Agrostis Panicea; *Bearded Bent Grass.* Panicle subspiked; branches and branchlets fascicled; valves of the calix, and one of the corolla, awned; that of the corolla very short.—This grows in marshes and wet pastures.

27. Agrostis Lenta; *Forked Bent Grass.* Spikes subtern, umbellate; floscules awnless, oblong, acute; calycine valves subequal; leaves and sheaths smooth.—It is annual, a native of the East Indies, and flowers in July and August.

28. Agrostis Complanata; *Flat-stalked Bent Grass.* Spikes umbelled, smooth; outer calycine valves awned; flatted leaves, and sheaths smooth.—This species is perennial, flowers in July and August, and is a native of Jamaica.

29. Agrostis Pungens; *Prickly Bent Grass.* Panicle contracted; leaves involute, stiff, pungent; the upper ones obliquely opposite; culm branching.—Perennial; and a native of Arabia, Barbary, and the dry countries near the coast of the country of Nice. The Arabs use it as a medicine for the piles.

30. Agrostis Vinealis; *Short-awned Bent Grass.* Culms ascending; calix coloured; awn nearly straight, from below the middle of the back, about as long as the calix.—Native of Switzerland, and the north of England.

31. Agrostis Ovata; *Ovate-panicled Bent Grass.* Outer petal awned below the tip; panicle ovate, contracted, spike-form.—A native of New Zealand.

32. Agrostis Odorata; *Sweet Bent Grass.* Spikes with the florets pointing one way, heaped together; culm six inches high.—A native of Cochin-China, near the coast. This grass is highly esteemed by the Cochin-Chinese for the permanency of its odour; they dry it to perfume their clothes with.

33. Agrostis Plicata; *Plaited-leaved Bent Grass.* Leaves plaited; spike linear, awnless. Culm a foot and half high.—Native of the suburbs of Canton.

34. Agrostis Cinna. Panicle contracted, awnless; flowers acuminate, with one, two, or three stamina; leaves flat, scabrous.

35. Agrostis Diandra. Panicle elongate, contracted; flowers subulate, two-stamined; leaves convolute.—Native of the East Indies, whence it was sent by Koenig under the name of Cinna.

Agyneia; a genus of the class Monœcia, order Monadelphia.—Generic Character. Male flowers below the female. *Calix:* six-leaved; leaflets oblong, obtuse, equal, permanent. *Corolla:* none. In the *male,* instead of filaments, a column shorter than the calix; three or four antheræ, oblong, growing to the column below the top. In the *female* flowers, germ of the size of the calix, subovate, obtuse, perforated at top with a six-notched hole; neither style nor stigma.

Pericarp: supposed to be a tricoccous capsule. Essential Character. *Calix:* six-leaved. *Corolla:* none. *Male:* three antheræ, growing to the rudiment of a style. *Female:* germ perforated at top; without style or stigma.—Species.

1. Agyneia Impubes.—Leaves smooth on both sides.—An erect shrub, a native of China.

2. Agyneia Pubera. Leaves down underneath. Also a native of China.

Ailanthus; a genus of the class Polygamia, order Monœcia.—Generic Character. *Male. Calix:* perianth one-leafed, five-parted, very small. *Corolla:* petals five, lanceolate, acute, convolute at the base, spreading. *Stamina:* filaments ten, compressed, the length of the corolla; antheræ oblong, versatile. *Female. Calix:* as in the male, permanent. *Corolla:* as in the male. *Pistil:* germs three to five, curved inwards; styles lateral; stigmas capitate. *Pericarp,* capsules as many as there are germs, compressed, membranaceous, sabre-shaped, acute, on one of the edges emarginate. *Seeds:* solitary, lens-shaped, bony, close to the emargination. *Hermaphrodite. Calix:* as in the male and female. *Corolla:* as in the male. *Stamina:* filaments two or three, as in the male. *Pistil:* pericarp and seed as in the female. Essential Character. *Male. Calix:* five-parted. *Corolla:* five-petalled. *Stamina:* ten. *Female. Calix* and *Corolla:* as in the male. *Germs:* three to five. *Styles:* lateral. *Pericarp:* membranaceous, one-seeded. *Hermaphrodite. Calix* and *Corolla:* as in the male. *Stamina:* two to three.——One species only is known, viz.

1. Ailanthus Glandulosa; *Tall Ailanthus.* This tree rises with a straight trunk to the height of forty or fifty feet; the bark is grey, slightly furrowed, and has white marks on it; the young twigs are covered with a fine velvet down. The flowers are numerous, and exhale a disagreeable odour.—It is a native of China, grows very fast in our climate, and being a handsome and lofty tree, is proper for ornamental plantations. If the bark be wounded, a resinous juice flows out, which hardens in a few days. The wood is hard, heavy, glossy, like satin, and susceptible of a very fine polish.

Aira; a genus of the class Triandria, order Digynia. Generic Character. *Calix:* a two-flowered, two-valved glume; valves ovate-lanceolate, acute, equal. *Corolla:* bivalve; valves like those of the calix; nectary two-leaved; leaflets acute, gibbous at the base. *Stamina:* filaments capillary, the length of the flower, with oblong antheræ, forked at each end. *Pistil:* germ ovate, styles setaceous, spreading, with pubescent stigmas. *Pericarp:* none. *Seed:* subovate, covered by the corolla. Essential Character. *Calix:* two-valved, two-flowered, without any rudiment of a third.—For the method of propagation and culture, see *Grass.*——The species are,

* *Naked,* or *awnless.*

1. Aira Arundinacea; *Reedy Aira-grass.* Panicle oblong, on one side, imbricate; leaves flat.—It is found in the Levant, and in Cochin-China.

2. Aira Minuta; *Minute Aira-grass.* Panicle loose, almost level-topped, very branching.—This is an annual grass, scarcely an inch high, and a native of Spain.

3. Aira Aquatica; *Water Aira-grass.* Panicle spreading; flowers smooth, longer than the calix; leaves flat. The root of this species is perennial; it runs to a considerable distance in the water, throwing off roots and young shoots as it passes along. It flowers in June and July, but is not worthy of cultivation.—The sandy lands near Exmouth, about Northfleet in Kent, and in Yorkshire and Lancashire, produce it.

** *Awned.*

4. Aira Subspicata; *Spiked Aira-grass.* Leaves flat; pa-

flowers twelve-stamined; capsules hook-pointed.—A native both of North and South America.

5. Alisma Natans; *Creeping Water Plantain.* Leaves ovate, obtuse; peduncles solitary.—This is found in ditches in France, Sweden, Germany, and Siberia; also in a lake or two in Wales; and flowers in July and August.

6. Alisma Ranunculoides; *Small Water Plantain.* Leaves linear-lanceolate; capsules globose and squarrose. The corolla of this plant is bluish, and opens about noon.—It is found on marshes and moors, as on Giggleswick Farm, Yorkshire; between Burton and Derby; Bungay, Suffolk; Ellingham-fen, Norfolk; and also in Sweden, Holland, France, Germany, and Italy.

7. Alisma Subulata. Leaves awl-shaped.—This is a Virginian plant; with a very tender white corolla, and subulate leaves.

8. Alisma Parnassifolia. Leaves heart-shaped, acute; petioles jointed. The seeds are awned.—It is a native of Italy, in the marshes under the Apennines.

9. Alisma Repens. Stems creeping; leaves lanceolate, petioled, acute. It flowers in August.—Native of Spain, on the sandy backs of the river Manzanares.

Alisma. See *Arnica, Primula,* and *Senecio.*

Alkænda. See *Myrtus.*

Alkanet. See *Anchusa.*

Alkekengi. See *Physalis.*

Allamanda; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts ovate, acute. *Corolla:* one-petalled, funnel-shaped; tube cylindric; border semi-quinquefid, swelling; divisions spreading, obtuse. *Staminæ:* filaments scarcely any; antheræ five, sagittate, converging in the throat of the tube. *Pistil:* germ oval, surrounded with a ring; style filiform, the length of the tube; stigma headed, contracted in the middle. *Pericarp:* an orbicular, lens shaped, echinate, one-celled, two-valved capsule. *Seeds:* very many, imbricate, orbiculate, flat, edged with a membranous wing. Essential Character. *Corolla:* contorted. *Capsule:* lens-shaped, erect, echinate, one-celled, two-valved, many-seeded.——The only species known is,

1. Allamanda Cathartica. A milky shrub, the stem twining, and climbing on trees. The leaves are cathartic; and an infusion of them is used at Surinam in the colic.—Found wild there, at Cayenne, and in Guiana, by the sea-side.

All-heal. See *Stachys.*

Alliaria. See *Erysimum.*

Alligator Pear. See *Laurus.*

Allionia; a genus of the class Tetrandia, order Monogynia.—Generic Character. *Calix:* perianth common to three flowers, simple, oblong, five-parted; parts ovate, acute, permanent; proper obsolete, superior. *Corolla:* proper one-petalled, funnel-shaped, edge quinquefid, erect. *Stamina:* filaments setaceous, longer than the corolla, bending to one side; antheræ roundish. *Pistil:* germ inferior, oblong: style setaceous, longer than the stamina; stigma multifid, linear. *Pericarp:* none. *Seeds:* solitary, oblong five-cornered, naked. *Receptacle:* naked. Essential Character. *Calix:* common, oblong, simple, three-flowered; proper obsolete, superior. *Corollules:* irregular. *Receptacle:* naked. ——The species are,

1. Allionia Violacea. Leaves heart-shaped; calices quinquefid.—A native of South America.

2. Allionia Incarnata. Leaves obliquely ovate; calices triphyllous. An annual glaucous plant, native of Peru, and grows on rocks and in sandy soils.

Allium; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* spathe common roundish; withering, many-flowered. *Corolla:* petals six, oblong *Stamina:* filaments six, subulate, often the length of the corolla; antheræ oblong, upright. *Pistil:* germ superior, short, bluntly three-cornered, the corners marked with a line; style simple; stigma sharp. *Pericarp:* capsule very short, broad, three-lobed, three-celled, three-valved. *Seeds:* few, roundish. Essential Character. *Corolla:* six-parted, spreading. *Spathe:* many-flowered. *Umbel;* heaped. *Capsule:* superior.—All the flowering sorts are very hardy, thriving in any soil and situation; they may be propagated by roots or seeds: if from roots, should be planted in autumn; the seeds must be sown either in autumn or spring, on a border of common earth, and should be well weeded; in the following autumn, they may be transplanted into borders where they are intended to remain. They flower in May, June, and July.——The species are,

* *Stem-leaves flat; umbel capsule-bearing.*

1. Allium Ampeloprasum; *Great Round-headed Garlic.* Umbel globose; stamina three-cusped; petals with a rough keel. The stem is a foot high or more.—It grows naturally in the East, in Switzerland, in a small island in the Bristol Channel, &c. flowering in July and August.

2. Allium Porrum; *Common Leek.* Umbel globose; stamina three-cusped; petals with a rough keel; root coated.—This flowers in April or May. For the cultivation of Leeks, see that of the Onion species, No. 36. of this genus. Hill recommends an infusion of the roots of the Leek, boiled into syrup with honey, as a good medicine in coughs, asthmas, and other disorders of the breast and lungs. He says it answers, the same purpose with syrup of Garlic, but being milder it may be taken by many who cannot bear that medicine. The juice of Leeks is a good diuretic, and will frequently afford relief in the stone and gravel, when most of the usual remedies fail.

3. Allium Lineare; *Linear-leaved Garlic.* Umbel globose; stamina three-cusped, twice as long as the corolla.—Flowers purple: its leaves are narrower than the common Leeks, nor does it rise so high.—Native of Siberia.

4. Allium Rotundum. *Great Round-headed Garlic.* Umbel subglobose; stamina three-cusped; side-flowers nodding. The root of this species consists of many purple and black bulbs, crowded between white common sheaths.—It is a native of the southern parts of Europe.

5. Allium Victorialis; *Long-rooted Garlic.* Umbel rounded; stamina lanceolate, larger than the corolla; leaves elliptic.—This species grows on the mountains of Switzerland, Austria, Silesia, and Savoy. The stem is from a foot to eighteen inches in height. The petals are of a dirty white, with a tincture of green.

6. Allium Subhirsutum; *Hairy Garlic,* or *Dioscorides's Moly.* Stamina awl-shaped; lower leaves hirsute. The flowers are white, and the stem from a foot to eighteen inches high, round, smooth, and solid.—Native of the Levant, Italy, Spain, and Africa. It flowers in May.

7. Allium Magicum; *Homer's Garlic,* or *Moly.* Stamina simple; branches bulb-bearing.—This species grows a foot high, and is preserved by many persons in their gardens for variety's sake, although it has a very strong scent.

8. Allium Obliquum; *Oblique-leaved Garlic.* Stamina filiform, thrice as long as the flower; leaves oblique.—This is a native of Siberia; it attains to two feet in height, with a cylindrical stalk.

9. Allium Ramosum; *Branched Garlic.* Umbel globose; stamina awl-shaped; longer leaves linear-subconvex. The

petals of this species are purplish.—It grows naturally in Siberia, whence the seeds have been obtained with which most botanic gardens are supplied. They are solely preserved for the sake of variety.

10. Allium Roseum; *Rose Garlic.* Umbel flat-topped; petals emarginate; stamina very short, simple. Flowers large, and of a dark purple colour, with white and very short stamina.—It grows naturally about Montpellier and in Piedmont, in the fields, olive-grounds, and vineyards.

11. Allium Tartaricum; *Tartarian Garlic.* Umbel flat; stamina simple; leaves semi-cylindrical. This species rises half a foot high, has a flat and white corolla, with filaments shorter than the petals, and brown antheræ.—Native of Siberia.

***Stem-leaves flat; Umbel bulb-bearing.*

12. Allium Sativum; *Common Garlic.* Bulb compound; stamina three-cusped.—It is said to be found wild in the island of Sicily. It has many bulbs, commonly called *cloves,* invested with a white skin; the leaves are linear, long, and narrow, like those of grass. This species is very heating and penetrating, and should not be too freely used. A clove or two of garlic, pounded with honey, and taken two or three nights successively, is good in rheumatic cases. A quart of water, poured boiling hot upon a pound of the fresh root, cut into slices, and suffered to stand upon it in a close vessel for twelve hours, will be strongly impregnated with the smell of garlic, and it is this infusion, with a proper quantity of sugar, which makes the Syrup of Garlic of the shops. Vinegar and honey greatly improves this medicine as a detergent and remover of obstructions in the breast: this composition is prepared by infusing an ounce and half of the fresh root in half a pint of vinegar, and dissolving in the strained liquor, when at the heat of a water-bath, ten ounces of clarified honey; to cover the ill smell of the garlic, a little carraway and sweet-fennel seed bruised, of each two drachms, are boiled for a short time in the vinegar, before the garlic is put in. The garlic itself must on no account be boiled, as its essential oil, in which its whole virtue consists, exhales during that process. Besides the above syrup, which is an invaluable medicine for asthmas, hoarseness, coughs, difficulty of breathing, and most other disorders of the breast and lungs, it is sometimes externally applied in ointments and lotions, to prevent or stop putrefaction, and disperse hard swellings. When bruised, and applied to the soles of the feet, in the low stages of acute disorders, it raises the pulse and gives relief to the head. The principal effects of garlic are, to warm and stimulate the solids of the body, attenuate thick humours, and prevent putrefaction, as above specified. Hence the use of it appears very improper in hot bilious constitutions, where there is already too great a degree of irritation, or where the juices are thin and acrimonious, and the viscera unsound, in which cases it is almost certain to occasion head-aches, flatulence, thirst, and a variety of feverish symptoms. But on the other hand, where the constitution is cold and phlegmatic, its use is frequently attended with happy effects: when people of this last description find themselves troubled with loss of appetite, or with asthmatic complaints, or their stomach and lungs oppressed with tough viscid phlegm, they will generally find relief from the use of this plant. It is a powerful strengthener, and promotes expectoration, removes obstructions of the viscera, increases the urinary evacuation, destroys worms, and is serviceable in dropsies, by removing the water which may be already collected, and preventing its future accumulation.—This species is a native of the East, but very common in our gardens, where it flowers in the summer months. Garlic is easily propagated by planting the cloves or small bulbs of the root in the spring, with a dibber or in drills, in beds four feet wide, in rows six inches from each other, and four or five inches distant in the rows, taking care to weed them. The leaves should be tied in knots, in the beginning of June, to prevent their spindling or running to seed, which will greatly enlarge the bulb. Towards the end of July, the leaves will begin to wither and decay, when the roots should be taken up, cleaned, dried in the sun, tied in bunches, and hung up in a dry room, where they will be preserved from rotting, for winter use.

13. Allium Scorodoprasum; *Rocambole.* Stamina three-cusped; leaves crenulate; sheaths two-edged.—Found wild in Sweden, Denmark, and Hungary. It has compound bulbs, but the cloves are smaller than those of garlic. The stem rises from two to three feet high, and bears many small bulbs at top, which may be used as well as those of the root. Rocambole may be propagated either by the roots or the bulbs produced on the stalks: they should be planted in autumn, especially on dry ground, otherwise their bulbs will not be large. They are to be planted and prepared for use in the same manner as garlic.

14. Allium Arenarium; *Sandy Garlic.* Stamina three-cusped; sheaths columnar; spathe awnless.—This species grows wild in Thuringia, Scania, Denmark, Switzerland, Italy, and Westmoreland. It always grows in a sandy soil; the bulbs and flowers are blue, few in number, and the stamina a little longer than the corolla.

15. Allium Carinatum; *Mountain Garlic.* Stamina awl-shaped; spathe very long. The stem is four feet high; the outer petals are darker in colour than the inner ones, which are yellow, with a line of green, but sometimes purple. The bulb is simple, with very little of the garlic smell or taste.—It is found wild in Scania, Germany, Italy, and Switzerland: also in Westmoreland, about Ramsgate, in the isle of Thanet, and between Sandwich and Deal.

****Stem-leaves columnar; Umbel capsule-bearing.*

16. Allium Sphærocephalon; *Small Round-headed Garlic.* Stamina three-cusped, longer than the corolla; leaves semi-columnar. Petals red with a darker keel; filaments purple towards the top.—Native of Italy, Germany, Switzerland, and Siberia.

17. Allium Parviflorum; *Small-flowered Garlic.* Umbel globose; stamina simple, longer than the corolla; spathe awl-shaped. Native of the south of Europe.

18. Allium Descendens; *Purple-headed Garlic.* Stamina three-cusped, outer peduncles shorter. Two bulbs at the origin of the stalk; leaves fistulous, channelled above; stalk two feet high; sheath quadrifid.—It is a native of Italy and Switzerland.

19. Allium Moschatum; *Musk-smelling Garlic.* Umbel flat topped, mostly six-flowered; petals acute; stamina simple; leaves setaceous. It seldom attains to a foot in height, has a slender stem, and a dusky white corolla, with brown lines, smelling like musk or civet.—It grows wild in Provence, Narbonne, and Spain.

20. Allium Flavium; *Sulphur-coloured Garlic.* Flowers pendulous; petals ovate; stamina longer than the corolla.—A native of the south of France, Italy, and Austria.

21. Allium Pallens; *Pale-flowered Garlic.* Flowers pendulous, truncated; stamina simple, equalling the corolla. This species is two feet high, with a white bell-shaped corolla. It is a native of Italy, Spain, Montpellier, and Hungary.

22. Allium Paniculatum; *Panicled Garlic.* Peduncles capillary, spread out; stamina awl-shaped; spathe very long. The leaves are awl-shaped and channelled; the flowers hang on very long, loose, slender peduncles; the petals are purple,

obovate, the length of the stamina; the spathe has a very long awl-shaped point.—Native of Italy, Austria, Switzerland, Carniola, Siberia, and the Levant.

23. Allium Vineale; *Crow Garlic.* Stamina three-cusped. The stem is two feet high.—It is a native of Germany, Switzerland, Italy, &c. With us it is frequent in pastures, and communicates its rank taste to the milk and butter. In other countries, it grows in vineyards and among corn.

24. Allium Oleraceum; *Purple-striped Garlic.* Stamina simple; leaves rough, semi-columnar, furrowed underneath. The stem rises two or three feet high: very minute white dots, scarcely visible to the naked eye, are scattered over the whole plant. The smell and taste of the bulb is not strong, the flowers are true bell-shaped; the outer petals more acute, with a green nerve and a blush of purple: inner broader, more obtuse, whiter, and the nerve less prominent.—Native of Sweden, Germany, Switzerland, and Italy. In England it is found among the corn, in Westmoreland, Yorkshire, near Bristol; and in Essex, near Notley.

25. Allium Pallasii; *Pallas's Garlic.* Umbel difform; stamina simple, equalling the corolla; style very short. The stem is round, a foot and half high, slender, and leafy,—Supposed to be a native of Sweden.

*****Leaves radical; Stem naked:*

26. Allium Nutans; *Flat-stalked Garlic.* Scape two-edged: leaves linear, flat; stamina three-cusped. This species varies so much in differerent ages and soils, as scarcely to be known. The cusps of the stamina are obliterated in old plants.—Native of Siberia.

27. Allium Ascalonicum; *Shallot* or *Eschallote.* Scape columnar; leaves awl-shaped; umbel globose; stamina three cusped. This species rises from about seven to eight inches high; the petals are blue, with a dark keel; and the antheræ yellow.—Hasselquist found it native in Palestine. The Eschalotte, Chalott, or Shallot, is propagated by the smaller roots or offsets, planted in November or February, on beds four feet wide, six inches apart, and two or three deep, requiring no culture, except weeding. At the end of July or beginning of August they will be full grown, but should not be taken up till the leaves begin to wither, in dry weather; then spread them in the sun, and when they are properly dried, clean and tie them up in bunches for use.

28. Allium Senescens; *Narcissus-leaved Onion,* or *Garlic.* Scape two-edged; leaves linear, convex beneath, smooth; umbel roundish; stamina awl-shaped.—It is a native of Siberia, the Alps, Silesia, and the island of Sicily.

29. Allium Odorum; *Sweet-smelling Garlic.* Scape nearly columnar; leaves linear, channelled, angular, beneath; umbel flat-topped. Corolla white, sweet-smelling; scape a foot high, round, or with one obscure angle, erect.—Native of the south of Europe, China, Japan, &c.

30. Allium Inodorum; *Carolina Garlic.* Scape naked, subtriquetrous; leaves linear, flat-keeled beneath; umbel fastigiate, floriferous; stamina simple.—It flowers in March and April, and is a native of Carolina.

31. Allium Angulosum; *Angular-scaped Garlic.* Scape two-edged; leaves linear, channelled, somewhat angular beneath; umbel flat-topped.—It grows in the moist parts of meadows; and is a native of Siberia, Italy, Austria, Switzerland, and Germany.

32. Allium Nigrum; *Black Garlic.* Scape columnar; leaves linear; umbel hemispherical; petals erect; spathe pointed, bifid.—It is a native of Provence, Italy, Austria, and the neighbourhood of Algiers.

33. Allium Canadense; *Canada Tree-Onion.* Scape columnar; leaves linear; head bulb-bearing. Root perennial; flowers few, pedicelled, whitish; petals oval; filaments simple, the length of the corolla, with brownish red antheræ.—Native of North America.

34. Allium Ursinum; *Ramsons.* Scape three-sided; leaves lanceolate, petiolate; umbel flat-topped. Stem a foot high and leafy; corolla white; smell and taste very acrid.—Native of Sweden, Denmark, Germany, Switzerland, Italy, in woods and moist shady places; and with us in England not uncommon.

35. Allium Triquetrum; *Three-cornered Moly.* Scape and leaves three-sided; stamina simple. Leaves resembling those of the burr reed, very much keeled; petals lanceolate acuminate, white, with a green keel; stamina and pistil half the length of the petals; antheræ yellow; stigma acute.—A native of Italy and Spain.

36. Allium Cepa; *Common Onion.* Scape swelling out below, and longer than the columnar leaves. The varieties of the common Onion, are, 1. The Strasburgh or Common Oval; 2. the Spanish Silver-skinned and Red-skinned; 3. the Portuguese great Oval Onion; and, 4. the Tripoli. All these vary from seeds, and there are several intermediate differences not worth enumerating. The virtues of this species are considerable. The common onion has been prescribed in malignant and epidemical distempers: They are very diuretic, and powerful in cleansing and breaking away any obstructions in the urinary passages. They are likewise very efficacious in removing all oppression from the lungs, greatly promoting expectoration, and relieving asthmas and difficulty of breathing. They are externally employed in cataplasms for suppurating hard tumors. They are excellent to be taken by those who abound in cold watery humours, but very injurious to those of a bilious habit, affecting their heads, eyes, and stomachs. Onions, when eaten plentifully, procure sleep, help digestion, cure acid belchings, remove obstructions of the viscera, increase the urinary secretions, and promote insensible perspiration. Steeped all night in spring water, and the infusion given to children to drink in the morning fasting, kills worms. Onions bruised, with the addition of a little salt, and laid on fresh burns, draws out the fire, and prevents the part from blistering. They are best suited for the use of old phlegmatic people, in cold weather, when their lungs are stuffed, and their breath short. A syrup made of the juice of onions and honey is an excellent medicine in asthmatic complaints. Care should be taken not to eat *peeled onions,* or *pieces of onions,* that have been exposed in that state for any considerable time, as very bad effects have followed, though the exact cause is not known.—*Culture.* The cultivation of Onions and Leeks is exactly the same: many persons sow their Leeks very thick in beds in the spring; and in June, after some of their early crops are taken off, they dig up the ground, and plant the Leeks out thereon, in rows a foot apart, and six inches asunder in the rows, observing to water them until they have taken root; after which they only require to be weeded: and in good ground, the Leeks thus planted, will grow to a large size. To save the Leek seed, take the largest and best Leeks you have, let them grow in their original place till February, then transplant them in a row against a warm hedge, paling, or wall, eight inches asunder; and when their stems advance, which will be in May or June, support them with a string, as they are very liable to be broken down, especially when in head; and the closer they are drawn to the fence in autumn, the better the seeds will ripen. They are known to be ripe by the heads turning brown, which should then be cut off, with about a foot or more of the stalk to each, and tie them up in bundles, three or four heads in each, and hang them up in a dry place, where

they may remain until Christmas or after, when you may thresh out the seeds for use. The husk is very tough, and makes it difficult to get out the seeds; the best way for those who have but a small quantity, is to rub it hard against a rough tile, which will break the husks, and extract the seeds with great dispatch.—The Onion is propagated by seeds, which should be sown on good, rich, light ground, well dug, levelled and cleared from weeds, in a dry time, about the latter end of February or beginning of March, when the surface of the ground is not moist, and must not be sown too thick, if intended for a winter crop. In cold wet land, it is best to defer sowing till the middle of March; and in very moist rich soils, it may be done any time before the middle of April; but the early-sown crops bulb or apple best, and grow to the largest size. Nothing should be sown with Onions except a little Cos Lettuce. The seed should be fresh; if above one year old, not one plant in fifty will grow. Six pounds of seed to an acre, or an ounce to a pole, is generally allowed, though most gardeners sow more, because they allow for cuttings or young Onions, which they draw out for the market; but this injures the main crop. Six or seven weeks after sowing, they should be gently hoed and weeded, and separated where they grow too close, leaving them at least two inches apart. A month or five weeks after, this must be repeated, cutting out all the weeds, and removing the Onions to three or four inches asunder. A month or six weeks afterwards, they must be again hoed and weeded for the third and last time, taking care to cut up all the weeds, and single out the Onions to near six inches square, by which means they will grow much larger than if left too close; and this, if well performed, will keep the ground clean till the Onions are fit to pull up, but if weeds re-appear, they must be pulled up by the hand, as the Onions will now have begun to bulb, and must not be disturbed by the hoe. Towards the middle of August, the Onions will have arrived at their full growth, which is known by their blades falling to the ground and shrinking; they should then, before their necks or blades are withered off, be drawn out of the ground, the extreme part of the blade being cropped off, and laid upon a dry spot of ground, and turned every day to prevent their striking fresh root, which they will very suddenly do in moist weather. In a fortnight they will be dry enough to house, which must be done in perfectly dry weather, after all the earth has been rubbed from their roots, and taking care to mix no faulty ones among them, as that would spoil great numbers. They must not lie too thick, which would bring on sweating and the rot, nor be put in a lower room or ground floor, but in a loft or garret; and the closer they are kept from the air, the better they will keep. Once a month they should be examined, and all the decayed removed; for after all the care you can possibly take in the drying and housing your Onions, many, especially in mild winters, will grow; therefore, those who preserve them late in the season, should select a parcel of the firmest, and most likely to keep, from the others, and with a hot iron slightly singe their beards or roots, which will effectually prevent their sprouting; but great care must be taken not to scorch the pulp of the Onions, for that will cause them to perish soon after. The best-keeping Onions are the Strasburg kind, which have an oval-shaped bulb, but seldom grow so large as the Spanish, which are flatter; the white sort is esteemed the sweetest, but varieties of this sort are not lasting, because they always degenerate. To save Onion *seed* in the spring choose the firmest, largest, and best-shaped Onions, plant them in rows six inches deep, and nine inches asunder, in a piece of good well dug ground. In a month's time they will appear above ground, and must be well weeded; and about the beginning of June, when the heads of the flowers begin to appear, stakes about four feet long must be provided, and driven into the ground, at about six or eight feet apart; to which you should fasten some packthread, rope yarn, or small cord, which should be run on each side the stems of the onions, a little below their heads, to support them against the wind and rain, which, as they are also apt to fall by their own weight, often beat them down, when the seeds are formed, and the heads heavy; and if the stalks be broken before the seeds have arrived at maturity, they will not be near so good, nor keep so long, as those that are perfectly ripened. The seed is known to be ripe by its changing brown about the end of August; and if not soon cut, the seed will then fall to the ground. When cut, the heads should be spread abroad upon coarse cloths in the sun, sheltering them in the night and in wet weather, and beating out the seeds, which are very easily dicharged from their cells, when quite dry. The seeds must be exposed one day more to the sun, and then preserved in bags for use. The directions above given are for a general crop of winter Onions; but there are two other crops of this common sort of Onion cultivated for the London market, one called the Michaelmas Onion, which are sown about the middle of August, in beds, pretty close; from the thinnings of which they carry young green Onions to market in March, for salads, &c. and in the spring they sow more beds in the same manner and for the same purpose, after the Michaelmas Onions have grown too large for salads. To have Onions for *pickling*, some seed should be sown in light poor land in the middle of April. It should be thickly sown, and not thinned, except they rise in clusters. They will be fit to take up in August. The Scallion or Escallion is a sort of onion which never forms any bulbs at the roots, and was chiefly used in the spring for green onions, but is now scarce, and known to few people. It is propagated by parting the roots in spring or autumn, but the latter season is preferable. They are hardy enough to withstand our severest winters, and well deserve a place in all good kitchen gardens.

37. Allium Moly; *Yellow Moly*. Scape sub-cylindric; leaves-lanceolate, sessile; umbel level-topped.—Native of Hungary, or Monte Baldo, about Montpellier, and on the Pyrenees. This was formerly preserved in gardens for the sake of its yellow flowers, but, having a very strong garlic scent, most people have rooted it out. It increases plentifully, both by roots and seed. The whole plant smells like garlic, and is, like it, a good remedy in asthmatic complaints, the chincough, and other disorders of the breast. It is also of an opening nature, and removes most obstructions of the viscera.

38. Allium Tricoccum; *Three-seeded Garlic*. Scape naked, semi-columnar; leaves lanceolate-oblong, flat, smooth; umbel globular, seeds solitary.—Native of North America.

39. Allium Fistulosum; *Welch Onion*, or *Ciboule*. Scape equalling the columnar swelling leaves.—This species is perennial, and does not form bulbs like the common Onion, and therefore only fit for salads. They are sown about the end of July, in beds of about three feet and a half wide, and appear above ground in a fortnight; they must then be weeded. About the middle of October their blades will die away; but will come up again very strong in January, growing vigorously, and resisting all weathers; by March they will be fit to draw for young onions, and are more valued in the market than any other sort at that time in season, as they are extremely green and fine, though they are more like the Garlic than the common Onion in taste. The roots of these onions, if planted out at six or eight inches distance in March, will produce ripe seeds in autumn, but it will be in small

quantities the first year; therefore the same roots should remain unremoved, which in the second and third year will produce many stems, and afford a good supply of seeds; these roots will continue good for many years, but should be transplanted and parted every second or third year, which will cause them to produce strong seeds.

40. Allium Schænoprasum; *Cives* or *Chives*. Scape equalling the columnar awl-filiform leaves. The petals of this species are of a faint purple colour; it has a very strong smell.—Native of Italy, Switzerland, Sweden, and Siberia. This is a very small sort of Onion, which never produces any bulbs, and seldom grows above six inches high in the blade, which is also very small and slender, and in round bunches; this was formerly in great request for salads in the spring, as being milder than those Onions which had stood through the winter. They are propagated by parting their roots, and are also very hardy, and will be fit for use early in the spring.

41. Allium Sibiricum; *Siberian Garlic*. Scape columnar; leaves semi-cylindric; stamina awl-shaped. It has white petals, with a greenish keel. Native of Siberia.

42. Allium Tenuissimum; *Slender-leaved Garlic*. Scape columnar, empty; leaves awl-filiform; heads loose, few-flowered.—A native of Siberia; much eaten by the field-mice, who lay up the roots for their winter food.

43. Allium Chamæ-Moly; *Bastard Garlic*. Scape scarcely any, naked; capsules drooping; leaves flat, ciliate. Flowers seven to ten, white, with the outside purplish or greenish.—It flowers in January; and is a native of Italy.

44. Allium Gracile; *Jamaica Garlic*. Scape naked; columnar very long; leaves linear, channelled; stamina subulate, connate at the base. Petals erect, white, the claws uniting below with the stamina, and forming a green tube.—A native of Jamaica; flowering in February.

45. Allium Neapolitanum; *Naples Garlic*. Scape naked, ancipital; leaves lanceolate, channelled; umbel scattered. Corolla white, and spreading; stamina shorter than the corolla.—It is cultivated in gardens in the neighbourhood of Naples, and begins to grow spontaneously about the city; it flowers in March.

Allophylus; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix*: perianth four-leaved; leaflets orbiculate; two exterior, opposite, smaller by half. *Corolla*: of four petals, less than the calix, orbiculate, equal; claws broad, length of the two smaller leaves of the calix. *Stamina*: filaments filiform, the length of the corolla; antheræ roundish. *Pistil*: germ superior, roundish, twin; style filiform, longer than the stamina; stigma bifid, with the divisions rolled back. Essential Character. *Calix*: four-leaved; leaflets orbiculate, two opposite smaller. *Petals*: four, less than the calix. *Germs*: twin. *Stamina*: quadrifid.——The species are,

1. Allophylus Zeylanicus. Leaves oval, acuminate, quite entire; racemes axillary, very short.—A native of the island of Ceylon.

2. Allophylus Rigidus. Leaves simple, toothletted, and spiny; flowers in racemes.—Native of Hispaniola.

3. Allophylus Racemosus. Leaves ternate; flowers in racemes.—A native of Hispaniola.

4. Allophylus Cominia. Leaves ternate; flowers in panicles. The stem is the thickness of the human thigh, rising thirty feet in height, with a smooth ash-coloured bark. Flowers very numerous, whitish yellow, to which succeed small orange-coloured smooth berries, the size of a small pin's head, having a single stone in them, with a thin brittle shell, and a large kernel in proportion to the fruit.—It grows abundantly in Jamaica.

5. Allophylus Ternatus. Leaves ternate serrate; racemes long, terminating. This is only a shrub five feet in height, with spreading branches. Flowers small, white, with hairy petals, and a nectary of four glands.—It is a native of Cochin-China, by the banks of rivers. The inhabitants use the leaves as a catapalasm in contusions.

All-seed. See *Linum* and *Chenopodium*.

All-spice. See *Myrtus*.

Almond, African. See *Brabeium*.

Almond, Dwarf, *Almond, Tree*. } See *Amygdalus*.

Alnifolia. See *Clethra*.

Alnus. See *Betula*.

Aloe; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix*: none. *Corolla*: one-petalled, erect, sexfid, oblong; tube gibbous; border spreading, small, nectareous at bottom. *Stamina*: filaments awl-shaped, as long as the corolla, or longer, inserted into the receptacle; antheræ oblong, incumbent. *Pistil*: germ ovate; style simple, the length of the stamina; stigma obtuse, trifid. *Pericarp*: an oblong capsule, three-furrowed, three-celled, and three-valved. *Seeds*: several, angular. Essential Character. *Corolla*: erect, with an expanded mouth, and a nectareous base. *Filaments*: inserted into the receptacle.—The roots of this genus are perennial and stoloniferous. Stem none, or else formed from the bases of the leaves; round, generally single, seldom branched. Leaves succulent, embracing the stem, in some smooth and even, in others spotted or painted, in others warted; variously disposed. Scape or peduncle bracted, erect, frequently single, seldom branched. Native place of growth, principally the Cape of Good Hope, and all hot climates.—The inspissated juice of the various species of Aloe is a hot and irritating purgative. The Socotorine Aloe is gentler and purer than the others, and is generally the only kind used in medicine. As the drossy resinous part of the Aloe is not soluble in water, it has been found, when combined with other mixtures, an excellent preservative against the worm which is so injurious to ships trading to the East or West Indies: one ounce of aloes is sufficient for two superficial feet of plank; about twelve pounds for a vessel of fifty tons' burthen; and three hundred pounds for a first-rate man of war. It may be incorporated with six pounds of pitch, one pound of Spanish brown, or whiting, and a quart of oil; or with the same proportion of turpentine, Spanish brown, and tallow. Such a coat will preserve a ship's bottom eight months, and the expense for a first-rate ship will be about eighteen pounds. The same composition may be used in hot countries for preserving rafters, &c. from the wood ant.—The soil in which this genus of plants thrive best, is one-half fresh light earth from a common, and if the turf be taken with it and rotted, it is much better; the rest should be white sea-sand, or road-sand, and sifted lime-rubbish, of each of these two a fourth part; mix them together six or eight months at least before the compost is used, observing to turn it over often during that time. The middle of July is the time to shift these plants, which must be done by taking them out of the pots, and opening the roots with the fingers, shake out as much of the earth as possible, and remove all dead or mouldy roots, then fill the pot three parts full with the above-mentioned earth, putting a few stones at the bottom to drain off the moisture, and replacing the roots of the plant so as to prevent their interfering with each other, fill the pot almost to the rim with the same earth, observing to shake the plant, that the earth may settle among the roots, and keep it steady in the pot, and water it gently, especially in hot dry weather, setting it abroad in a shady place. Towards the end of Sep-

tember, in a dry day, remove them into the house again, water them once a week in winter, and give them fresh air when the weather is warm. The hardier Aloes thrive best abroad in summer, and secured from cold and rain in winter. The tender sorts should always remain in the stove, or be removed to an airy glass-case during summer. Most Aloes are increased by offsets, which should be taken from the mother plants at the time they are shifted, and must be planted in very small pots, filled with the same earth as was before directed for the old plants. After planting, let them remain in a shady place for a fortnight, then remove the tender kinds to a very moderate hot-bed, and plunge the pots therein, which will greatly facilitate their taking new root; but observe to shade the glasses in the middle of the day, and to give them a great share of air. Towards the middle of August begin to harden these young plants by taking off the glasses in good weather, and giving them plenty of air, which is absolutely necessary for their growth, and to prepare them to be removed into the house, which must be done towards the end of September; and they will afterwards require the same management as the old plants.——The species are,

1. Aloe Dichotoma; *Smooth-stemmed Tree Aloe.* Branches dichotomous; leaves sword-shaped, serrate. Trunk round, upright, very stiff, ash-coloured, twelve feet high, about the thickness of a man's thigh.—Native of the Cape; where the natives hollow out the trunk to make quivers for their arrows.

2. Aloe Perfoliata; *Perfoliate Aloe.* Stem-leaves toothed, embracing, sheathing; flowers in corymbs, drooping, pedunculed, subcylindrical.——Of this species there are the following varieties.—

α. Aloe Arborescens; *Narrow-leaved Sward Aloe.* Leaves embracing, reflex, toothed; flowers cylindrical; stem shrubby. Has a strong naked stem, ten or twelve feet high, with leaves of a sea-green colour, and very succulent; the flowers of a bright red, which grow in pyramidal spikes, and are in beauty in November and December.

β. Aloe Africana; *Broad-leaved Sword Aloe.* Leaves broader, embracing, thorny on the edge and back; flowers in spikes; stem shrubby. This resembles the preceding species, but has broader leaves, and the flowers grow in looser spikes.

γ. Aloe Barbadensis; *Barbadoes Aloe.* Leaves toothed, upright, sueculent, subulate; flowers yellow, hanging down in a thyrse. The flower-stem rises nearly three feet high.—This species, though generally known by the name of Barbadoes Aloe, is very common in the other islands of America, where the plants are propagated on the poorest land to obtain the hepatic aloes, which are brought to England, and used chiefly for horses. At Barbadoes, in the month of March, when the plants are a year old, they are cut just above the surface of the earth, and placed in a tub, until their juice is drained off, when they are thrown upon the land by way of manure. The juice will keep several weeks without injury. It is put into boilers, and thickened by a regular fire till of a proper consistency to be ladled out into gourds, or other small vessels fitted for its final reception. As to the sun-dried aloes, which are most approved for medicinal purposes, very little is made in Barbadoes. The process is, to suspend bladders filled with the raw juice, and open at the top in the sun every dry day until the fluid parts are exhaled, and a perfect resin formed; which is then packed up for use or exportation. Those lands in the islands of Barbadoes, which lie near to the sea, are subject to drought, and are too stony and shallow to plant sugar canes, answer best for the Aloe plant. The larger stones are removed, and frequently formed into a surrounding fence. The land is then lightly ploughed, carefully weeded, and the young plants set like Cabbages, at about six inches from each other. They are thus planted to be weeded by hand, and will bear being planted in any season of the year, as they will live on the surface of the earth for many weeks without a drop of rain.

δ. Aloe Socotorina; *Socotorine Aloe.* Leaves very long and narrow; thorny at the edge; flowers in spikes.—This is the true Socotorine Aloe, which is named from the island of Zocotra or Socotora in the straits of Babelmandel, formerly famous for the extract of this plant. It is of a yellowish brown colour, approaching to purple: and when reduced to powder, is a sort of gold colour. Socotorine Aloes may be given in considerable doses, as a scruple, or half a drachm at a time; and is a very good purge, particularly as an aperient, and remover of obstructions in phlegmatic habits. The tincture, called *Tinctura Sacra,* or *Hiera Picra,* is a solution of it in wine: it may be given as a purgative from one to two ounces or more, or may be taken as an alterant in smaller doses, and continued until it has produced a lax habit or soluble state of the bowels. It is an excellent medicine for languid and phlegmatic constitutions; warming the solids, cleansing the intestines, and attenuating viscid juices in the remoter parts. Spanish liquorice is said to be the most efficacious ingredient of all others, in covering the unpleasant taste of Aloes. Equal parts of Aloes and Spanish juice dissolved in water, is said to be the most pleasant and useful of all the aloetic purges. Indeed the purgative properties of Socotorine aloes are universally known; and the different preparations of it purify the blood, help digestion, dissipate gross humours, and are friendly to the nervous system in general. They likewise powerfully resist putrefaction, remove obstructions of the viscera, kill worms in the stomach and intestines, cure the jaundice and green sickness, provoke the menses and piles, and prove serviceable in the ague, and all cold watery disorders; but should be forborne by such as have hot bilious constitutions or gravelly complaints. It should not be given to pregnant women, nor to those who spit blood, as in those cases it might prove fatal.

ε. Aloe Purpurascens; *White-spined Glaucous Aloe.* Leaves purplish beneath, with small roundish spots at bottom.

ζ. Aloe Glauca; *Red-spined Glaucous Aloe.* Stem short; leaves embracing, standing two ways; spines on the edges erect; flowers growing in a head.

θ. Aloe Ferox; *Great Hedge-hog Aloe.* Leaves embracing, very dark green, beset with spines on every side. It rises to the height of eight or ten feet, with a strong stem. It has not yet flowered in England, nor does it put out suckers, so that it is difficult to propagate.

ι. Aloe Saponaria; *Great Soap Aloe;* and,

κ. Aloe Obscura; *Common Soap Aloe.* Leaves broader, spotted, thorny at the edge; flowers in spikes. The first seldom rises above two feet in height; the leaves are very broad at their base, where they closely embrace the stalk, and gradually decrease to a point. The under leaves are of a dark green colour spotted with white, resembling the colour of soft soap. The flowers grow in umbels on the tops of the stalks, are of a beautiful red colour, and appear in August and September. The second has broader leaves, of a lighter green; the edges and spines are copper-coloured, and the flowers grow in loose spikes.

λ. Aloe Serrulata; *Hollow-leaved Perfoliate Aloe.* Leaves spotted, finely serrate at the edge and the tip of the keel. It seldom rises above a foot high; the leaves, which grow near

the ground, are of a sea-green colour, with some white spots; the flowers grow in loose spikes the tubulous part being red, and the brim of a light green colour.

μ. Aloe Suberecta; *Upright Perfoliate Aloe.* Leaves flat, almost upright, thorny at the edge and on the lower surface.

ν. Aloe Depressa; *Short-leaved Perfoliate Aloe.* Leaves embracing, thorny on both sides; flowers in spikes.

ξ. Aloe Humilis; *Dwarf Hedge-hog Aloe.* Leaves upright, subulate, radicate, with weak spines all round. This is a very low plant, never rising into a stem The flowers, which shew that it belongs to this species, grow on a loose head at the top of the stalk, which is very thick, but seldom a foot high; below their colour is a fine red, but a pale green above.

ο. Aloe Mitræformis; *Great Mitre Aloe.* Grows with an upright stalk to the height of five or six feet; the leaves are of a dark green colour; the tube of the corolla is of a fine red, the brim of a pale green.

π. Aloe Brevifolia; *Small Mitre Aloe.*

3. Aloe Arachnoides; *Cobweb Aloe.* Stemless; leaves three-cornered, cusped, ciliate; flowers in a sort of spike, upright, cylindrical. There are two varieties,

α. Aloe Arachnoides Communis; *Common Cobweb Aloe.* Leaves short, plain, fleshy, triangular at the end; the borders set with soft spines. Cobweb Aloe never rises from the ground, but the leaves spread flat on the surface; these are plain, succulent, and triangular toward the end; the borders and keel are closely set with soft white spines. The flower-stem rises about a foot high, is very slender, and has three or four small distant herbaceous flowers.

β. Aloe Arachnoides Pumila; *Small Cobweb Aloe.* Leaves ovate-lanceolate, fleshy, triangular at the end, with numerous soft spines. A small plant near the ground.

4. Aloe Margaritifera; *Pearl Aloe.* Stemless: leaves three-cornered, cusped, papillose; flowers in racemes, drooping, cylindrical. It is of humble growth, and flowers in several seasons of the year. There is a smaller sort, which has been long preserved in the English gardens.

5. Aloe Verrucosa; *Warted,* or *Pearl-tongued Aloe.* Stemless; leaves sword-shaped, sharp, papillose, distich; flowers in racemes, reflex, club-shaped. This species produces offsets in plenty, and flowers in several seasons of the year. The flowers are of a beautiful red colour, tipped with green.

6. Aloe Carinata; *Keel-leaved Aloe.* Stemless: leaves acinaciform, papillose; flowers in racemes, drooping, curved. The flowers are of a paler colour, and the spikes shorter than those of the preceding species.

7. Aloe Maculata; *Spotted Aloe.* Leaves blunt with a point. Almost stemless; leaves acinaciform, smooth, painted; flowers in racemes, drooping, curved. It varies with large, oblong, white confluent spots; and with small ones. —Native of the Cape; flowering in August.

8. Aloe Lingua; *Tongue Aloe.* Almost stemless; leaves tooth-letted, smooth distich; flowers in racemes, upright, cylindrical. The flowers are in slender loose spikes, each hanging downwards, of a red colour at bottom, and green at top. There is a variety of this with leaves much more spotted.

9. Aloe Plicatilis; *Fan Aloe.* Almost stemless; leaves tongue-shaped, even, distich; flowers in racemes, pendulous, cylindrical. This grows to the height of six or seven feet, with a strong stem; the flowers, which are of a red colour, are produced in short loose spikes, and appear at different times of the year.

10. Aloe Variegata *Partridge-breasted Aloe.* Almost stemless; leaves in three ranks, painted channelled; angles cartilaginous; flowers in racemes, cylindrical. It is a low plant, seldom rising above eight inches high. The leaves are triangular, fleshy, and serrated; they are curiously veined, and spotted like the feathers of a partridge's breast. The flowers are in loose spikes, of a fine red colour, tipped with green.

11. Aloe Viscosa; *Upright Triangular Aloe.* Subcaulescent; leaves imbricate in three ranks, ovate; flowers in racemes, drooping, cylindrical.—Grows near a foot high, and has triangular leaves of a dark green colour; the flowers grow thinly on very slender peduncles, they are of a herbaceous colour, and their upper part turns backward.

12. Aloe Spiralis; *Spiral Aloe.* Subcaulescent; leaves imbricate in eight ranks, ovate; flowers in racemes, curved back. This somewhat resembles the preceding species.

13. Aloe Retusa; *Cushion Aloe.* Stemless; leaves in five ranks, deltoid. This species receives its name from its very short thick succulent leaves, which are compressed on the upper side like a cushion; the flowers are of a herbaceous colour. It grows very close to the ground.

14. Aloe Spicata; *Spiked Aloe;* Flowers in spikes, horizontal, bell-shaped; stem-leaves flat, embracing, toothed. This very much resembles the second species. It was observed by Thumberg at the Cape. The flower is full of a purple honey-juice. The best and purest Hepatic Aloe is obtained from this species; that obtained from Barbadoes is of different degrees of purity, darker, and more bitter and nauseous than the Socotorine kind.

Alopecuros. See *Betonica.*

Alopecurus; a genus of the class Triandria, order Digynia. —Generic Character. *Calix:* glume, one-flowered, two-valved; valves ovate-lanceolate, concave, compressed, equal, connate at the base. *Corolla:* one-valved; valve ovate-lanceolate, concave, the edges united at the base, a little shorter than the calix; awn twice as long, with a bent joint, inserted into the back of the valve near the base. *Stamina:* filaments three, capillary, flattish at the base, longer than the calix; antheræ forked at each end. *Pistil:* germ roundish; styles two, capillary, united at the base, longer than the calix; stigmas villous. *Pericarp:* none; corolla investing the seed. *Seed:* ovate, covered. Essential Character. *Calix;* two-valved. *Corolla:* one-valved.—For the culture and propagation of this genus see Grass.—The species are,

1. Alopecurus Indicus; *Indian Fox-tail Grass.* Spike cylindrical; involucres setaceous, fasciculate, two-flowered; peduncles villous.—Native of the East Indies.

2. Alopecurus Bulbosus; *Bulbous Fox-tail Grass.* Culm erect; spike cylindrical; root bulbous.—It rises about a foot high; and has been found in great plenty in a wet salt-marsh near Yarmouth in Norfolk.

3. Alopecurus Pratensis; *Meadow Fox-tail Grass.* Culm spiked, erect; glumes villous; corollas awnless. Roots perennial; stalks from a foot to eighteen inches, two, and even three feet high; the antheræ are frequently purple when in full vigour.—It is a native of most parts of Europe. It is common in the best pastures about London; and produces the spike in April or May, being one of the earliest grasses. It frequently flowers twice in one season, and the seed may be collected without much difficulty, for it does not quit the chaff, and the spikes are very prolific. This grass is highly worth cultivation on the lands that are proper for it, as it possesses the three great requisites of quantity, quality, and earliness, in a superior degree to any other.

4. Alopecuris Agrestis; *Field Fox-tail Grass.* Culm spiked, erect; glume smooth; calix surrounded at bottom by a ring. It resembles the preceding, but is distinguished from

P. 80.

ALOE VARIEGATA — *Partridge-breasted Aloe.*

P. 80.

L.M. Oahey sc.

ALOE LINGUA — *Tongue Aloe.*

Published by Henry Fisher, Caxton, London, 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

it by the great length and slenderness of its spikes, tapering to a point, and usually of a purple colour. The stalk is a foot or eighteen inches high, and it has obtained the name of Mouse-tail in English from the great length and slenderness of the spike, resembling the tail of the mouse. It is every way inferior to Fox-tail Grass, and therefore not worth cultivation. It flowers early, continues flowering till autumn, and comes very quickly into bloom after it is sown.

5. Alopecurus Geniculatus; *Flote Fox-tail Grass.* Culm spiked, infracted; corollas awnless; (awns concealed within the calix.) Stalk from twelve to eighteen inches high; root perennial. It is called Black Grass in some places, from the deep purple colour of the spikes; cattle eat it readily, but it is not a profitable grass. It flowers in June.

6. Alopecurus Hordeiformis; *Barley-like Fox-tail Grass.* Raceme simple; flowers intrenched with awns. This is an Indian grass, about a foot high, with the pistil longer than the flower; and it has the appearance of Barley-grass.

7. Alopecurus Monspeliensis; *Bearded Fox-tail Grass.* Panicle subspiked; calices rugged; corollas awned. This is an annual, which grows wild in marshes and wet pastures, and flowers in June and July.

8. Alopecurus Paniceus; *Hairy Fox-tail Grass.* Panicle subspiked; glumes villous; corollas awned. This plant only reaches to five or six inches high; it grows on dry soils, and is annual, flowering in July.

Alpinia; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubulose, three-toothed; leaflets equal, erect, acute. *Corolla:* monopetalous, tubulose; tube cylindraceous, short; border three-parted; parts nearly equal, oblong. Nectary connate with the tube of the corolla, two-parted; the lower part forming the lower lip is larger and longer than the parts of the corolla, broadish, spreading, often divided. *Stamina:* filament proper, none; but along the upper division of the nectary, forming the upper lip, which is flattish, and the length of the corolla, grows a large anthera; either deeply bifid or entire. *Pistil:* germ inferior, oblong, style filiform, often inserted into the fissure of the anthera, stigma incrassate, obtuse. *Pericarp:* capsule oval, three-celled three-valved, crowned with the permanent calix. *Seeds:* some ovate, angular, covered with a sort of berried aril. Essential Character. *Calix:* three-toothed, equal, tubulose. *Corolla:* three-parted, equal. *Nectary:* two-lipped, the lower lip spreading.——The species are,

1. Alpinia Racemosa. Raceme terminating, spiked; flowers alternate; lip of the nectary trifid; leaves oblong, acuminate. Root fleshy, branched, and having the taste and smell of ginger; the stem from two to five feet high.—It is a native of the West Indies; and must be preserved in a stove, with the pot plunged into a tub of water. When the leaves decay, which is every winter, it may be propagated by parting the roots.

2. Alpinia Occidentalis. Raceme radical, compound, erect; nectary emarginate; capsules three-celled; leaves lanceolate-ovate, very smooth.—It is a native of Jamaica and St. Domingo.

Alsine; a genus of the class Pentandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved; leaflets concave, oblong, acuminate. *Corolla:* of five equal petals longer than the calix. *Stamina:* filaments capillary; antheræ roundish. *Pistil:* germ subovate; styles filiform; stigmas obtuse. *Pericarp:* an ovate, one-celled, three-valved; capsule, covered with the calix. *Seeds:* many, roundish. Essential Character. *Calix:* five-leaved. *Petals:* five, equal. *Capsule:* one-celled, three-valved.——The species are,

1. Alsine Media; *Common Chickweed.* Petals bipartite: leaves ovate-cordate. This plant is very generally known; it assumes a diversity of appearances, according to the soil in which it grows. It is commonly given as food to chickens and small birds, and when boiled it exactly resembles spinach: swine, and also many insects, are very fond of it. As a medicine, it contains no active principle, but is frequently applied to swellings, either alone or in poultices. The whole plant, or the juice of it, boiled in a sufficient quantity of hog's lard, makes an excellent cooling ointment. Taken inwardly, it is said this plant is good against the scurvy, and promotes the urinary evacuation. A poultice made of the bruised herb is recommended to remove inflammations arising from blows. Chickweed flowers upright, and open from nine to noon; but if it rains, the flowers do not open; after rain they become pendant, but in a few days rise again. Chickweed is also a remarkable instance of the sleep of plants: at night the leaves approach in pairs, so as to enclose between their upper surfaces the tender buds; and the two upper leaves but one, at the end of the stalk, are furnished with longer petioles than the others, so that they can close upon the terminating pair, and protect the end of the branch.—It is found wild in most parts of the world.

2. Alsine Segetalis. Petals entire; leaves awl-shaped.—It is an annual, and grows in France about Paris, and in Piedmont.

3. Alsine Mucronata. Petals entire, short; leaves setaceous; calices awned; stems erect, a foot high, many together, branching, a little hairy. Petals ovate, white.—It is a native of France and Switzerland.

Alstonia; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth inferior, imbricate; scales ovate, very obtuse, concave; the inner ones gradually larger, forming as it were a quadripartite or quinquepartite calix. *Corolla:* one-petalled, shorter than the calix; tube short; border spreading, divided into eight or ten parts; divisions equal, in a double row, alternately interior and exterior; obovate, obtuse, quite entire. *Stamina:* filaments very many, inserted into the tube very short, imbricate, very smoth; the outer ones longer, linear, attenuated at the tip; antheræ orbiculate, furrowed. *Pistil:* germ superior, ovate, small; style simple, length of the corolla, filiform, erect; stigma capitate-obovate. Essential Character. *Corolla:* one-petalled, eight or ten cleft; clefts alternated.——There is only one species, viz.

1. Alstonia Theæformis. This shrub was found by Mutis in South America. It is very smooth, and resembles Bohea tea; its dried leaves also give a greenish colour to the saliva when chewed, and have the same taste as the Chinese tea. The flowers are axillary, three or four together, and sessile; the calix is very smooth, the scales rounded and green, with a membranaceous edge; the corollas white and spreading.

Alstroemeria; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* six-petalled, sub-bilabiate; the three outer petals wedge-shaped, retuse, mucronate; the inner, which are alternate with the others, lanceolate; the two lower ones, tubulous at the base. *Stamina:* filaments awl-shaped, bending down, unequal; antheræ oblong. *Pistil:* germ inferior, hexangular, truncate; style bending down, filiform, the length of the stamina; stigmas three, oblong, bifid. *Pericarp:* a roundish six-ribbed mucronate capsule, three-celled, three-valved, valves concave, contrary to the dissepiment. *Seeds:* very many, globose, covered with raised points, subumbilicate at the tip. Essential Character. *Corolla:* of six petals, sub-bilabiate; the two lower petals tubulose at the

base. *Stamina:* bending down.—These plants are all found in South America, and must be kept in a stove in England, (except the first species) where they may be propagated by parting their roots in autumn.——The species are,

1. Alstroemeria Pelegrina; *Spotted-flowered Alstroemeria.* Stem erect; corollas bell-shaped, straight; leaves linear-lanceolate, sessile. The flowers are whitish, most beautifully stained, and veined with purple and red; they flower from June until October.—This species may be treated as a greenhouse plant; it will however flower and ripen its seeds better under the glass of a hot-bed frame, where air is freely admitted. It is generally raised from seeds, sown in a pot of light earth in the spring, on a gentle hot-bed, either of dung or tan.

2. Alstroemeria Pulchella. Stem erect; corollas reflex, spreading, acute; leaves sessile; pedicles shorter than the involucre. This much resembles the first species: its petals spread from the base, recurved, acute, alternately less, whitish, red at the tip, streaked or dotted with red at the base; filaments yellow, equal; pistil red, rising; stigma trifid.

3. Alstroemeria Ligtu; *Stripe-flowered Alstroemeria.* Stem erect; leaves spatulate-oblong; peduncles of the umbel longer than the involucre; corolla two-lipped.—This species is remarkable for the largeness and fragrancy of the flowers, which are scarcely inferior to Mignionette. It flowers in February and March.

4. Alstroemeria Salsilla. Stem twining; leaves petiolate, lanceolate, acuminate; umbel branching; peduncles longer than the involucre, bracted and loose. Leaves nervose; petioles naked; the outer petals red, the inner greenish.

5. Alstroemeria Multiflora. Stem twining; leaves petiolate, lanceolate, acuminate; umbel simple; peduncles shorter than the bractes; petals alternate, truncate. This species is very distinct from the rest.

6. Alstroemeria Ovata. Stem twining; leaves lanceolate, lanuginose on the upper surface, lucid on the lower; corollas tubular. Stem twining, contrary to the sun, slender, hardish and rising three feet high. Flowers terminating in umbels. Petals approximating into a tube; the three outer scarlet and green at the tip, the three inner green, flattish towards the top, and variegated with black dots.—A native of Peru.

Althæa; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth double; outer smaller, one-leafed, unequally novemfid; divisions very narrow: inner semiquinquefid; divisions broader, sharper. *Corolla:* five-petalled, united at the base, obcordate, præmorse, flat. *Stamina:* filaments many, inserted in the corolla; antheræ subreniform. *Pistil:* germ orbiculate; style cylindrical, short; stigmas many, setaceous, the length of the style. *Pericarp:* consists of arils not jointed, forming a flat ring about a columnar receptacle; they are deciduous, and open on the inside. *Seed:* one, flat kidney-shaped in each aril. Essential Character. *Calix:* double; outer nine-cleft. *Arils:* many, one-seeded.——The species belonging to this genus are the following.

1. Althæa Officinalis; *Common Marshmallow.* Leaves simple, downy. This species grows naturally on the banks of rivers, and in salt marshes and ditches, in Cambridgeshire, Norfolk, and Suffolk; on the sea-shores of Cornwall; and in Holland, France, Italy, and Siberia. The root is perennial; the stalk annual, growing erect to the height of four or five feet, putting out a few lateral branches; the flowers are axillary, shaped like those of the Mallow, but smaller, and of a pale colour: they appear in July, and the seeds ripen in September. The whole plant, particularly the root, abounds with a mild mucilage, which is emollient in a much greater degree than common Mallow. The boiled root is much used as an emollient cataplasm, and an infusion of it is very generally prescribed in all cases wherein mild mucilaginous substances are useful as a pectoral, and in complaints of a gravelly nature. It is kept in most gardens on account of its medicinal qualities. An infusion of it is excellent for blunting and sheathing those sharp and acrimonious humours which occasion tickling coughs, hoarseness, erosions of the stomach and intestines, difficulty and heat of urine, and for lubricating and relaxing the passages, and for the stone and gravelly complaints. A syrup and ointment of it are kept in the shops; but, a strong infusion has far more virtues than the syrup; and a poultice made of the fresh root, with the addition of a little white bread and milk, will prove more serviceable, when applied externally, than the ointment.—The common Marshmallow may be propagated by sowing the seeds in the spring, or parting the roots in autumn when the stalks decay. The plant should be placed two feet asunder, and will thrive in any soil or situation, but grow larger in moist than in dry land.

2. Althæa Cannabina; *Hemp-leaved Marshmallow.* Lower leaves palmate, upper digitate. This species has a woody stem, which rises to the height of four or five feet, and puts out many side-branches; the leaves are alternate. The flowers are axillary, not so large as those of the common Marshmallow, but of a deeper red colour, with a larger calix. It seldom flowers the first year, unless the summer prove warm; but when the plants survive the winter, they will flower early in the succeeding summer, and produce good seeds; which should be sown in the spring where they are intended to remain, in a sheltered situation and dry soil, or they will not bear an English winter, and transplanting is hurtful to them. In a stony soil, or in lime rubbish, their growth is stinted, but they become more hardy. They seldom continue longer than two years in England, and are by no means scarce.—It grows naturally in Hungary, Istria, Carniola, Italy, and by wood-sides in the south of France.

3. Althæa Hirsuta; *Hairy Marshmallow.* Leaves trifid, hairy-hispid, smooth above; peduncles solitary, one-flowered. This is a low plant, with its branches trailing on the ground. The leaves and stalks are beset with strong hairs; the flowers have purplish bottoms. If the seeds be sown in April, the plants will flower in July, and the seeds ripen in September.—It grows wild in Spain, Portugal, Italy, &c.

4. Althæa Ludwigii; *Ludwig's Marshmallow.* Leaves lobed, naked on both sides; peduncles collected, one-flowered.

5. Althæa Narbonensis; *Narbonne Marshmallow.* Leaves tomentose on both sides; the lower five-lobed, the upper three-lobed; peduncles solitary, one-flowered. Roots perennial, stems annual, from four to six feet high. Corolla purple rose-coloured, twice as long as the calix.—First discovered near Narbonne; found also in Spain; and flowers in August and September.

6. Althæa Corymbosa. Leaves simple, cordate or angular, smooth; peduncles and calices hairy; flowers in corymbs. —A native of Jamaica.

7. Althæa Racemosa. Leaves simple, cordate-ovate, serrate, scabrous on the upper surface, raceme terminating erect. Stems thick, stiff, five feet high, with many branches; corolla yellow; the fruit composed of five bivalve capsules, —A native of Jamaica.

Althæa Frutex. See *Hibiscus.*

Alyssum; a genus of the class Tetradynamia, order Siliculosa.—Generic Character. *Calix:* perianth four-leaved, oblong; leaflets ovate-oblong, obtuse, convergent, deciduous. *Corolla:* four-petalled, cruciform; petals flat, shorter than the

calix, very spreading; claws the length of the calix. *Stamina:* filaments six, the length of the calix; two opposite, a little shorter marked with a toothlet; antheræ from erect, spreading. *Pistil:* germ subovate; style simple, the length of the stamina, longer than the germ; stigma obtuse. *Pericarp:* a subglobose, emarginate *silicle*, with a style the length of the silicle, two-celled; partitions elliptic, valves elliptical, hemispherical. *Seeds:* fixed to filiform receptacles, issuing forth at the end of the silicle, few, orbicular. ESSENTIAL CHARACTER. The *shorter filaments* marked with a toothlet; *silicle* emarginate.—Every species of this genus may be propagated by seed, and most of them by slips and cuttings. The seeds should be sown in a border of light earth in April; cuttings or slips should be planted in April or May, shaded in the heat of the day, and gently refreshed with water. They seldom survive an English winter, when planted in rich ground; but in a poor, dry, rubbishy soil, or on old walls, they will abide the cold, and last much longer.——The species are,

* *Undershrubs.*

1. Alyssum Spinosum; *Thorny Madwort.* The old racemes thorny, naked. It has woody branches rising two feet high, and armed with small spines; the leaves are hoary, lanceolate, and thinly placed on the stalks without any order; the flowers grow in small clusters at the extremity of the branches.—It grows naturally in Italy, Spain, and the south of France; seldom remains more than two or three years with us, and must be often sown to preserve it; but if the seeds be suffered to remain, and fall upon the ground, the plants will rise without any trouble.

2. Alyssum Halimifolium; *Sweet Madwort.* Stems procumbent, perennial; leaves lance-linear, acute, quite entire. It spreads itself upon the ground, and never rises to any height; at the extremities of its branches it produces very pretty tufts of small white flowers, of which the plant is seldom destitute for six or seven successive months.—It is a native of the southern countries of Europe.

3. Alyssum Saxatile; *Yellow Madwort.* Stems shrubby, panicled; leaves lanceolate, very soft, repand; petals entire. This plant has a fleshy stalk, seldom more than a foot high; the flowers are of a bright yellow colour.—It is a showy and hardy plant, very suitable to embellish rock-work. The seeds ripen in July, but it is only from young plants that seeds can be expected; for the old plants, or those which are raised from slips or cuttings, rarely produce seeds in England.

4. Alyssum Alpestre; *Italian Madwort.* Stems undershrubby, diffused; leaves roundish, hoary; calices coloured. The flower is yellow; the plant perennial. Found on Mount Cenis, and the mountains of Provence towards Italy.

** *Herbaceous.*

5. Alyssum Hyperboreum; *Northern Madwort.* Leaves hoary, toothed; stamina four-forked.—Native of North America.

6. Alyssum Incanum; *Hoary Madwort.* Stem erect; leaves lanceolate, hoary, quite entire; flowers in corymbs; petals bifid. Grows to two feet in height, with small white flowers. The silicle is entire, oval, and full of brown seeds. It grows naturally in the south of France, in Spain, Italy, Germany, Austria, and Sweden. Chiefly on rocky or gravelly soils. It flowers from June to September, and the seeds ripen soon after; if these be permitted to scatter, the plants will come up, and require little care.

7. Alyssum Minimum; *Least Madwort.* Stems diffused; leaves linear, downy; silicles compressed. The petals are yellow and submarginate.—It is an annual plant, and grows well in Spain.

8. Alyssum Calycinium; *Calycine Madwort.* Stamina awl-toothed; calices permanent.—Annual, found wild in Austria, Carniola, France, Germany, and Switzerland. The petals are yellow, but turn white with age. It should be sown where it is intended to remain; if thinned, and kept clean from weeds, they will flower in July, and perfect their seeds in autumn.

9. Alyssum Montanum; *Mountain Madwort.* Stems diffused; leaves sublanceolate, dotted, and echinate. This is a perennial, and has dark yellow flowers.—It grows naturally upon the rocks of Burgundy and other parts of France and is also found in Germany.

10. Alyssum Campestre; *Field Madwort.* Stamina guarded with a pair of bristles; calices deciduous.—This much resembles the eighth species; but is more decumbent, and has lance-ovate leaves. It is a native of the same countries, and requires the same treatment.

11. Alyssum Clypeatum; *Buckler-podded Madwort.* Stem erect; silicles sessile, oval, compressed-flat; petals pointed, linear.—A biennial plant, growing naturally in Spain and Portugal.

*** *Silicles inflated, or Calices oblong, closed.*

12. Alyssum Sinuatum; *Sinuate-leaved Madwort.* Stem herbaceous; leaves lance-deltoid; silicles inflated. A low spreading plant, with flowers of a bright yellow colour.—It is annual or biennial, grows by way-sides in Spain, and in the islands of the Archipelago, but will bear the open air of England, in a dry soil and warm situation.

13. Alyssum Creticum; *Cretan Madwort.* Stem shrubby; leaves lanceolate, a little toothed, downy; silicles globular. This species seldom continues more than two years in England, and in a warm dry situation will live in the open air. The seeds should be sown in August soon after they are ripe; and if a few of the plants be potted in October, and sheltered under a frame in winter, they will flower in the following June, and produce good seeds in the same year.—Found in Spain and Candia.

14. Alyssum Gemonense; *Gemona Madwort.* Stem herbaceous; branches divaricated; root-leaves obovate, rather downy. Root perennial; flowers of a deep yellow colour; stem four or five inches long.—It has its name from being discovered on the mountain Della Fontana, near *Gemona* in Italy, in the clefts of rocks. It flowers in May and June.

15. Alyssum Utriculatum; *Bottle Madwort.* Stem herbaceous, erect; leaves smooth, lanceolate, quite entire.—This species is well adapted to decorating walls, or rock-work; it grows in the vineyards of Savoy; and is a hardy and beautiful perennial, flowering from April to June, at which time it begins to form its curiously inflated pods.

16. Alyssum Vesicaria; *Bladder Madwort.* Leaves linear, toothed; silicles inflated, angular, acute. This has a trailing stalk, and produces its flowers in loose spikes towards the extremity.—Found in the Levant.

17. Alyssum Deltoideum; *Deltoid-leaved Madwort.* Stems under-shrubby, prostrate; leaves lance-deltoid; silicles shaggy. Flowers of a purple colour.—Native of the Levant. It rarely producing seed in this country, may be propagated from its trailing branches; which if planted in April will take root and become good plants by the following autumn. It is properly a rock plant, being hardy, forming with very little care a neat tuft of flowers; and is very valuable from its beginning to flower in March, and continuing through the summer.

Amaranth, Globe. See *Gomphrena.*

Amaranthus; a genus of the class Monœcia, order Pentandria. GENERIC CHARACTER. *Male flowers on the same plants with the females. Calix:* perianth five or three-leaved,

upright, coloured, permanent; leaflets lanceolate, acute. *Corolla*: none, (unless the calix be so termed.) *Stamina*: filaments five or three, capillary, from upright patulous, the length of the calix; antheræ oblong, versatile. *Female flowers in the same racemes with the males. Calix*: perianth as in the male. *Corolla*: none. *Pistil*: germ ovate; styles three, short, subulate; stigmas simple, permanent. *Pericarp*: capsule ovate, somewhat compressed, as is the calix, on which it is placed; coloured, and of the same size, three-beaked, one-celled, cut open transversely. *Seed*: single, globular, compressed, large. ESSENTIAL CHARACTER. *Male. Calix*: three or five-leaved. *Corolla*: none. *Stamina*: three or five. *Female. Calix*: three or five-leaved. *Corolla*: none. *Styles*: three. *Capsule*: one-celled, opening horizontally. *Seed*: one.—These plants are generally disposed in pots with Cockscombs, and other showy plants, to adorn court-yards, and other immediate environs of the house. They are tender, and require much care to bring to perfection in England. They are annual herbaceous plants; the leaves simple, alternate ending in a little bristle; the flowers loosely disposed in glomerules or spikes; and are almost all natives of North America; although some are found in the tropical countries of Asia and Africa, and only two in Europe. ——The species are,

**With three Stamina.*

1. Amaranthus Græcizan; *Pellitory-leaved Amaranth.* Glomerules axillary; leaves lanceolate, repand, obtuse; the stem a span high.—It flowers from July to September, and is a native of North America.

2. Amaranthus Albus; *White Amaranth.* Glomerules axillary; leaves roundish, ovate, emarginate; stem four-cornered, simple. The stem is greenish white, a span high. A native of the coast of Pennsylvania, from whence it has migrated in Italy; it flowers in July and August.

3. Amaranthus Deflexus. Spike very short, with few flowers; leaves rhomb-lanceolate; capsules not gaping.—Its native place is unknown.

4. Amaranthus Polygonoides: *Spotted-leaved Amaranth.* Glomerules three-leaved: female flowers funnel-shaped; leaves rhomb-ovate, emarginate. This species varies in different situations; in a hot-bed, the stems were a foot high, and the whole plant green except the calices; and in the open air the stem was red, and six inches high. It is found wild by the way-side, and among rubbish, in the tropical countries of Asia, Africa, and America; as in Jamaica, Guiana, Senegal, Guinea, Ceylon, &c. It was brought to England in 1778, and flowers in August.

5. Amaranthus Polygamus; *Hermaphrodite Amaranth.* Glomerules two-stamined, subspiked, ovate; flowers hermaphrodite and female; leaves lanceolate. Stem upright, eighteen inches high.—It is a native of Guiana, China, and Amboyna, where the inhabitants boil and eat the leaves and stalks. It flowers in July.

6. Amaranthus Mangostanus, Glomerules subspiksd, axillary, solitary; leaves rhomb-roundish.—Native of the East Indies.

7. Amaranthus Inamænus. Glomerules subspiked, three-leaved, axillary, geminate; leaves rhomb-lanceolate. Stem a foot and half high. Supposed to be a native of Japan.

8. Amaranthus Melancholicus; *Two-coloured Amaranth.* Glomerules axillary, peduncles roundish; leaves ovate-lanceolate, coloured. Stem upright, half a foot high. In the open air, the leaves are of a dirty purple on their upper surface, and the younger ones are green; in a stove, the whole plant is of a fine purple colour. It is well worth a place in a pleasure garden, but is very tender, and requires some art and care to bring them to perfection in England.—It is a native of the East Indies and of Guiana. The leaves have two colours, an obscure purple, and a bright crimson, so blended as to set off each other, and making a fine appearance when the plant is vigorous. See the twenty-third species, for its propagation, cultivation, &c.

9. Amaranthus Gangeticus; *Oval-spiked Amaranth.* Glomerules in very short spikes, ovate; leaves ovate-lanceolate, emarginate. Stem a foot high.—A native of Bengal, and the Society Isles, and flowers from July to September.

10. Amaranthus Oleraceus; *Eatable Amaranth.* Glomerules axillary, branching; leaves wrinkled, oblong, very obtuse, emarginate. Stem upright, a foot or a foot and half high, even, smooth, round, and white; leaves pale green.—It is a native of Guiana, the East Indies, and Egypt, but is not entitled to a place in gardens on account of its beauty. This and the next species are gathered in India when young, and dressed as we dress spinach: it flowers in July.

11. Amaranthus Viridis; *Green Amaranth.* Glomerules axillary, geminate; male flowers trifid; leaves ovate, emarginate. Stem erect, a foot or a foot and half high; leaves a bright green in open situations, but dusky in the shade.—Native of Brazil; flowering in August and September.

12. Amaranthus Tricolor; *Three-coloured Amaranth.* Glomerules sessile, roundish, stem-clasping: leaves lanceolate-ovate, coloured. Stem upright, a foot and half or two feet in height; leaves blue, with a red point. It has long been celebrated for the beauty of its variegated leaves, in which the colours are elegantly mixed.—Native of Guiana, Persia, Ceylon, China, Japan, the Society Isles, &c.

13. Amaranthus Lividus; *Livid Amaranth.* Glomerules subspiked, rounded; leaves elliptic, retuse; stem upright, two feet high, hollow, dark red, smooth, round, deeply streaked or grooved. Leaves dusky green, with pale purple veins; flowers green.—Native of Virginia and Guiana.

14. Amaranthus Tristis; *Round-headed Amaranth.* Glomerules in loose spikes; leaves subcordate, ovate, emarginate, shorter than the petioles; stem upright, a foot and half high, leaves and flowers green.—Native of China, Cochin, Amboyna and Brazil; where the young plant is eaten by the natives, as the spinach is with us. It flowers from June till August.

15. Amaranthus Blitum; *Least Amaranth*, or *Blite.* Glomerules subspiked; flowers three-leaved; leaves ovate, retuse. Stem diffused, a span high, upright, streaked, smooth; leaves smooth, green, emarginate, with a very short white point.—Native of all Europe, except the very cold parts, Japan, &c. in cultivated grounds, on dunghills, banks, among rubbish, &c. Culpeper recommends this plant as excellent to restrain the fluxes of blood in either sex; and states, that there is a sort of wild Blites, resembling the other wild kinds, but having long and spiky heads of greenish seeds, appearing by their thick setting together, to be all seed, at which fish will bite with great avidity; and adds that it is much sought after by anglers.

16. Amaranthus Scandens; *Climbing Amaranth.* Spikes interrupted, compound; spikelets bent; in leaves ovate; stem weak, two feet high.—It resembles the preceding species; and is a native of America.

***With five Stamina.*

17. Amaranthus Hecticus. Flowers in simple spikes, axillary, glomerate; leaves ovate, acute. Stem red, nearly a foot high.—Its native place is unknown.

18. Amaranthus Hybridus; *Clustered Amaranth.* Racemes decompound, heaped, erect; leaves ovate-lanceolate. Stem two feet high, and double that height in gardens, green or red, upright, smooth, streaked. There are several

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 94

ANCHUSA. *Dyer's Alkanet*

P. 91

The Almond Tree.

Dwarf Almond.

AMYGDALUS

P. 86

AMARYLLIS. *Belladonna Lilly.*

P. 85

AMARANTHUS. *Bloody Amaranth.*

Published by Henry Fisher Caxton. London. 1823.

varieties.—It is found wild in Virginia, and Arabia Felix: it flowers from June to September.

19. Amaranthus Strictus. Racemes compound, erect strict: leaves ovate, concave. Stem two feet high or more, obscurely angular.—Place of growth unknown.

20. Amaranthus Lætus. Racemes compound, erect; leaves ovate, obtuse, mucronate. Stem never exceeding a foot in height; leaves green, smooth; the point herbaceous.

21. Amaranthus Cruentus; *Various-leaved Amaranth.* Racemes decompound, naked, patulous; leaves lanceolate-ovate. Stem a foot and half or two feet in height, grooved; green, with red streaks, smooth, slightly pubescent among the flowers.—Native of the East Indies and China; flowering from June to August. Propagated as the 23d species.

22. Amaranthus Hypochondriacus; *Prince's-feather Amaranth.* Racemes compound, crowded, erect; leaves oblong-lanceolate, mucronate. Stem erect, a foot and half, or two feet high.—It is a native of Virginia, and flowers from July to September. It is now become a common weed, growing upon dunghills.

23. Amaranthus Sanguineus; *Spreading* or *Bloody Amaranth.* Racemes compound, erect; branches spreading, smooth; leaves oblong, acute. Stem four feet high; flowers of a bright purple colour, turning darker as the seeds ripen. It flowers from the middle of June until September.—To propagate this species, the seeds should be sown in a moderate hot-bed, towards the end of March. The plants must be transplanted, when large enough, to another moderate hot-bed, where they must be watered, and shaded from the sun, till they have taken new root; and then should have free air always during mild weather. At the beginning of June, they may be taken up, with large balls of earth to their roots, and planted, some in pots, and others into the borders of the pleasure garden, observing to shade them until they have taken good root; after which they must be frequently watered in dry weather, especially those in pots, which will require it every evening in warm dry weather. These plants are a great ornament to good gardens during the latter part of summer.

24. Amaranthus Paniculatus. Racemes compound; branches spreading, pubescent; leaves ovate-lanceolate. Stem upright, firm, a fathom in height, grooved.—Native of America.

25. Amaranthus Retroflexus; *Hairy Amaranth.* Racemes super-decompound, erect; branches pubescent; leaves ovate. Stem three-feet high.—A native of Pennsylvania; and now a common weed in gardens near London.

26. Amaranthus Chlorostachys. Racemes compound, nodding; leaves lanceolate. Stem four feet high.—Its native place of growth unknown.

27. Amaranthus Flavus; *Pale Amaranth.* Racemes compound, nodding; leaves ovate-lanceolate. Stem sometimes exceeding four feet high; flowers green. The Portuguese cultivate it as a culinary herb.—Native of the East Indies.

28. Amaranthus Caudatus; *Pendulous Amaranth,* or *Love-lies-bleeding.* Stem generally two feet high; leaves a bright green colour.—Native of Persia, Ceylon, Guiana, Peru, &c.

29. Amaranthus Spinosus; *Prickly Amaranth.* Racemes terminating, compound; axils thorny. Stem upright, from twelve to eighteen inches high. In the East and West Indies it is eaten as a green, boiled with Basella Cordifolia. Native of Guiana and Guinea, and flowering from July to September.

Amaryllis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* spathe oblong, obtuse, compressed, emarginate, gaping on the flat side, and withering. *Corolla:* petals six, lanceolate; nectary six very short scales, without the base of the filamenta. *Stamina:* filamenta six, awl-shaped, with oblong, incumbent, rising antheræ. *Pistil:* germen roundish, furrowed, inferior; style filiform, almost of the length, and in the situation, of the stamina; stigma trifid, slender. *Pericarp:* a subovate, three-celled, three-valved capsule. *Seeds:* several. Essential Character. *Corolla:* six-petalled, irregular; filamenta inserted into the throat of the tube, bending down, unequal in proportion or direction.—These plants are of the liliaceous or bulbous tribe; most of them have flowers of singular beauty, highly deserving the care and attention of the curious botanist and florist. The best time to transplant the roots of all the species is about the beginning of August, when their leaves are decayed: they delight in a loose sandy soil, mixed with good kitchen mould. There should be little water given when their leaves are decaying; but when putting out their flowering stems, they should frequently be refreshed with water.——The species are,

1. Amaryllis Lutea; *Yellow Amaryllis,* or *Autumnal Narcissus.* Spathe undivided, obtuse; flower sessile; corolla bell-shaped, erect, shortly tubular at the base; stamina erect, alternately shorter. Its flowers seldom rise above three or four inches high; they are shaped somewhat like those of the large yellow Crocus.—It flowers in September, and is a native of the south of France, Spain, Italy, and Thrace. It is very hardy, and increases fast by offsets; is a pretty plant; and continues flowering until November, if the frost do not destroy the flowers. It will grow in any soil or situation, but thrives best in a fresh, light, dry soil, and open situation.

2. Amaryllis Pumilio; *Dwarf Amaryllis.* Spathe two-leaved, one-flowered; corolla funnel-shaped, equal; segments revolute; stamina bent in, alternately shorter.—Native of the Cape; flowering in November.

3. Amaryllis Atamasco; *Atamasco Lily.* Spathe bifid, acute; flower pedicelled; corolla bell-shaped, nearly equal, erect, shortly tubular at the base; stamina bent down, equal. The flowers are of a fine carnation colour on the outside at their first appearance, but fade till they become almost white; they are nearly as large as those of the Orange Lily, but do not grow above six or eight inches high, appearing at the end of May, or beginning of June, and sometimes in August.—It is a native of Virginia and Carolina, where it grows plentifully in the fields and woods, making a beautiful appearance when in flower. It may be propagated by offsets from the bulbs; and, if planted in a warm situation, will bear the open air of England.

4. Amaryllis Formosissima; *Jacobæa Lily.* Spathe undivided; flower pedicelled; corolla two lipped, nodding, deeply six-parted; stamina and pistil bent down. The flowers are large, of a deep red; the under petals very large; and as the whole flower stands nodding on one side of the stalk, it makes a most beautiful appearance. It is a native of South America. It is propagated by offsets, which may be taken off every year in August; and planted in pots of a middling size, having a moderate degree of warmth, will produce flowers plentifully, especially from March to September.

5. Amaryllis Reginæ; *Mexican Lily.* Spathe with about two flowers; pedicels divaricating; corollas bell-shaped, shortly tubular, nodding; throat of the tube hirsute; leaves lanceolate, patulous. Corolla scarlet, with a bottom of a whitish green, the flower-stems seldom rising more than one foot high. It is in beauty in February; and, in a moderate temperature of air, will flower in March or April. It requires a warm stove.

6. Amaryllis Purpurea; *Purple-flowered Amaryllis.* Spathe with about two flowers; corollas somewhat erect, tubular at the base; throat of the tube smooth; leaves linear-lanceolate.

The corolla is large, and of a blood-red purple colour.—It is a native of the Cape.

7. Amaryllis Equestris; *Barbadoes Lily.* Spathe with about two flowers; pedicels erect, shorter than the spathe; tube filiform, horizontal; border spreading open obliquely, and curved upwards; throat hairy.—Native of the West Indies.

8. Amaryllis Reticulata; *Flat-stalked Amaryllis.* Spathe with about two flowers; corollas tubular at the base and nodding; throat of the tube smooth; scape compressed; leaves oblong, attenuated at the base.—It flowers in April; and is a native of Brazil.

9. Amaryllis Belladonna; *Belladonna Lily.* Corollas somewhat erect, six-petalled; petals flat; scape compressed; leaves sharply channelled, bluntly keeled, very smooth.—It is a very ornamental plant in a garden: the stem rises upwards of two feet high, the flowers are of a soft purple colour appearing about the end of September, or beginning of October, in England; and will continue in beauty a month or longer, in a favourable season.—It was originally imported from Portugal; but is a native of shady hills, by the side of streams, in the West Indies. To cultivate this species, remove all the earth to the depth of three feet, from a border close to a wall, with a south-west aspect; put six inches depth of very rotten dung at the bottom, then replace the original mould to the depth of twenty inches. Plant the roots every way six inches apart, then cover them to the former height of the border, with light sandy earth, and cover the whole three inches deep with rotten tanner's bark, to keep out the frost. This process has been very successful, producing a great many flowers, and making a fine appearance in October.

10. Amaryllis Vittata; *Superb* or *Ribband Amaryllis.* Flowers pedicelled; corollas wedge-funnel-shaped, the rachis of the outer fastened to the edge of the inner petals; scape round; stigmas grooved. This species rarely puts forth offsets from the roots, but readily produces seeds, by which it is propagated without difficulty. The stem rises to three feet or more, producing from two to five beautiful flowers. It usually blossoms from April to May, but may be forwarded by artificial heat.—Native country unknown.

11. Amaryllis Falcata; *Sickle-leaved Amaryllis,* or *Crinum.* Corollas peduncled, erect, six-petalled; scape compressed, length of the umbel; leaves flat, pressed to the ground, about the edge sickle-shaped, white-cartilaginous, crenate. Flowers sweet-scented; corolla white.—Native of the Cape.

12. Amaryllis Oranata; *Cape Coast Lily,* or *Amaryllis.* Flowers sessile; corollas tubular at the base; tube longer than the spathes, and border curved; segments of the border oblong, awned, lowest segments divaricate, concave.—Native of Guinea, flowering in June and July.

13. Amaryllis Longifolia; *Long-leaved Amaryllis.* Flowers pedicelled, from twelve to twenty in a spathe; corollas tubular at the base; tube curved, short; segments of the border lanceolate, obtuse; leaves broad, subulate, channelled, flaccid at the tip. Flower-stem rarely rising more than three or four inches high; flowers of a deep purple colour, appearing in December.—Native of the Cape; and may be propagated and cultivated in the same manner as the fourth species.

14. Amaryllis Revoluta: *Revolute Amaryllis.* Flowers pedicelled; corollas tubular at the base; tube filiform, short, curved; leaves linear-narrow, channelled, long, flaccid from their origin. Scape a foot high; flowers sweet-scented, and of a pale red colour, appearing in Sept.—Native of the Cape.

15. Amaryllis Aurea; *Golden Amaryllis.* Flowers pedicelled, somewhat erect; corollas funnel-form club-shaped, almost six-petalled; segments linear-lanceolate; stamina and style straight; leaves linear, erect, channelled, with a reflex smooth margin. Corolla yellow; scape scarcely two feet high.—A native of China; flowering in August and September.

16. Amaryllis Orientalis; *Broad-leaved African Amaryllis.* Spathe many-flowered; flowers pedicelled, six-parted, considerably shorter than the peduncles, irregular; germina wedge-shaped, angular.—Native of the Cape.

17. Amaryllis Sarniensis; *Guernsey Lily.* Petals linear, flat, stamina and pistilla straightish, longer than the corolla; stigmas parted, revolute; leaves dark willow green. Scape flattened, twelve or fourteen inches high; corolla, when in its prime, has the colour of a fine gold tissue, wrought on a rose-coloured ground; and, when it begins to fade, it is a pink; when beheld in full sunshine, it seems to be studded with diamonds, but by candle-light, the specks or spangles look more like fine gold dust; when the petals begin to wither, they assume a deep crimson colour. The flowers begin to come out at the end of August, and the head is usually three weeks in expanding gradually.—This beautiful plant is a native of Japan, and has been long naturalized in Guernsey, where it is reputed to owe its introduction to the shipwreck of a vessel returning from Japan, probably before the middle of the last century. The roots are sent over from Guernsey to England, and should be planted in pots filled with fresh, light, sandy earth, mixed with a little very rotten dung, placed in a warm situation, where they must be occasionally watered. The bud will appear about the middle of September, and must then have the full benefit of the sun, being sheltered from strong winds. When the flowers begin to open, the pots should be removed under shelter, to prevent the flowers being injured by too much wet, but not kept in too close and warm a place, as that will weaken their colour, and hasten their decay. They will continue in beauty a full month, if properly managed; and, though they have no scent, they are justly placed in the first rank of the flowery tribe. After the flowers decay, the leaves will continue growing all the winter, and should have fresh air every day in fine weather. The roots should be transplanted every fourth or fifth year, at the latter end of June or beginning of July, and ought to be replanted into fresh earth.

18. Amaryllis Undulata; *Waved-flower African Amaryllis.* Petals linear, channelled, waved; stamina and pistil bent down, shorter than the corolla; stigma obsolete. Petals rose-coloured. The flowers have no scent, and expand from November to the beginning of January.—Native of the Cape; flowering in England from April till June.

19. Amaryllis Radiata; *Snowdrop-leaved Amaryllis.* Petals lanceolate, waved; stamina and pistil bent down, diverging, twice as long as the corolla; stigma obsolete.—This species flowers in June; its native country not known.

20. Amaryllis Montana. Spathe many-flowered; leaves linear, subulate; petals alternate, mucronate; stamina and style erect. Stem upright; petals blue; seeds ovate oblong, black.—Native of the higher parts of Mount Lebanon.

21. Amaryllis Tubispatha. Spathe one-leafed, tubular, bifid, one-flowered; peduncle twice as long as the spathe. Scape erect, four inches high.—Native of Buenos Ayres.

22. Amaryllis Tubiflora. Spathe one-flowered, two-leaved; corolla funnel-shaped, with a very long tube.—Found in Peru.

23. Amaryllis Spiralis. Spathe two-leaved, few-flowered; peduncles filiform, very long; leaves subulate. Corolla six-parted; scape twisted at the base.—Native of the Cape.

24. Amaryllis Maculata. Spathe one-flowered, two-leaved, linear; flower peduncled; stamina and style bent down. Scape variegated with linear spots; corolla bell-shaped.—It was found in China by Dombey.

25. Amaryllis Chilensis. Spathe one or two flowered, one or two leaved, lanceolate; flowers peduncled; leaves linear. —Has purple flowers; and was found in Chili by Dombey.

26. Amaryllis Clavata. Spathe one-flowered, two-leaved, subulate; corolla club-shaped.—Native of the southern part of Africa.

27. Amaryllis Zeylanica; *Ceylon Lily.* Spathe many-flowered; corollas reclining; tube filiform, very long; segments uncinate. Tube of the corolla of the same rufous colour as the scape; border white, with lanceolate recurved petals, with a red keel underneath; filamenta and style blood-red; pericarps viviparous.—Native of the East Indies.

28. Amaryllis Latifolia. Spathe many-flowered; flowers pedicelled, somewhat reclining, tubular at the base; leaves oblong-lanceolate. Scapes, tube of the flower, and stamina, purple coloured.—It is a native of the East Indies. This plant may be increased by offsets from its roots, or by the bulbs which succeed the flowers.

29. Amaryllis Cinnamomea. Spathe many-flowered; corollas subhexapetalous, lanceolate, waved; stamina and pistil erect, shorter than the corolla.—Found at the Cape.

Amasonia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, semiquinquefid, acute, equal, permanent. *Corolla:* one-petalled, tubulous, longer than the calix; border quinquefid, subequal, spreading, small. *Stamina:* filamenta four, at the upper side of the corolla, and longer than it, bending in at the end, two of them shorter; antheræ oval, incumbent. *Pistil:* germen ovate; style in the situation and form of the stamina; stigmas two, sharp. *Pericarp:* none. *Seed:* an ovate one-celled nut, of the same length with the calix. Essential Character. *Corolla:* tubulous; limb small, quinquefid. *Nut:* ovate, one-celled.——There is only one species, viz.

1. Amasonia Erecta.—A native of Surinam; the stem herbaceous, three feet in height, round, and quite simple. The flowers in a simple terminal raceme, a foot long, with about three upon a pedicel; bractes ovate, sessile, a little longer than the flowers, which are yellow, nodding, and grow on one side of the stalk.

Amber-tree. See *Anthospermum.*

Ambrosia; a genus of the class Monœcia, order Pentandria.—Generic Character. *Male flowers compound. Calix:* perianth common one-leafed, flat, of the same length as the floscules. *Corolla:* compound, uniform, tubulous, equal, hemispherical; proper one-petalled, tubulous, funnel-shaped, erect, quinquefid. *Stamina:* filamenta very small; antheræ erect, parallel, acuminate. *Pistil:* style filiform, length of the stamina; stigma orbiculate, membranaceous. *Receptacle:* common scarcely any, naked. *Female flowers below the male, doubled. Calix:* perianth one-leafed, acuminate, entire, permanent, the belly five-toothed, one-flowered. *Corolla:* none. *Pistil:* germen ovate, in the bottom of the calix; style filiform, of the same length with the calix; stigmas two, setaceous, long, divaricate. *Pericarp:* a subovate nut, formed from the calix, hardened, one-celled, not opening, crowned with the five acuminate teeth of the calix. *Seed:* single, roundish. Essential Character. *Male. Calix:* common, one-leafed. *Corolla:* one-petalled, trifid, funnel-shaped. *Receptacle:* naked. *Female. Calix:* one-leafed, entire, the belly five-toothed, one-flowered. *Corolla:* none. *Nut:* of the hardened calix, one-seeded.—The species are,

1. Ambrosia Trifida; *Trifid-leaved Ambrosia.* Leaves three-lobed, serrate.—Grows eight or ten feet high; it is a common weed in North America, and is only preserved by the curious in botany. The seeds, though sown in spring, seldom come up till the second year, when they may be transplanted into a moist rich soil, every way four or five feet apart. If suffered to scatter their seeds, they will vegetate in the following spring.

2. Ambrosia Elatior; *Tall Ambrosia.* Leaves pinnatifid; racemes panicled, terminal, smooth. It is an annual herbaceous plant.—Native of Jamaica, where it is found in barren, sandy, and rocky situations, by the sides of rivers, in the southern parts of the island. It flowers there from February till June, but with us from July to the end of August. This plant has the appearance and taste of Wormwood; and will thrive, but not produce good seed, in our open air.

3. Ambrosia Artemisifolia; *Mugwort-leaved Ambrosia.* Leaves bipinnatifid; the first leaves at the origin of the smaller branches undivided, and quite entire. The primary stem is scarcely more than a foot high.—Native of America.

4. Ambrosia Maritima; *Sea Ambrosia.* Leaves multifid; spikes solitary, hairy, subsessile. Rises about two feet and a half high; the leaves emit a strong odour upon being handled; the spikes of flowers are axillary. It is not remarkable for beauty, and seldom perfects its seeds in England.—Found in Cappadocia, Tuscany, &c., on sandy shores.

5. Ambrosia Arborescens; *Tree Ambrosia.* Leaves pinnatifid, hirsute; racemes solitary, terminating; stem shrubby. This species grows to the height of ten or twelve feet, with a woody stem dividing into several branches. Perennial.—Native of Peru. It may be propagated by cuttings or seeds; the former planted in a shady border during any of the summer months, and well watered. The seeds when sown in the spring seldom appear till the spring following.

Ambrosinia; a genus of the class Gynandria, order Polyandria.—Generic Character. *Male. Calix:* spathe one-leafed, cowled, convolute at the base, converging at the tip; partition membranaceous, divided into two cells, communicating at top. *Corolla:* none. *Stamina:* filamenta none; antheræ very many, solitary, within the hinder cell of the spathe, in the upper part of the partition, digested in a distinct order; nectaries two, roundish, concave, at the base of the antheræ *Female. Calix:* spathe common with the males. *Pistil:* germen in the interior cell of the spathe, and the lower part of the partition, solitary, roundish; style cylindrical, shorter than the spathe; stigma obtuse. *Pericarp:* capsule roundish, one-celled. *Seeds:* very many, ovate, nestling. Essential Character. *Spathe:* one-leafed, separated by a partition. *Stamina:* on the inner, *Pistilla*, on the outer side of it. The only species is,

1. Ambrosinia Bassii. Roots perennial, tuberous, acrid. Leaves radical, petiolate, ovate, shining; they appear at the beginning of autumn, and decay in spring.—It is a native of Sicily, near Palermo. May be propagated by the root, and requires the protection of a green-house.

Amellus; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common imbricate, roundish. *Corolla:* compound radiate; corollets hermaphrodite, very many in the disk, females very many in the ray. Proper of the hermaphrodites, tubulous, five-cleft; female, ligulate, lax two or three toothed. *Stamina:* in the hermaphrodites; filaments five, capillary, short; antheræ cylindric, tubulous. *Pistil:* in the hermaphrodites; germen obovate; style filiform, the length of the stamina; stigmas two, filiform. Females very like the hermaphrodites. *Pericarp:* none; calix unchanged. *Seeds:* to the hermaphrodites, solitary, obovate. *Down:* capillary, to the females, very like the others. *Receptacle:* chaffy. Essential Character. *Calix:* imbricate. *Corollets:* of the ray, undivided. *Down:* simple. *Receptacle:* chaffy. — The species are,

1. Amellus Lychnitis; *Trailing Amellus.* Leaves opposite, lanceolate, obtuse, downy; peduncles one-flowered. This plant rises from two to three feet high, sending out branches on every side, terminated by flower-stalks, each supporting one violet-coloured flower, with a yellow disk, which appears in July or August.—It grows naturally at the Cape; and is a perennial plant, easily propagated by cuttings planted in the shade during any of the summer months, and duly watered. They must be sheltered in winter.

2. Amellus Umbellatus; *Umbelled Amellus.* Leaves opposite, three-nerved, downy underneath; flowers umbelled. Stem from two, to two and a half feet high; flower yellow. —Native of the cooler woods and mountains of Jamaica, where it flowers in summer. It may be propagated by seeds sown in a hot-bed in the spring.

American Earth-nut. See *Arachis.*

Amerimnum; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed; tube bell-shaped, five-toothed; teeth sharp. *Corolla:* papilionaceous; standard with an oblong claw, roundish, heart-shaped, expanding, convex; wings lanceolate, shorter than the standard; keel short. *Stamina:* filamenta ten, conjoined; antheræ roundish. *Pistil:* germen pedicelled, oblong, compressed, leafy, varicose, with lateral veins, within woody, not gaping; cells disposed longitudinally within. *Seeds:* solitary, kidney-shaped, thicker at the base, appendicled at the tip. Essential Character. *Calix:* two-lipped. *Legume:* compressed, leafy, two-valved, gaping. *Seeds:* few, solitary.——The species are,

1. Amerimnum Brownei. Unarmed: leaves petioled, alternate, subcordate-ovate; racemes compound, axillary, and lateral. The shrub rises to the height of ten feet; the flowers, which are white, and have a very sweet scent, come out in great abundance after the rainy season.—Native of Carthagena, Jamaica, and Domingo.

2. Amerimnum Ebenus; *Prickly Amerimnum,* or *Jamaica Ebony.* Spiny; leaves subsessile, aggregate, obovate, oblong; peduncles two-flowered.—This is common in Jamaica, and is sent to England under the name of Ebony; though it is not the true ebony, but a plant of a very different genus. The wood being of a fine greenish brown colour, and polishing well, is much coveted by instrument makers, and is of a very hard and durable nature. It is propagated by seed, which must be procured from its native climate, and sown in pots of light earth early in the spring. They will not bear the open air of this country.

Amethystea; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed; tube bell-shaped, angular, semiquinquefid, subequal, acuminate, permanent. *Corolla:* one-petalled, ringent, little longer than the calix; border five-parted, subequal; upper lip erect, rounded, concave, two-parted, gaping; lower three-parted, the sides rounded, erect, shorter; the middle quite entire, concave, the length of the upper lip. *Stamina:* filamenta filiform, approximating, under the upper lip, and longer than it; antheræ simple, roundish. *Pistil:* germen quadrifid; style size of the stamina; stigma two, acute. *Pericarp:* none, but the calix becomes more bell-shaped and spreading. *Seeds:* four, shorter than the calix, obtuse, angular within. Essential Character. *Corolla:* quinquefid, the lower division more spreading. *Stamina:* approximated. *Calix:* subcampanulate. *Seeds:* four, gibbous.——Only one species has yet been discovered, viz.

1. Amethystea Cœrulea. An annual plant, with an upright stalk, about a foot high. Flowers small, but of a fine blue colour, making a pretty appearance while they continue. The seeds should be sown in autumn; they will appear in the spring, and only require to be well weeded, and kept from growing too close together.—It is a native of the mountains of Siberia.

Ammannia; a genus of the class Tetrandia, and order Monogynia.—Generic Character. *Calix:* perianth bell-shaped, oblong, erect, with eight streaks and folds, quadrangular, eight-toothed; teeth alternate, bent in, permanent. *Corolla:* none, or four-petalled; petals vertically ovate, spreading, inserted into the calix. *Stamina:* filamenta (from four to eight) bristly, the length of the calix, into which they are inserted; antheræ twin. *Pistil:* germen subovate, large, superior; style simple, very short; stigma headed. *Pericarp:* a roundish, four-celled capsule, covered with the calix. *Seed:* numerous, small. Essential Character. *Corolla:* four-petalled, inserted into the calix. *Calix:* one-leafed, plaited, eight-toothed, inferior. *Capsule:* four-celled.—— The species are,

1. Ammannia Latifolia; *Broad-leaved Ammannia.* Leaves half stem-clasping; stalk square; branches erect. Root annual. The plant grows about a foot high, with an upright square stalk; the leaves are of a pale green; the flowers come out in whorls, and the petals white.—It is a native of moist places in Jamaica.

2. Ammannia Ramosior; *Branching Ammannia.* Leaves half stem-clasping; stalk square; branches very spreading. —This is an annual plant, a native of Virginia and Carolina, rising about a foot high, with red succulent stalks.

3. Ammannia Baccifera; *Berry-bearing Ammannia.* Leaves subpetiolate; capsules larger than the calix, and coloured. A tender, erect, low plant, without branches.—Native of China, and now naturalized in Italy.

4. Ammannia Octandria; *Eight-stamined Ammannia.* Flowers petaloid, and eight-stamined. Stem erect; peduncles axillary, very short, three or one flowered; petals blood-red.—Found in the East Indies.

5. Ammannia Pinnatifida; *Pinnatifid-leaved Ammannia.* Stalks procumbent, rooting, compressed; leaves linear, pinnatifid. Corolla red.—Found in the isle of Java.

6. Ammannia Debilis; *Cluster-flowered Ammannia.* Leaves lanceolate, attenuated at the base; stem branching; flowers in bundles from the axils; capsules two-celled. An annual plant; petals pale purple.—It flowers in July and August; and is a native of the East Indies.

7. Ammannia Sanguinolenta. Leaves half stem-clasping, cordate at the base; flowers subpeduncled, eight-stamined; petal bearing.—A native of Jamaica and Domingo.

Ammi; a genus of the class Pentandria, and order Digynia.—Generic Character. *Calix:* universal umbel, manifold, frequently of fifty rays; partial short, crowded. Universal involucre of many linear, pinnatifid, acute leaflets, scarcely the length of the umbel; partial many-leaved; leaflets linear, acute, simple, shorter than its umbellet; proper perianth scarcely apparent. *Corolla:* universal uniform, all the floscules fertile; proper of five inflex heart-shaped petals, of unequal size in the ray, almost in the middle of the disk. *Stamina:* filamenta capillary; antheræ roundish. *Pistil:* germen inferior; styles reflex; stigmas obtuse. *Pericarp:* none; fruit roundish, smooth, small, streaked, bipartite. *Seeds:* two, convex, and streaked on one side, flat on the other. Essential Character. *Involucre:* pinnatifid. *Corolla:* radiate, all hermaphrodite. *Fruit:* smooth.—The species are,

1. Ammi Majus; *Common Bishop's Weed.* Lower leaves pinnate, lanceolate, serrate; upper ones multifid, linear.—It is an annual, and grows in the vineyards and fields in the southern parts of Europe, and in the East. It is propagated by seeds sown in autumn where they are to remain. In the

spring they must be hoed and thinned like Carrots, leaving them four or five inches asunder, and will afterwards require no further care. It flowers in July, and is common in our gardens. The seeds are the only part of the plant used in medicine; like all other carminatives, they are good against the colic, and are diuretic also; so that they are particularly efficacious in colics arising from the stone in the kidneys and urethra; they also promote the menses.

2. Ammi Copticum. Leaves super-decompound, linear; seeds muricate. Stem smooth, and streaked; corollas white, equal, five-angular; seeds aromatic.—Found in Egypt.

3. Ammi Glaucifolium; *Perennial Bishops' Weed.* Subdivisions of all the leaves lanceolate. The stem is from one to two feet high; the plant is an annual.—Native of the south of France. It is hardy, thrives best on a moist soil, and will grow in any open situation.

Amomum; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, cylindraceous, unequally trifid. *Corolla:* monopetalous, funnel-shaped; tube cylindraceous; border three parted; parts oblong, spreading, nectary two-leaved, or two-lipped; lower lip inserted under the upper segment of the corolla, spreading, almost erect, entire, or three-lobed. *Stamina:* filamentum none, except the upper lip of the nectary, smaller than the lower, and opposite to it, acuminate or three-lobed at the tip; along the middle, or at the end of which, grows longitudinally a large oblong antheræ, germinate, or divided by a longitudinal furrow into two, which are one-valved. *Pistil:* germen inferior, oblong; style filiform, drawn through the suture of the antheræ; stigma turbinate, obtuse, ciliate. *Pericarp:* capsule fleshy, ovate, three-cornered, three-celled, three-valved. *Seeds:* several, covered with a sort of berried aril. Essential Character. *Calix:* trifid, unequal, cylindric. *Corolla:* three-parted, unequal, spreading. *Nectary:* two-lipped, almost erect.—All the species of this genus are tender, and require a warm stove to preserve them in this country; and are propagated by parting their roots, early in the spring. In the West Indies, ginger thrives best in a rich cool soil; in a more clayey soil, the roots shrink less in scalding. The land laid out for the culture of it, is first well cleared and hoed, then slightly trenched, and planted in March or April; it flowers about September: when the stalks are wholly withered, the roots are fit to take up, which is generally done in January and February.——The species belonging to this genus are,

1. Amomum Zinziber; *Narrow-leaved Ginger.* Scape middle-sized; spike ovate; leaves linear-lanceolate. The corolla is a yellowish green.—It is a native of the East Indies, and largely cultivated both there and in the West Indies. The root is less liable to heat the constitution, than might be expected. A syrup, made from an infusion of three or four ounces of the root in three pints of boiling water, is kept in the shops. The cases in which it is more immediately serviceable are flatulent colics, debility and laxity of the system, and in torpid and phlegmatic constitutions, to excite a brisker action of the vessels. Ginger is a warm and grateful aromatic; it strengthens the stomach, disperses wind, helps digestion, prevents or cures the colic, and is useful in all cold flatulent disorders and weaknesses of the intestines. It is one of the best additions that can be made to rough purging medicines, in order to prevent them from griping in the operation.

2. Amomum Zerumbet; *Broad-leaved Ginger*, or *Zerumbet.* Scape naked; spike oblong, obtuse. Culm four feet high, perennial, straight, and quite simple; corolla pale.—It is a native of the East Indies, Cochin-china, Otaheite, and the other Society Isles. It flowers with us from September to November; and is used in the East externally in cataplasms and fomentations. The root is used as warm and good in all nervous cases, its virtues nearly resembling those of Zedoary, which is often sold under its name, though in reality it is a much longer and larger root than the Zedoary itself.

3. Amomum Sylvestre; *Great Wild Ginger.* Scape naked; spike elongate, with oblong ventricose bractes; leaves broad lanceolate. This resembles the foregoing species, but grows higher.—It is a native of Jamaica, where it is common in the woods. The root is warm, and gently stimulant; it may be properly administered as a stomachic and alexipharmic.

4. Amomum Mioga; *Japanese Ginger.* Scape very short; capsule ovate; leaves ensiform, acute. Root fusiform, fibrose, aromatic.—A native of Japan, where it flowers in September.

5. Amomum Cardamomum; *Cardamom.* Scape very simple, and short; bractes alternate, loose. It has thick fleshy roots, which in the spring send forth many green reed-like stalks, which rise to the height of seven or eight feet, garnished with very long narrow leaves; but it has not yet flowered in England. The seeds are the only parts used in medicine, and when freed from their husks are a grateful aromatic, warm, but not fiery; not heating and inflaming, like many other seeds of this nature. The seeds should never be separated from their husks till wanted for use, for in that case they loose much of their flavour and virtue. They are an excellent cordial, and peculiarly grateful to the stomach, dispersing wind, creating an appetite, and strengthening the digestive faculties. There is a spirituous distilled water and tincture of them kept in the shops, either of which are more agreeable than the seeds themselves, and equally efficacious. A glass taken after eating flatulent food, is serviceable in preventing or removing that disagreeable eructation or rising which frequently succeeds. The tincture is also occasionally used as a pleasant warm cordial, as well as for flavouring other medicines. The Lesser Cardamom seeds are said to be excellent for colics and disorders of the head, when chewed singly in the mouth; and their taste is not at all disagreeable.

6. Amomum Villosum. Scape short, reclining; bractes linear; fruit villose. Culm six feet high; corolla pale. The smell of the whole plant is aromatic, mild, and slightly sharp. The root has a sweetish and pleasant taste when fresh.—It is a native of China; where the seeds are in much request as a medicine.

7. Amomum Medium. Spine cauline, branched; fruit oblong, streaked, valveless. Culm straight, single, eight feet high.—Native of Yunan, in China: where the seeds are used in agues; for culinary purposes; and to increase the strength of any odours whatever.

8. Amomum Globosum. Spike cauline, branched; fruit globose, with an even surface. Culm four feet high.—A native of China and Cochin-china; and used medicinally in both countries, in disorders of the bowels, &c.

9. Amomum Hirsutum. Spike cauline, simple, reclining; fruit roundish, hirsute. Culm six feet high; the smell and taste very weak.—A native of Cochin-china, in woods.

10. Amomum Granum Paradisi; *Grains of Paradise.* Scape branching, very short.—It is a native of Guinea, and of the islands of Ceylon and Madagascar, from whence we receive the seeds, which are of a warm aromatic nature, much resembling pepper, for which they are frequently substituted in many places. They are but little used in medicine, but might prove useful in cold flatulent disorders, the colic, &c.

11. Amomum Galanga; *Galangale.* Spike cauline, erect; spathes nearly three-flowered; capsule three-cornered-ovate, smooth. The culm is perennial, entirely simple, upright, smooth, and six feet high. The smell of the whole plant is

aromatic, and it has a biting taste.—It is a native of China and Cochin-china, where it is cultivated, and the roots and seeds, used medicinally. The plant was formerly used as a warm stomachic bitter, and generally made an ingredient in bitter infusions; but it is now almost wholly laid aside, on account of its unpleasant flavour. The spirituous extract is excessively fiery, and the watery extract very hot and pungent. The essential oil has little smell, and no great pungency. An infusion of the root in boiling water, or a tincture made with brandy, is a good medicine in windy complaints, and other disorders of the stomach, as well as for head-achs which arise from some debility or evil affection in that organ. The same root is usually given in the shops for Galangale and for Zedoary.

12. Amomum Arboreum. Stem arboreous; fruit calicine. This tree is ten feet high, with many twisted spreading branches; with a pale red flower. It has scarcely any taste or smell, and its use unknown. The wood is very light, not even fit for the fire.—Native of the eastern coast of Sumatra.

Amorpha; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix*: perianth one-leafed, tubulous, cylindrical, turbinate; mouth erect, five-toothed, obtuse, the two upper teeth larger than the others, permanent. *Corolla*: of one ovate concave petal, scarcely larger than the calix, erect, inserted into the calix, between the two larger and upper teeth, and placed at the upper side of it. *Stamina*: filamenta very slightly united at the base, erect, unequal in length, longer than the corolla; antheræ simple. *Pistil*: germen roundish; style subulate, the length of the stamina; stigma simple. *Pericarp*: legume lunulate, reflex, larger than the calix, compressed, more reflex at the tip, one-celled, tubercled. *Seeds*: two, oblong kidney-shaped. Essential Character. *Standard* of the *Corolla*: ovate, concave. *Wings*: none. *Keel*: none.——The only species yet discovered is,

1. Amorpha Fruticosa; *Bastard Indigo*. It rises with many irregular stems to the height of twelve or fourteen feet: with very long winged leaves; at the extremity of the same year's shoots branch out long spikes of purple flowers in July; but it does not ripen seed in England, although it is become very common in all gardens and nurseries. It is propagated by seeds from abroad, and also by laying down young branches in sheltered situations.—Native of Carolina.

Amygdalus; a genus of the class Icosandria, order Monogynia.—Generic Character. *Calix*: perianth one-leafed, tubulous, inferior, quinquefid, deciduous; divisions spreading, obtuse. *Corolla*: of five petals, oblong-obovate, obtuse, concave, inserted into the calix. *Stamina*: filaments about thirty, filiform, erect, shorter by half than the corolla, inserted into the calix; antheræ simple. *Pistil*: germen roundish, villose; style simple, length of the stamina; stigma headed. *Pericarp*: a drupe, roundish, villose, large, with a longitudinal furrow. *Seed*: a nut, ovate, compressed, acute, with prominent sutures on each side, reticulated with furrows, and dotted with small holes. Essential Character. *Calix*: quinquefid, inferior. *Petals*: five. *Drupe*: having a shell perforated with pores; skin pubescent.—— The species are,

1. Amygdalus Persica. The *Peach* and *Nectarine*. All the serratures of the leaves acute; the flowers sessile and solitary.—The wood of the Peach-tree is of a reddish brown colour, darker toward the middle, and fit for the use of the turner. It is of quick growth, and not of very long duration. There are many varieties; the best of which are,—the early Purple Peach, which is ripe before the middle of August; the large or French Mignon (Grosse Mignon;) the Chevreusse, or Belle Cheverusse, ripe towards the end of August; the Red Magdalen; Chancellor; Bellegrade; Bourdine; Rossanna; Rambouillet; and Nivette. Others recommend the Small Mignon, Early Newington, Noblesse, Admirable, Royal, Monstrous Pavy, and Swalch. These are the best sorts for planting; but in warm situations one or two trees of the Catharine Peach should be admitted, as it is an excellent fruit in warm seasons. The *Nectarine* is only a variety of the Peach-tree, somewhat smaller: there are twelve sorts, the best of which are Fairchild's Early Nectarine, the Elruge Nectarine, the Newington Roman Red, and Temple's Nectarine.—All the species of *Peaches* have been originally obtained from the stones, which is the best method of propagating them. The best sorts are those whose flesh is firm, and cleaves to the stone; they should be planted in autumn, on a bed of light dry earth, three inches deep and four inches asunder, carefully weeded and watered when they come up, until the following spring, when they must be transplanted into a nursery, and placed one foot apart, in rows three feet asunder, observing to lay a little mulch upon the ground to prevent it drying too fast; and if the spring prove dry, watering them once a-week. Here they may continue two years, and may be afterwards transplanted where they are intended to remain, to produce fruit. In removing these trees, observe to prune their downright roots, cutting off all bruised parts and small fibres. All the pruning they require is the lopping off of decayed or irregular branches, which are very detrimental.—The common method of propagation, is by inoculating them upon other stocks, such as those of the Muscle and White-Pear Plums, which are most esteemed, also upon Almond and Apricot stocks, for some tender sorts of Peaches will not grow upon Plum stocks. These stocks should be planted three feet asunder, and one foot apart in the rows, and after two years will be strong enough to bud, which takes place generally about Midsummer, or any time in July, when you should make choice of some good cuttings from healthy trees of the sort of fruit you wish to propagate. These cuttings should be taken from the trees in a morning or evening, or in a cloudy day, otherwise they are apt to perspire and miscarry. Much depends upon the choice of trees: the stock should be of the size of a man's finger, free from moss or canker; the bud of one year's growth only, not such as have been cut down in the spring, and made a second shoot. The best soil for planting is such as is taken from a pasture ground, neither too stiff and moist, nor over dry, but of a middling nature, such as is termed hazel-loam. It should be dug from the surface of the ground ten inches deep, taking the turf with it; and should be laid in heaps eight or ten months at least; but if one year before it is used, it will be still better, that it may have a summer's heat and winter's frost to mellow it, during which time it should be often turned, to rot the turf, and break the clods. The trees should never be planted less than twelve feet asunder, and in good ground fourteen feet: this to be done in October. First make a hole wide enough to receive the roots of the tree, then place it down, observing to turn the bud outwards, that the wounded part of the stock may be hid from sight; and let the stem of the tree be placed about four or five inches from the wall, with its head inclining thereto; then fill in the earth with your hands, observing to break the clods, that the earth may fall in between the roots, and gently shaking the tree with your hand, the better to settle, but do not tread it down. In May the shoots should be nailed to the wall, observing to train them horizontally, and cutting off all weak and foreright shoots. In October they must be pruned in proportion to the strength of the tree. Blights are oftener pro-

duced by weakness, and want of nourishment, and distempers in the trees themselves, than by the inclemency of the season, to which they may have been exposed only by being planted in an improper situation. The best method, when the fault is not in the tree itself, is to sprinkle the branches gently with water, which should always be done before noon, in dry weather, and when little dew falls, soon after the blossoming season, when the young-set fruit is tender. When it is grown to the size of a small nut, it will require thining. The quantity of fruit left on large full-grown trees, ought not to exceed five dozen, and four dozen is sufficient for those of a middling size. In hot and dry seasons, the earth round the stem of each tree may be formed into a hollow basin, six feet in diameter, and covered with mulch; into which once a week or fortnight, according to the heat of the season, eight or ten gallons of water may be poured down round the root of the tree. But the best method is, to sprinkle the same or a larger quantity of water all over the tree like rain, by means of an engine; which will prevent the fruit from falling off.—The culture of the *Nectarine* is the same as that of the Peach, only the buds of the former should be taken from bearing trees, and not from young nursery trees, as is too often done. For further information, as to the propagation and culture of these trees, see the articles *Inoculation* and *Nursery*.

2. Amygdalus Communis; *The Almond Tree.* The lower serratures of the leaves glandulous; the flowers sessile, and in couplets. This tree grows to the height of twenty feet, with spreading branches; but it is scarcely worth considering in England, for the sake of the fruit it produces. It is common in the East Indies. China, and Barbary, where it is a native; and it is a great object in some parts of Italy, and the south of France, as in Provence and Dauphiny, where there are vast plantations of Almonds. An Almond-tree, covered with its blossoms, is one of the most elegant objects in nature. There are several species and varieties not satisfactorily ascertained. Sweet almonds used in food are difficult of digestion, and afford very little nutriment, unless well masticated. As medicines, they contribute, by their soft unctuous quality, to blunt acrimonious humours in the first passages, and thus sometimes give present relief in the heartburn. On expression, they yield nearly half their weight in oil, which is more agreeable than most of the common expressed oils, and is therefore employed medicinally for allaying acrid juices, softening and relaxing the solids, in tickling coughs, hoarseness, costiveness, nephritic pains, &c. When pounded in water, it unites with the fluid, forming a milky liquor, which is prescribed as a diluent in acute diseases; and for supplying, in some degree, the place of animal milk, with which it has a great analogy: an ounce of almonds is sufficient for a quart of water, to which gum-arabic is in most cases an useful addition. The pure oil, mixed with a thick mucilage of gum-arabic, forms a more permanent emulsion; one part of gum, with an equal quantity of water, being enough for four parts of oil. Almonds are also useful medicines for uniting substances with water which will not of themselves mix with it. Camphor, and the purgative and other resins, pounded with about six times their quantity of almonds, dissolved in water into a milky liquor, and are thus fit for being taken in a liquid form. Bitter almonds, and emulsions made from them, have been recommended as aperients, resolvents, diuretics, and anthelmintics. These almonds, taken freely in substance, occasion sickness and vomiting: to dogs, and some other animals, they are poisonous. A simple water, strongly impregnated by distillation with their volatile parts, has been found also poisonous to brutes, and there are instances of cordial spirits flavoured by them being poisonous to man. It is remarkable that the kernels of other fruits, that have any bitterness or particular flavour, appear to be impregnated with a substance of a similar nature to this poisonous principle of bitter almonds. Almonds are distinguished into sweet and bitter, but there is no perceptible difference in the trees which produce them. Six or eight sweet almonds, peeled and eaten, frequently cure the hearthurn. Notwithstanding the noxious qualities of the bitter kind, they are said to destroy worms, and operate as diuretics. Sweet almonds blanched, and beaten into an emulsion with barley-water, are of great use in the stone, gravel, strangury, and other disorders of the kidneys, bladder, and biliary ducts.—The common and dwarf Almonds are propagated by inoculating a bud of these trees into a Plum, Almond, or Peach stock, in July. The next spring, when the buds shoot, they may be trained up either for standards or suffered to grow to half-standards; and the second year they may be removed to the places where they are to remain.

3. Amygdalus Pumila; *Double-flowered Dwarf Almond.* Leaves veined, wrinkled. Branches smooth, two or three feet high; flowers red. These shrubs make a very agreeable variety among low flowering trees, in small wilderness quarters.—Native of Africa: flowering time, April.

4. Amygdalus Nana; *Common Dwarf Almond.* Leaves attenuated at the base. It blossoms in April, at which time all the young shoots are covered with flowers, which are of a peach-blossom colour, and make a fine appearance when intermixed with shrubs of the same growth.—It is a native of the northern parts of Asia, particularly abundant in Calmuc Tartary, and very frequent on the banks of the Volga.

5. Amygdalus Incana; *Hoary Dwarf Almond.* Leaves lanceolate, serrate, wrinkled, subsessile, white-tomentose beneath.—It is doubted whether this be any thing more than a variety of the preceding species.

6. Amygdalus Orientalis; *Silvery-leaved Almond.* Leaves lanceolate, quite entire, silvery, perennial; petiole shorter.—The leaves are silvery, and continue most of the year; the flowers are very small.—It was found growing near Aleppo.

7. Amygdalus Cochin-chinensis. Leaves ovate, quite entire; racemes small, subterminal.—This is a large tree; native of the vast woods of Cochin-china.

Amyris; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-toothed, acute, erect, small, permanent. *Corolla:* of four, oblong, concave, spreading petals. *Stamina:* filamenta awl-shaped, erect; antheræ oblong, erect, the length of the corolla. *Pistil:* germen superior, ovate; style thickish, the length of the stamina; stigma four-cornered. *Pericarp:* a drupaceous, roundish berry. *Seed:* a round shining nut. Essential Character. *Calix:* four-toothed. *Petals:* four, oblong. *Stigma:* four-cornered. *Berry:* drupaceous.—The species are,

1. Amyris Elemifera; *Gum Elemi Tree.* Leaves ternate and pinnate, with five lobes, downy underneath. This is described as a lofty tree with a small trunk, covered with a smooth grey bark. A resin, called *gum-elemi*, is from this tree.—It is a native of Carolina and Brazil.

2. Amyris Sylvatica. Leaves ternate, crenate, acute. A leafy branching shrub, from two to fifteen feet high.—Found about Carthagena, in woods near the sea. Flowering in August; and abounding in turpentine of a strong disagreeable smell.

3. Amyris Maritima; *Small Shrubby Sweetwood.* Leaves ternate, crenulate, obtuse. A dwarf shrub, branching, with a juice like that of the former species, but pleasanter, and smelling like Rue.—It grows in very barren coppices, in a calcareous rocky soil, both near the sea and on the interior mountains of Jamaica, Hispaniola, and Cuba, flowering from June to September.

4. Amyris Gileadensis; *Balsam of Gilead Tree.* Leaves ternate, quite entire; pedunculs one-flowered, lateral.—This is a shrub with purple branches, striated a little, having protuberant buds loaded with balsamic resin; it is, however, doubtful whether it is not the same with the following species:—

5. Amyris Opobalsamum; *Balsam of Meeca Tree.* Leaves pinnate, leaflets sessile. The true opobalsamum is said to be produced from this tree; it is at first turbid and white, of a very strong pungent smell, like that of turpentine, but sweeter, and more fragrant, like Mint, varying according to its goodness, and of a bitter, acrid, astringent taste; by age it becomes thin, light, limpid, and of a greenish hue, and then of a gold colour; after which it grows thick like turpentine, and loses much of its fragrance. Its scarcity has prevented its coming into use among us; nor are its virtues, probably, superior to those of some of the resinous juices more common in the shops; all these substances being alike in substance and general qualities, though differing in the degree of their pungency, gratefulness, and warmth. It has always been esteemed as a cosmetic: the Eastern women in particular make great use of it. Lady Mary Wortley Montague informs us, that the balm of Meeca, when applied to her face, caused it to become swelled and red during three days, but that her complexion was much mended by the operation. She says, that of the best quality is not easily procured, even at Constantinople, where the women all use it, and have the loveliest bloom in the world!

6. Amyris Toxifera; *Poison Ash.* Leaflets pinnate; leaflets petiolate, plain. A liquor as black as ink distils from the trunk of this tree, which the Americans say is poison. Birds feed upon the fruit. Native of America.

7. Amyris Protium. Leaves pinnate; leaflets petiolate, waved; perennial.—Native of the East Indies.

8. Amyris Ambrosiaca. Leaves pinnate, petiolate; panicles crowded, axillary. The trunk of this tree is thirty feet high, branching at the top; the flowers yellowish-white. It is extremely sweet-scented, and pours out a very odorous balsam from the wounded trunk or branches, which is used in the dysentery: the dose is one drachm in red wine; it is also used in houses and churches, to burn as a perfume. It grows in the woods of Guiana and by the sea-shore, flowering and fruiting in September.

9. Amyris Balsamifera; *Sweet Amyris, White Candle Wood,* or *Rosewood.* Leaves two-paired. This species grows to a considerable size, and is one of the most valuable timber-trees in the island of Jamaica; the wood grows of a dirty clouded ash-colour, has a pleasant smell, and, bearing a fine polish, is in great repute among cabinet-makers. All the parts of this tree are full of warm aromatic particles, and may be used in baths and fomentations. An infusion of the leaves has a pleasant flavour, is highly cephalic, strengthens the nerves, and is peculiarly restorative to weak eyes.

Anabasis; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth three-leaved; leaflets roundish, concave, obtuse, spreading. *Corolla:* five-petalled; petals ovate, equal, less than the calix, permanent. *Stamina:* filamenta filiform, longer than the corolla; antheræ roundish. *Pistil:* germen roundish, acuminate, ending in two styles; stigmas obtuse. *Pericarp:* a berry; roundish, surrounded by the calix, dilated. *Seeds:* single, screw-shaped. Essential Character. *Calix:* three-leaved. *Corolla:* five-petalled. *Berry:* one-seeded, surrounded by the calix.—The species are,

1. Anabasis Aphylla; *Leafless Anabasis.* Without leaves, the joints emarginate. The stem short and roundish; the berry dyes a yellow colour.—It is perennial, and has been found wild on the shores of the Caspian sea.

2. Anabasis Foliosa; *Leafy Anabasis.* Leaves subclavate. This is seldom more than a foot and half high. Annual, also found on the shores of the Caspian sea.

3. Anabasis Tamariscifolia; *Tamarisk-leaved Anabasis.* Leaves awl-shaped; pericarps juiceless.—A shrub with white branches: native of Spain.

4. Anabasis Spinosissima; *Thorny Anabasis.* Shrubby: branches without leaves, but full of spines.—A shrub; its native place unknown.

Anacardium; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite flower. Calix:* perianth five-leaved; leaflets ovate, concave, coloured, erect, deciduous. *Corolla:* petals five, lanceolate, acute, three times as long as the calix, upright at the bottom, reflex at the end. *Stamina:* filamenta ten, united at the base, upright; nine of them capillary, shorter than the calix; one thicker, double the length of the others, lying on the germen in front; antheræ roundish; in the longer filamentum large and fertile, in the rest small. *Pistil:* germen kidney-shaped, obliquely emarginate in front; style subulate, bent in, the length of the corolla; stigma small, roundish, depressed, concave. *Pericarp:* none. *Receptacle:* fleshy, very large, obovate. *Seed:* nut kidney-shaped, large, at the top of the receptacle; with a thick shell, cellular within, and abounding in oil. *Male flowers,* either mixed with the hermaphrodites, or on a distinct tree. *Calix, Corolla,* and *Stamina,* as above. *Pistil:* germen none, or abortive. Essential Character. *Calix:* five-leaved. *Petals:* five, reflex. *Antheræ:* ten, one only fertile. *Nut:* kidney-shaped, on the top of a fleshy receptacle——One species only is yet known, viz.

1. Anacardium Occidentale; *Cashew Nut, Cassu,* or *Acajou.* This is an elegant tree, twenty feet high. The fruit or apple has an agreeable subacid flavour; the juice expressed from it, and fermented, yield a pleasant wine; and when distilled, produces a spirit far surpassing arrack or rum, making admirable punch, and powerfully promoting urine. The nut springs from one end of the apple, and contains, between it and the kernel, an inflammable caustic oil, which will raise blisters on the skin, and has been used with great success in eating off ring-worms, cancerous ulcers, and corns; but should be cautiously employed. When fresh, the kernel has a most delicious taste, abounding with a sweet milky juice. When it is old, and ground with cocoa, it makes excellent chocolate. The body of the tree, when tapped, produces a milky juice, which will stain linen *indelibly* with black; the thick oil of the shell also tinges it of a rusty iron colour, which can hardly be got out, and if rubbed over wood, will preserve it from decaying, and might therefore prove an excellent preservative to house-timber and ship's bottoms. The tree yields annually five, ten, or even twelve pounds weight of a fine semitransparent gum, similar to gum-arabic, and not inferior in virtue or quality, except that it has a slight astringency, which perhaps renders it in some respects more valuable. The inside of the fleshy receptacle, which is commonly called the cherry, is stringy, but full of an austere acrid but pleasant juice, which the Americans employ in making punch, as we do that of lemons. When the West India ladies imagine their beauty too much impaired by the scorching rays of the sun, they scrape off the outside skin, and then rub their faces and hands all over with the stone, which soon after swell and grow black; and in five or six days after the skin has been thus poisoned, it comes off the face and other parts in large flakes. This operation prevents their appearance in public for the full space of a fortnight; at the end of which time the new skin looks as fair as that of a young child. The slaves and negroes in Brazil cure themselves of disorders in

the stomach, to which they are very subject, by eating the fleshy parts of the fruit, the acidity of which dissolves the tough humour which prevents the free circulation of the blood and juices, and thus removes the complaint by destroying its cause. It is however necessity, not choice, which leads the negroes to the use of this fruit, which they are far from being fond of; but their masters, the Portuguese, deny them every other kind of sustenance. Being constrained to use this food, in a few days they recover from their indisposition, and return to their masters with health and vigour sufficient to perform the labour usually allotted to them. These trees are easily raised from the nuts, sown in small pots, and plunged into a hot-bed: they generally appear in a month; but are with difficulty preserved in England.

Anacyclus; a genus belonging to the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common hemispherical, imbricate, with many ovate, flat, sharp scales. *Corolla:* compound radiate, with numerous hermaphrodite corollets in the disk; from five to ten females in the ray, scarcely higher than the disk. Hermaphrodites funnel-shaped, with a quinquefid spreading border; females with a flatted tube, and an ovate entire border. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindric. *Pistil:* germen flatted, stigma bifid, in the hermaphrodites, with a membrane on each side; style filiform, the length of the corollet; and two slender reflex stigmas in the floscules. *Pericarp:* none; calix unchanged. *Seed:* in the hermaphrodites, solitary, oblong, compressed, naked, or without down; in the females, with a very broad membranaccous wing on each side, and emarginate at top, but without down. *Receptacle:* chaffy; chaffs obtuse with a point. Essential Character. *Receptacle:* chaffy. *Down:* emarginate. *Seeds:* in the ray, membranaceous.—All the plants of this genus are annual.——The species are,

1. Anacyclus Creticus; *Trailing Anacyclus.* Leaves decompound, linear; divisions subdivided, flat. Flowers small, white.—Native of the islands of the Archipelago.

2. Anacyclus Orientalis; *Eastern Anacyclus.* Leaves compound, bristly, acute, straight. This plant has white flowers resembling the chamomile.—Native of the islands of the Archipelago; first discovered by Tournefort.

3. Anacyclus Aureus; *Golden-flowered Anacyclus.* Leaves bipinnate, roundish, hoary, hollow-dotted; stems many, seven inches high, and erect.—It is a native of the south of Europe, and the Levant.

4. Anacyclus Valentinus: *Fine leaved Anacyclus.* Leaves decompound, linear; divisions subdivided, roundish, acute; flowers flosculose. Grows a foot and half high, with flowers of a bright yellow colour, and a silvery scaly calix.—It is a native of Spain, flowering in June and July.

Anagallis; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, sharp, permanent; division keeled. *Corolla:* wheel-shaped, border five-parted; divisions ovate-orbiculate, with the claws connected. *Stamina:* filamenta erect, shorter than the corolla, shaggy below; antheræ simple. *Pistil:* germen globose; style filiform, slightly bending; stigma capitate, *Pericarp:* a globose one-celled capsule, opening transversely. *Seeds:* very many, angular. *Receptacle:* globose, very large. Essential Character. *Corolla:* rotate. *Capsule:* opening horizontally.—The four first species are annuals, propagated from seed, which must be sown after they are ripe, and sheltered from extreme cold.——The species are,

1. Anagallis Arvensis; *Common Pimpernel.* It is an annual plant, with a quadrangular stem and scarlet corollas, with purple bottoms; the blossoms open about eight in the morning and close in the afternoon, except it rain, in which case they neither open nor close; hence it is called the *Shepherd's* or *Poor Man's Weather-glass.* Cows and goats feed upon it, but sheep reject it. It is common in corn-fields, and in other cultivated places, and blossoms from May till August. It is of a cordial sudorific nature, and a strong infusion of it is an excellent medicine in feverish complaints, which it relieves by promoting a gentle perspiration. The same simple preparation is much used among country people in the first stages of consumptions; and is often the happy means of checking the disorder, and preventing its fatal consequences. The whole plant, dried and powdered, is good for the falling sickness; and there are, says Hill, many well-authenticated accounts of that dreadful disorder being absolutely cured by it. A decoction of it in wine, drank in bed, causes sweating, and is a preservative in pestilential and contagious diseases; a water distilled from it is excellent for sore eyes. The expressed juice is serviceable in the beginning of dropsies, and in obstructions of the liver, spleen, and reins. It brings away stony and gravelly concretions from the bladder and urinary passages, and is good in consumptive cases, ulcerated lungs, and other disorders of the breast. The infusion is best made by pouring boiling water upon it fresh gathered. The dried leaves may be given in powder, or an infusion made of the whole dried plant, but nothing equals the infusion of the fresh plant.—This species grows wild in Sweden, Germany, and Switzerland; and with us between Stockwell and Camberwell; near Mitcham in Surry; near Histon in Cambridgeshire; and Bredon-Hill in Worcestershire.

2. Anagallis Monelli; *Upright Pimpernel.* Leaves undivided; stem erect. This is a very beautiful small plant, producing great numbers of fine blue flowers in April and May.—It is a native of Verona.

3. Anagallis Latifolia; *Broad-leaved Pimpernel.* Leaves heart-shaped, stem-clasping; stem compressed. This is very nearly allied to the preceding species; corolla blue; filamenta purple; antheræ oblong, yellow. It is a trailing annual plant; and was imported from Spain.

4. Anagallis Linifolia; *Flax-leaved Pimpernel.* Leaves linear; stem erect, three or four inches high.—It grows wild in Spain and Portugal.

5. Anagallis Tenella; *Bog Pimpernel, Purple Loosestrife,* or *Moneywort.* Leaves ovate, sharpish; stem creeping. Roots perennial, numerous; corolla large, of a pale-red colour, with deeper veins. Not uncommon on bogs, flowering from June to August.—Moneywort is cooling and astringent, and a good antiscorbutic; excellent against spitting of blood, and in bloody fluxes, for which purposes it is best to give the leaves in powder. The juice of it is a well-known remedy among country people, for overflowings of the menses; and the roots dried and powdered are good in purgings; and the leaves, bruised, and applied to green wounds, speedily heal them.

6. Anagallis Verticillata; *Verticilled Pimpernel.* Stem-leaves verticilled; stem erect, a foot high; corolla a bright blue: has not yet been cultivated in England.

7. Anagallis Pumila; *Dwarf Pimpernel.* Stem erect; leaves roundish, acute, sessile.—Annual; and a native of Jamaica.

Anagyris; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth bell-shaped; mouth five-toothed, the upper pair of teeth more deeply divided. *Corolla:* papilionaceous; standard obcordate, straight, emarginate, broader than the other petals twice as long as the calix; wings ovate-oblong, flat, longer than the standard; keel straight, very long. *Stamina:* filamenta parallel, distinct, rising; antheræ simple. *Pistil:* germen ob-

long; style simple, rising; sigma villose. *Pericarp:* an oblong, large, roundish, obtuse legume, a little reflex. *Seeds:* six or more, kidney-form. ESSENTIAL CHARACTER. *Standard* and *Wings;* shorter than the *keel,* in a papilionaceous corolla. *Fruit:* a legume.—These plants may be propagated by laying down their tender branches in the spring: if seeds be used, they must be sown on a moderate hot-bed at the beginning of March. The fourth year from sowing, they will begin to produce their flowers, and will flower every year after.——The species are,

1. Anagyris Fœtida; *Stinking Bean Trefoil.* Leaves ovate; flowers axillary.—It is a shrub eight or ten feet high, with bright yellow flowers, appearing in April and May; and grows wild in France, Spain, Italy, Sicily, and about Smyrna.

2. Anagyris Cretica. Leaves oblong; racemes longer.—A native of Candia; very rare in England.

3. Anagyris Inodora. Leaves pinnate; calices inflated, coloured; legumes compressed, straight; racemes terminating, oblong.—An upright shrub, with a white flower; and native of the woods of Cochin-china.

Anastatica; a genus of the class Tetradynamia, order Siliculosa.—GENERIC CHARACTER. *Calix:* Perianth four-leaved, deciduous; leaflets ovate-oblong, concave, erect, deciduous. *Corolla:* tetrapetalous, cruciform; petals roundish, flat, spreading; with claws nearly the length of the calix, but more spreading. *Stamina:* filamenta six, subulate, the length of the calix, from erect spreading; antheræ roundish. *Pistil:* germen bifid, very small; style subulate, the length of the stamina, permanent; stigma capitate. *Pericarp:* a very short *silicle;* partition ending in a subulate point, oblique, and longer than the silicle itself; the valves parallel, making a cell of the lower half, but standing out from the upper, rounded, concave, gaping, oblique, hence having the form of a sheep's hoof. *Seeds:* solitary, roundish. ESSENTIAL CHARACTER. *Silicle:* retuse, crowned at the edge with valves twice as long as the partition. *Style:* intermediate, pointed, oblique. *Cells:* one-seeded.—These plants are annual, and can only be propagated by seeds, which rarely ripen in England, they must be sown on a hot-bed in the spring.——The species are,

1. Anastatica Hierochuntica. *Common Anastatica,* or *Rose of Jericho.* Leaves obtuse; spikes axillary, very short; silicles hoofed, thorny.—This curious plant if taken up before it is withered, and kept entire, may be preserved many years in a dry room; and afterwards, if the root be placed a few hours in a glass of water, the buds of flowers will swell, open, and appear as if newly taken out of the ground.—It grows naturally on the coasts of the Red Sea, in the sandy parts of Palestine, and near Cairo.

2. Anastatica Syriaca; *Syrian Anastatica.* Leaves acute; spikes longer than the leaf; silicles ovate, beaked.—It flowers in May and June; and is a native of Austria, Stiria, Carniola, Syria, and Sumatra.

Anchovy Pear. See *Grias.*

Anchusa; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth five-parted, oblong, round, acute, permanent. *Corolla:* monopetalous; funnel-shaped; tube cylindrical, the length of the calix; limb semi-quinquefid, from erect expanding, obtuse; throat closed with five small scales, convex, prominent, oblong, converging. *Stamina:* filamenta very short, in the throat of the corolla; antheræ oblong, incumbent, covered. *Pistil:* germina four; style filiform, the length of the stamina; stigma obtuse, emarginate. *Pericarp:* none; but the calix enlarged, and erect, contains the seeds in its bosom. *Seeds:* four oblongish, obtuse, gibbose. ESSENTIAL CHARACTER. *Corolla:* funnel-shaped, the throat closed with an arch of scales *Seeds:* engraved at the base. All the species of this genus may be propagated by seeds, sown in the autumn upon a bed of light sandy earth, and removed from thence in the spring to beds planted at two feet distance, watering them till they have taken root; after which they will require no further care. If the seeds of the common sorts be permitted to scatter themselves, the plants will rise in plenty.——The species are,

1. Anchusa Officinalis; *Officinal* or *Garden Alkanet,* or *Bugloss.* Leaves lanceolate; spikes imbricate, pointing one way. Stems from a foot to eighteen inches high; leaves seven inches long, and about an inch broad, which, with the stems, are hairy and rough; corolla purple, and sometimes white. It flowers in June, July, and August.—Bees are very fond of the tube of the corolla. This is not the *Anchusa,* but the *Bugloss,* of officinal writers: it appears to be nearly similar to Borage; the leaves being less juicy, and the roots more mucilaginous: these, with the leaves and flowers, are ranked among the articles of the materia medica.—It is in great esteem in China, for gently promoting the eruption in the small-pox.

2. Anchusa Angustifolia; *Narrow-leaved Alkanet.* Racemes almost naked, in pairs. Grows two feet high in gardens, but seldom more than one when wild. The flowers are small, and of a red colour.—It is found wild in Germany and Switzerland, flowering in July and August, by way-sides, and the borders of ploughed fields. The great Boerhaave recommended the juice of this plant in the pleurisy and in maniacal cases.

3. Anchusa Italica; *Italian Alkanet.* Leaves lucid, strigose; racemes two-parted, two-leaved; flowers somewhat unequal, bearded at the throat. Roots biennial: stem erect, four feet high or more.

4. Anchusa Undulata; *Waved Alkanet.* Strigose: leaves linear, toothed; pedicles less than the bracte; fruit-bearing calices inflated. Height three feet; leaves stiff, rough, six or seven inches long, and half an inch broad; corollas a fine blue colour.—A native of Spain and Portugal.

5. Anchusa Tinctoria; *Dyer's Alkanet.* Downy: leaves lanceolate, obtuse; stamina shorter than the corollas. This greatly resembles the *Garden Alkanet,* and is cultivated in the south of France for the deep purplish red colour of the roots. It gives a fine deep red to oils, wax, and all unctuous substances, as well as to spirit of wine.—It grows about Montpellier, in Silesia, Spain and Italy.

6. Anchusa Virginica; *Virginian Alkanet.* Flowers scattered; stem smooth. Seldom rises a foot high; and where it abounds, the ground seems covered with bright yellow flowers.—Native of North America; and called there *Puccoon.*

7. Anchusa Lanata; *Woolly Alkanet.* Leaves villose; calices shaggy; stamina longer than the corollas. Stem single, a foot high; corolla blue.—Found near Algiers.

8. Anchusa Sempervirens; *Evergreen Alkanet.* Leaves ovate; peduncles two-leaved, racemed. Corollas blue; stems at the sides of the crown of the root hispid.—Found wild in Spain and Italy, and in various parts of England, by road-sides, among rubbish, and from the joints of old walls. It flowers from May through a great part of the summer, and is perennial. Cows, horses, sheep, and goats, are said to eat it.

9. Anchusa Barrelieri; *Barrelier's Alkanet.* Leaves ovate lanceolate; stem erect; peduncles racemed, pointing one way. Root pale red; stalk angular; corolla azure.—Found in Piedmont.

10. Anchusa Paniculata; *Panicled Alkanet,* or *Bugloss.* Leaves lanceolate, strigose, quite entire; panicle dichotomous divaricate; flowers peduncled; calices five-parted, with subulate segments. It is biennial; flowers in May and June; and is a native of Madeira.

Ancistrum; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leaved, turbinate, truncate, four-toothed; teeth cylindric, awned, erect, terminating in four reversed hooks. *Corolla:* superior, one-petalled, funnel-shaped, with a very short tube, and a spreading quadrifid border; the divisions nearly equal, obtuse, the length of the tube. *Stamina:* filamenta, fastened to the base of the tube, longer than the corolla, capillary; antheræ roundish. *Pistil:* germen oblong; style filiform, the length of the corolla: stigma pencil-shaped. *Pericarp:* none, but the calix, in the bottom of which is the fruit. *Seed:* single, oblong. Essential Character. *Calix:* four-leaved. *Corolla:* none. *Stigma:* many-parted. *Drupe:* dry, hispid, one-celled.——The species are,

1. Ancistrum Decumbens. Stems decumbent; peduncle scape-form, solitary; flowers in a globular head; leaflets wedge-form, deeply serrate, hairy beneath; seed covered with the thickened calix.—Native of New Zealand.

2. Ancistrum Lucidum; *Shining Ancistrum.* Stems submerged; peduncles scape-form; spikes ovate; leaflets oblong, quite entire, acute, subfascicled.—It flowers in May and June; and is a native of the Falkland Isles.

3. Ancistrum Latebrosum; *Hairy Ancistrum.* Stems demerged; peduncles scape-form; spikes elongate; leaflets oblong, gashed, villose; fruits armed on every side.

Andrachne, a genus of the class Monœcia, order Gynandria.—Generic Character. *Male. Calix:* periaath five-leaved, equal, marcescent. *Corolla:* petals five, emarginate, slender, shorter than the calix; nectary, leatlets five, semibifid, herbaceous, one within each petal, and less than it. *Stamina:* filamenta five, small, inserted into the rudiment of each style; antheræ simple. *Female. Calix:* perianth five-leaved, equal, permanent. *Corolla:* petals none; nectary as in the male. *Pistil:* germen superior, globose; styles three, filiform, two-parted; stigmas globose. *Pericarp:* capsule globose, trilobate, three-celled; cells bivalved, the size of the calix. *Seeds:* in pairs, rounded on one side, triangular and obtuse on the other. Essential Character. *Male. Calix:* five-leaved. *Corolla:* five-petalled. *Stamina:* five, inserted into the rudiment of the style. *Female. Calix:* five-leaved. *Corolla:* none. *Styles:* three. *Capsule:* three-celled. *Seeds:* two.—The plants of this genus are propagated in England by seeds sown upon a hot-bed in March. The second and third sorts are very tender. They ripen their seeds in August or September, and decay soon after.——The species are,

1. Andrachne Telephoides. Procumbent and herbaceous.—It grows wild in Italy and the Archipelago, and is a low trailing plant.

2. Andrachne Fruticosa. Erect, shrubby. Fourteen feet high, with small herbaceous-white flowers.—A native of the East Indies, China, and of Vera Cruz, in New Spain.

3. Andrachne Arborea. Stem arborescent; leaves ovate, obtuse, hoary underneath. This species has a strong woody stem rising more than twenty feet high.—Native of Campeachy.

Andromeda, a genus of the class Decandria, order Monogynia.—Generic Character. *Perianth:* five-parted, acute, very small, coloured, permanent. *Corolla:* monopetalous, campanulate, quinquefid; clefts reflex. *Stamina:* filamenta subulate, shorter than the corolla, and scarcely fixed to it; antheræ two-horaed, nodding. *Pistil:* germen roundish; style cylindric, longer than the stamina, permanent; stigma obtuse. *Pericarp:* capsule roundish, five-cornered, five-celled, five-valved, opening at the corners; partitions contrary. *Seeds:* very many, roundish, shining. Essential Character. *Calix:* five-parted. *Corolla:* ovate, or campanulate, quinquefid at the edge. *Capsule:* superior, five-celled, with the partitions from the middle of the valves.—Most of the plants of this genus are hardy deciduous shrubs, delighting in moist ground. They are propagated by their creeping roots, which putting up suckers at a distance, may be taken off with roots, and transplanted where they are designed to remain; for they will not bear frequent removals.——The species are,

1. Andromeda Tetragona. Peduncles solitary, lateral; corollas bell-shaped; leaves opposite, imbricate, obtuse, revolute.—Grows in Siberia and Lapland.

2. Andromeda Hypnoides. Peduncles solitary, terminal; corollas bell-shaped; leaves crowded, awl-shaped.—This little plant is found in Denmark, Siberia, and in the Lapland Alps; where it covers great tracts of ground, adorning them with its beautiful red flowers.

3. Andromeda Cerea. Peduncles axillary, two-leaved, one-flowered; leaves alternate, ovate, serrate.—Native of Otaheite.

4. Andromeda Cœrulea. Peduncles aggregate; corollas ovate; leaves scattered, linear, obtuse, flat.—Found in Sweden, Denmark, Lapland, and Siberia.

5. Andromeda Mariana; *Maryland Andromeda:* Peduncles aggregate, branched; corollas ovate cylindrical; leaves oblong-ovate, quite entire, deciduous.—Native of North America. There are two varieties belonging to this species.

6. Andromeda Ferruginea; *Rusty Andromeda.* Peduncles aggregate, axillary; corolla subglobose; leaves elliptic, quite entire, beneath scaly scariose.—Native of North America.

7. Andromeda Polifolia: *Marsh Andromeda.* Peduncles aggregate; corollas ovate, leaves alternate, lanceolate, revolute.—This elegant little shrub is from six to eight inches and a foot high, with a red calix and pink-coloured corolla. It flowers about the end of May; and is a native of America; of turf-bogs in the northern countries of Europe; and of Cheshire, Lancashire, Cumberland, Yorkshire, &c. It is called *Moor-wort, Wild Rosemary, Marsh Holy Rose*, &c.

8. Andromeda Bryantha. Flowers corymbed; leaves elliptic; stem prostrate.—It comes up in thick clumps, like Wild Thyme, on the rocks of Kamtschatka.

9. Andromeda Daboecia; *Irish Whorts, Cantabrian Heath,* or *Trailing Andromeda.* Racemes pointing one way; flowers quadrifid-ovate; leaves alternate, lanceolate, revolute. Found only in the Irish bogs, and flowers in June and July.

10. Andromeda Droseroides; *Clammy Andromeda.* Racemes pointing one way; leaves linear, hairy, viscid.—A native of the Cape.

11. Andromeda Paniculata; *Panicled Andromeda.* Racemes terminal, panicled; corollas roundish; leaves ovate, rather entire. Stem four feet high.—Native of Virginia.

12. Andromeda Japonica. Racemes panicled, cylindric, bracted; leaves elliptic, reflex, serrate at the tip. This is a tree, flowering in December.—Native of Japan.

13. Andromeda Arborea; *Tree Andromeda,* or *Sorrel Tree.* Racemes terminal; corollas rather downy; leaves elliptic, pointed, toothletted.—A shrub from ten to twenty feet high; native of Virginia and Carolina.

14. Andromeda Racemosa; *Branching* or *Pennsylvania Andromeda.* Racemes terminal, simple, bracted; corollas cylindric; leaves oblong-lanceolate, serrate.—It flowers in July, and is a native of Pennsylvania.

15. Andromeda Axillaris; *Notch-leaved Andromeda.* Racemes axillary, simple; corollas oblong; leaves ovate, acute, serrulate.—Native of Carolina; flowering from May to August.

16. Andromeda Coriacea; *Thick-leaved Andromeda.* Racemes axillary, simple; leaves ovate, very entire, very shin-

ing; branchlets three-cornered. Flowers in July and August.—Native of North America.

17. Andromeda Acuminata; *Acute-leaved Andromeda.* Racemes axillary, simple; leaves ovate-lanceolate, acuminate serrate. A shrub four feet high, flowering in July and August.—Native of North America.

18. Andromeda Calyculata; *Calicled Andromeda.* Peduncles solitary, axillary, pointing one way; bractes two; leaves oval, scaly, dotted, obsoletely serrulate.—A low shrub, with leaves like those of the Box; growing upon mossy land in Sweden, Ingria, Siberia, and North America.

19. Andromeda Anastomozans. Racemes crowded, leafy; leaves ovate, slightly serrate, anastomosing underneath, and dotted.—Native of New Granada.

20. Andromeda Rupestris. Leaves oblong, alternate, serrulate.—Native of New Zealand.

21. Andromeda Salicifolia; *Willow-leaved Andromeda.* Racemes pointing one way, naked; corollas subcylindrical; leaves lanceolate, acute, quite entire.—Found in the island of Mauritius.

22. Andromeda Buxifolia; *Box-leaved Andromeda.* Racemes pointing one way, naked; corollas subcylindrical; leaves cordate-ovate, quite entire, with a little dagger-point.—Native of the Isle of Bourbon.

23. Andromeda Fasciculata. Peduncles aggregate; leaves alternate, ovate-lanceolate, obtuse, slightly crenulate, coriaceous.—24. Andromeda Jamaicensis. Peduncles aggregate; corollas ovate, transparent; leaves alternate, broad lanceolate, obtuse, entire, beneath ash-coloured, membranaceous.—25. Andromeda Octandra. Peduncles aggregate; corollas cylindric quadrifid; leaves alternate, ovate-lanceolate, entire, membranaceous.—All natives of Jamaica.

Andropogon; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite. Flowers sessile. Calix:* a glume, one-flowered, two valved, oblong, obtuse, cartilaginous, awnless; the outer valve concave, flattish at the back, embracing the inner, which is narrower, with its edges. *Corolla:* a two-valved glume, less and more slender than the calix; outer valve smaller, frequently very small, within the inner valve of the calix, sharp or bifid at the end, in most of the species awned; awn terminating, or from the cleft of the glume, long, with a bent joint and twisted at bottom; the inner valve lanceolate, doubled at the edges. Nectary two-leaved; leaflets thickish, diaphanous. *Stamina:* filamenta three, capillary, very tender; antheræ oblong; forked at both ends, incumbent. *Pistil:* germen oblong; styles two, capillary; stigmas oblong, feathered. *Pericarp:* none; glumes of the corolla and calix involving and inclosing the seed. *Seed:* solitary, oblong, covered, armed with the awn of the corolla, which easily falls off. *Male Flowers peduncled, single, or in-pairs to each Hermaphrodite. Calix: Corolla,* and *Stamina:* as in the others, only that the corolla has no awn. Essential Character. *Hermaphrodite. Calix:* glume one-flowered. *Corolla:* glume awned at the base. *Stamina:* three. *Styles:* two. *Seeds:* one. *Male. Calix* and *Corolla:* the same. *Stamina:* three.—Few of these grasses have been cultivated in England; the greater part of them would require a stove, since they are natives of the East and West Indies.——The species are,

1. Andropogon Caricosum. Spike solitary, imbricate; seeds shaggy; awns naked, contorted.—Native of Amboyna and Japan.

2. Andropogon Contortum. Spike solitary; male flowers awnless on the back of the spike; female flowers on the belly of it, twice as long as the males, with twisted approximating awns longer than the whole spike.—Native of the East Indies.

3. Andropogon Crinitum. Spike solitary, shaggy; awns naked, jointed, very long.—A native of Japan.

4. Andropogon Divaricatum. Spike oblong; flowers woolly, remote, divaricate; awn flexuose, naked.—Native of Virginia.

5. Andropogon Gryllus. Peduncles of the panicle entirely simple, three-flowered: the hermaphrodite floscule sessile, awned, ciliate, bearded at the base. Culm three feet high.—Native of Piedmont, Switzerland, &c.

6. Andropogon Saccharoides. Branches of the panicle single: florets in pairs; hermaphrodite awned, sessile, the other awnless, pedicled, withering; pedicle and rachis woolly.—Native of Jamaica.

7. Andropogon Nutans. Panicle nodding; awns twisted, polished; glumes of the calix shaggy.—Found in Virginia and Jamaica.

8. Andropogon Ciliatum. Panicle nodding; outer calix many-flowered, ciliate; awns contorted, hairy.—It flowers in September; and is a native of the mountains of Japan.

9. Andropogon Serratum. Panicle loose; one floscule sessile, villose at the base; the other pedicled, with the pedicle villose, and shorter than the calix.—Native of Japan.

10. Andropogon Cotuliferum. Panicle spreading, villose; awn twisted, naked; pedicles clubbed or swelling at top, and hollowed like a saucer or dish.—Found in Japan.

11. Andropogon Cymbarum. Panicles scattered; bractes boat-form; flowers transverse, awned, three-fold. Culms three feet high.—A native of the East Indies.

12. Andropogon Squarrosum. Panicle crowded; glumes awl-shaped, rugged. Culms smooth; leaves rugged.—A native of Ceylon; where the natives make fans of it, and esteem it for its pleasant smell.

13. Andropogon Prostratum. Peduncles in five-flowered umbels without calicles; the hermaphrodite floscule awned.—Native of the East Indies.

14. Andropogon Fastigiatum. Spikes of the panicle solitary; peduncles elongate, subfastigiate; rachis woolly; floscules awned; male fertile.—Native of Jamaica.

15. Andropogon Alopeuroides. Panicle loose; rachis woolly; a twisted awn to each floscule.—Native of Virginia and Jamaica.

16. Andropogon Distachyum. Spikes two, terminal; culm undivided.—A foot high; said to grow wild in Switzerland.

17. Andropogon Schænanthus; *Sweet Rush,* or *Camel's Hay.* Spike of the panicle conjugate, ovate-oblong; rachis pubescent; floscules sessile, with a twisted awn. This species is cultivated in the gardens of China and Cochin-china, where the inhabitants employ it to season their meat. We receive it in bundles from Turkey. When in perfection, it has a warm, bitterish, and not unpleasant taste, with an agreeable smell. It was once employed as a warm stomachic and remover of obstructions, but has been superseded by more common aromatics. Perennial.—Native of Arabia and India.

18. Andropogon Virginicum. Spikes of the panicle conjugate; peduncles simple; rachis woolly; floscules awnless, the male one wanting.—About six feet high; and a native of America.

19. Andropogon Bicorne. Spikes of the panicle conjugate; peduncles branching very much; rachis woolly; awn caducous; male floscule wanting.—This is found upon dry hills in the East Indies; and there called *Foxtail Grass.*

20. Andropogon Hirtum. Spikes of the panicle conjugate; calices shaggy.--Native of Portugal, Italy, Sicily, and Smyrna.

21. Andropogon Insulare. Panicle loose, smooth; floscules double, awnless; one pedicle shorter; calices woolly.—Native of Jamaica.

22. Andropogon Barbatum. Spikes digitate: calices permanent; corollas ciliate. Culm a foot high.—Found in the East Indies.

23. Andropogon Pubescens. Spikes digitate; calices subtriflorous; outer petals awned; keel and hedge of the hermaphrodite flower ciliate.—This species is perennial; flowers from July to September; and is a native of Jamaica.

24. Andropogon Nardus; *Indian Nard,* or *Spikenard.* Branches of the panicle superdecompound, proliferous. This is said to be used as a spice among the Orientals: as brought to us, it is a congeries of small tough reddish-brown fibres, forming a bunch about the size of a finger, and is moderately warm and pungent, accompanied with a flavour which is not disagreeable. The whole plant has a strong aromatic odour; but both the smell and the virtues reside principally in the husky roots, or lower part of the stalks, which in chewing have a bitter, warm, biting taste, accompanied with a slight degree of that glow in the mouth which cardamoms occasion, and possesses a pungency to the taste little inferior to the Serpentaria, and much more considerable than the Contrayerva. The Hindoos call it *terankus,* (fever-restrainer) from the virtues they attribute to it in that disease. They infuse about a drachm of it in half a pint of hot water, with a small quantity of black pepper. This serves for one dose, which they repeat three times a day. It is esteemed a powerful medicine in all kinds of fevers, whether continued or intermittent; and a work attributed to Galen, informs us, that a medicine, composed of this and some other aromatics, was found useful in long-protracted fevers, which are the cases in which modern practitioners employ medicines of this class. The ancients highly valued it as a luxury, as well as a medicine, it being the favourite perfume which they used at their baths and feasts; and, from the following words of Horace, it appears that it was so valuable, that as much of it as could be contained in a small box of precious stone was considered as a sort of equivalent for a large vessel of wine; and, according to the custom of antiquity, a handsome quota for a guest to contribute towards an entertainment:—

" —— *Nardo vina merebere,*
" *Nardi parvus onyx eliciet cadum.*"
Hor. lib. iv. car. xii. v. 16, 17.
" To purchase wine with spikenard dost thou ask?
" A tiny box will bring a teeming cask."

25. Andropogon Muticum, Spikes digitate, mostly three; floscules alternate, sessile, awnless. Culms seven inches high.—A native of the Cape.

26. Andropogon Ischæmum. Many digitate spikes; floscules sessile, awned and awnless; pedicles woolly.—This species is found upon mountains and hills, and in dry situations, in the southern parts of Europe.

27. Andropogon Fasciculatum; *Many-spiked Andropogon.* Spikes fascicled, very many, smooth; calices two flowered; valves acute, smooth, and even, the outer like petals and awned, the inner floscule barren.—Native of Jamaica, flowering from July to September.

28. Andropogon Polydactylon. Spikes fascicled; outer petals awned; those of the lower floscule ciliate-bearded.—Native of Jamaica.

29. Andropogon Glaucum. Panicle leafy; involucels and calices two-flowered; calices of the sessile flowers three-valved, of the peduncled ones two-valved. Culm filiform, a foot high, leafy.—It is a native of the East Indies.

30. Andropogon Serratum. Spike simple, imbricate, with two rows of awned sessile flowers, and two of awnless pedicelled ones; calices one-valved.—Native of Bengal.

31. Andropogon Incurvatum. Spikes filiform, subdigitate; flowers twin, the female pedicelled and awned, the male sessile and awnless; calices one-valved.—Found near rivers in Tranquebar.

32. Andropogon Binatum. Spikes twin, woolly; one valve of the calices acuminate, the other truncate, three-toothed; the larger petal awned.—Found in the East Indies.

33. Andropogon Aciculatum. Panicle contracted, upright; peduncles three-flowered; male flowers two-pedicelled, acuminate, female sessile, awned.—Native of the East Indies.

34. Andropogon Bladhii. Spikes about eight; hermaphrodite floscule sessile, awned; neuter, peduncled, ciliate, awnless.—Native of China.

35. Andropogon Provinciale. Spikes fascicled, smooth; floscules alternate, subsessile, directed one way, awned. Root annual; culms a foot high, leafy, branched at the base. A native of the south of France.

Androsace; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* involucre many-leaved, many-flowered, very small; perianth one-leafed, five-cornered, semiquinquefid, acute, erect, permanent. *Corolla:* monopetalous, salver-shaped; tube ovate, involved in the calix; border flat, five-parted; divisions ovate-oblong, obtuse, entire; throat beset with glands. *Stamina:* filamenta very short, within the tube; antheræ oblong, erect, included. *Pistil:* germen globose; style filiform, very short; stigma globose, included. *Pericarp:* capsule globose, sitting on a flat calix, one-celled, opening into five parts at the top. *Seeds:* very many, roundish, gibbous on one side, flat on the other. *Receptacle:* erect, free. Essential Character. An involucre to the umbel; tube of the corolla ovate, with a glandulous mouth; capsule one-celled, globose.—These are low plants with small flowers, and make no great appearance. They only require to be kept free from weeds, and to be sown in a shady situation. They seldom appear the first year, but if permitted to scatter themselves, often succeed better than when sown. The annual sorts perish as soon as the seeds are ripe; but the others will live in an open border for several years.——The species are,

1. Androsace Maxima; *Oval-leaved Androsace.* Perianths of the fruit very large. Root annual, slender. It flowers in April or the beginning of May, the seeds ripen in June, and the plants perish soon after. It grows naturally among the corn in various parts of Germany and Italy.

2. Androsace Elongata; *Cluster-flowered Androsace.* Leaves lanceolate-toothed; fruiting umbel elongate; corollas shorter than the angular calix.—Native of Austria, near Vienna, growing up to the very suburbs. Its flowers, which are white, appear in May, and the seeds are perfected in June.

3. Androsace Septentrionalis; *Tooth-leaved Androsace.* Leaves lanceolate-toothed, smooth; perianths angular, shorter than the corollas, annual.—Native of mountainous situations on all the northern parts of the Continent.

4. Androsace Villosa; *Hairy Androsace.* Leaves hairy: perianths shaggy. Tube of the corolla yellow, spreading into a white border, which at length becomes purple.—Common in the Swiss Alps, the mountains of Austria and Carniola, the Pyrenees, &c. Perennial. Flowers in July and August.

5. Androsace Lactea; *Grass-leaved Androsace.* Leaves lanceolate, smooth; umbel many times larger than the involucres. Root perennial. Tube of the corolla yellow, with yellow glands at the throat; segments obcordate; large, emarginate, snow-white.—Place of growth, and time of flowering, the same as the fourth, or preceding species.

6. Androsace Carnea; *Awl-leaved Androsace.* Leaves awl-shaped, smooth; umbel equalling the involucres. Corollas flesh-coloured.—Native of the Alps and Pyrenees.

7. Androsace Filiformis. Leaves ovate-toothed, petioled; rays of the umbel capillary; corollas exceeding the bell-shaped calix. Corolla white.—A native of Siberia.

Androsæmum. See *Hypericum.*

Andryala; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common, many-parted, short, rounded, villose: scales very many, subequal, subulate. *Corolla:* compound imbricate, uniform; corollules hermaphrodite, numerous, equal; each ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindrical tubulose. *Pistil;* germen ovate; style filiform, the length of the stamina; stigmas two, reflex. *Pericarp:* none. *Calix:* converging, globose. *Seeds:* solitary, ovate; down capillary, the length of the calix. *Receptacle:* villose, flattish. Essential Character. *Receptacle:* villose. *Calix:* many-parted, subequal, rounded. *Down:* simple, sessile.—Every species in this genus may be propagated from seeds; those of the hardy sorts should be sown in spring, wherever they are to remain. These plants require no culture, but occasional thinning and weeding. The second, third, fourth, and fifth species, require the protection of a green-house, where they will flower all the summer and frequently produce seeds fit for propagation. The perennials are increased by their creeping roots.——The species are,

1. Andryala Integrifolia; *Hoary Andryala.* Lower leaves runcinate; upper ovate-oblong, tomentose. The flowers are yellow, like Sowthistle. It flowers in July, and the seeds ripen in September.—There is a variety of this species; both are annuals, and natives of the southern parts of Europe.

2. Andryala Cheiranthifolia; *Various-leaved Andryala.* Leaves runcinate; upper ones lanceolate, entire; down glanduliferous. Perennial; three feet high, full of milk; flowers yellow, scarce, nodding.—Native of the island of Madeira.

3. Andryala Pinnatifida; *Pinnatifid-leaved Andryala.* Leaves tomentose, pinnatifid; calices tomentose, hairy; hairs rather stiff.—Biennial: flowering in July and August.—Native of the Canary Islands, where, and in Madeira, it and two varieties of the same species are found.

4. Andryala Crithmifolia; *Samphire-leaved Andryala.* Leaves pinnate, linear, tomentose.—Native of Madeira.

5. Andryala Ragusina; *Downy Andryala.* Leaves lanceolate, undivided, denticulate, acute, tomentose; flowers solitary. This plant has a yellow flower, terminating every branch in June and July, and being very hoary, makes a pretty appearance among others whose leaves are green. It will not bear the open air, except in a dry soil and warm situation.—Found in Spain, in Algiers, as well as at the Cape.

6. Andryala Lanata; *Woolly Andryala.* Leaves oblong-ovate, slightly toothed, woolly; peduncles branching. A biennial; with a large yellow flower, which appears in June, and is followed by the seeds in August. The whole plant is white.—Native of the south of Europe.

Anemone; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* none. *Corolla:* petals in two or three rows, three in a row, somewhat oblong. *Stamina:* filamenta numerous, capillary, half the length of the corolla: antheræ twin, erect. *Pistil:* germina numerous, in a head; styles acuminate; stigmas obtuse, *Pericarp:* none; receptacle globular or oblong, hollowed and dotted. *Seeds:* very many, acuminate, retaining the style. Essential Character. *Calix:* none. *Petals:* six or nine. *Seeds:* many.—The plants of this genus are mostly hardy perennials, and may be propagated both by seeds and by the roots.——The species are,

1. Anemone Hepatica; *Hepatica.* Leaves three-lobed, quite entire. Flower subcaliculate, lying a year complete in all its parts within the bud, and is one of the most eminent beauties of the spring. The flowers appear plentifully in February and March, before the green leaves appear; and the double sorts, which have fairer and more durable flowers than the single ones, make a beautiful appearance upon the borders of a pleasure-garden. The single sorts produce seed annually, which should be sown in pots or boxes of light earth at the beginning of August, placed so as to have only the morning sun upon them till October, and then removed into the full sun for the winter season. In March they must be replaced in a shady situation, and frequently be watered in dry weather. In the following August they must be transplanted into a border of good fresh loamy earth, facing the east, where they must be placed six inches asunder each way, and have the earth pressed closely to their roots, otherwise the worms will draw them out of the ground. They will shew their flowers in the following spring; but it will be three years before they flower strongly. You may then venture to judge of their quality; and if you find any double flowers, or any of a different colour from the common sorts, they should be taken up and transplanted into borders of the flower-garden, where they should continue two years at least before they are taken up or parted; for when they are often removed and parted, they are very subject to die, but if undisturbed for many years, they thrive exceedingly and produce large roots. The double flowers are therefore propagated by parting their roots in March, placing them where they can enjoy the morning sun, in a strong loamy soil. They will grow any where, except in very hot places, and are not injured by cold.—There are many varieties of this Hepatica species, as 1. Single and double blue. 2. Single and double red or peach-coloured. 3. Single and double white. 4. Single and double variegated red and white. 5. Single and double violet-coloured. 6. With striped leaves. This is an astringent plant, but is seldom used.—It is found wild in Sweden, Denmark, Switzerland, France, Spain, Italy, and other parts of Europe, in woods and among bushes with blue, red, and white flowers.

2. Anemone Patens; *Woolly-leaved Anemone.* Peduncles involucred; leaves digitate, multifid; seeds tailed. Corolla white.—A native of Siberia and Lower Lusatia. This and the following eight species are propagated by seeds in nearly the same manner as the Hepatica, No. 1. which see. They must not be exposed to the forenoon sun in the spring, and they require a loamy soil, as they are apt to decay in light ground during summer.

3. Anemone Sulphurea. Peduncle involucred; leaves triply pinnate, hairy, flat, acutely gashed: seeds tailed. Petals yellow within.—See the preceding species.

4. Anemone Baldensis. Peduncle involucred; seeds tailed; leaves biternate, shaggy. The corolla has eight or ten white petals, shaggy on the outside and reddish,—It grows wild in Switzerland, Monte Baldo, Mont Cenis, &c.

5. Anemone Vernalis. Peduncle involucred; leaves pinnate; flowers erect; seeds tailed. Flower red without, white within.—Found growing in woods bordering on the mountains, and barren sands, in Sweden, Germany, and on the high Alps of Switzerland.

6. Anemone Cernua. Peduncle involucred; leaves pinnate; flowers nodding; seeds tailed.—Found flowering early in the spring near Jeddo, in the island of Japan.

7. Anemone Pulsatilla; *Pasque-flower.* Peduncle involucred; petals straight; leaves bipinnate; seeds tailed. The corolla is a specious purple.—It grows wild in the dry soils of almost every country upon the European continent, and upon

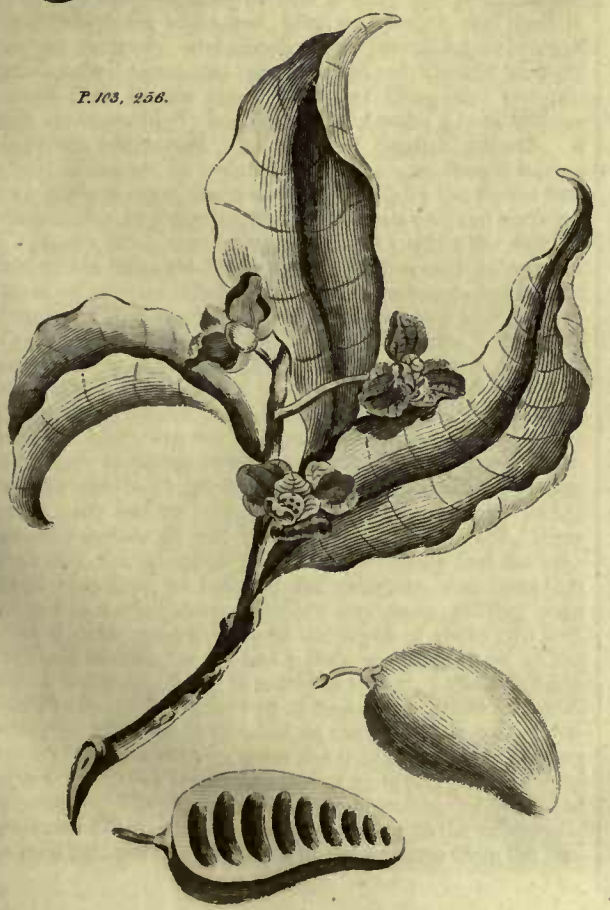
P. 98

ANEMONE. *Narrow leaved Double Anemony*

P. 750.

INDIGOFERA TINCTORIA. — *Dyer's Indigo.*

P. 103, 256.



ANNONA. *The Papaw.*

Vol. 2 — P. 193.

ONONIS. *The early shrubby Purple Rest Harrow.*

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

the chalky downs of England; as Gog-magog hills, Barnack-heath, near Stamford; about Leadstone-hall, near Pontefract; near Charlbury, in Oxfordshire; Hexam, Bury, Newmarket, &c. It flowers in April, and derives its Italian name, *pulsatilla*, from the downy seed being beaten about by the wind. There is one variety with double, and another with white flowers. It is an acrid plant, and will raise blisters; the distilled waters produce vomiting: it cannot therefore be safely given in disorders of the lungs.

8. Anemone Pratensis; *Meadow Anemone.* Peduncle involucred; petals reflex at the tip; leaves bipinnate. The flower of this is less than that of the former, and of a darker colour.—This species is common in barren stony fields of Oeland and Scania; also in Denmark, Germany, and Piedmont.

9. Anemone Alpina; *Alpine Anemone.* Peduncle involucred; stem leaves ternate, connate, super-decompound, multifid; seeds shaggy, tailed. Flower almost the size of the Tulip, white, with a tinge of purple, and pubescent on the outside.—It grows wild on the Alps, Jura, and in Austria.

10. Anemone Apiifolia. Peduncle involucred; stem-leaves ternate, connate, super-decompound, multifid, very slender, extremely hairy underneath. Stem simple, about a span high; flower large, and of a sulphureous colour, without any smell. —A native of the Leontine Alps.

11. Anemone Coronaria; *Narrow-leaved Garden Anemone.* Radical leaves ternate, decompound; involucre leafy. It has a leafy stem, and tailed seeds.—This species is a native of the Levant, particularly in the islands of the Archipelago, where the borders of the fields are covered with it of all colours; but the flowers are single, and have been doubled only by culture. Modern seeds-men reckon from one hundred and fifty to two hundred sorts of this flower; the principal colours of which are white, red, blue, and purple, and these in some are curiously intermixed. The prevailing colours of English-raised Anemones are white and red; though we have received from France great variety of blues and purples, which are exceedingly fine flowers, and make a beautiful variety, when intermixed with those of English growth. A Double Anemone, in order to be a fine one, should have a strong upright stem, about nine inches high; the flower two or three inches in diameter, the outer petals firm and horizontal, except a little turning up at the end; while the smaller petals within these should lie gracefully over each other so as to form an elegant whole. The plain colours ought to be brilliant and striking, the variegated tints clear and distinct. —*Directions for their culture.* Twelve months before you want to use it, mix a quantity of light sandy loam, or hazel mould, taken with the turf to the depth of ten inches, but no more; add a third part of rotten cow-dung, and lay the whole in a heap, turning it once a month, taking out all the stones, and breaking every clod, but on no account sift it. After the year has expired, at the beginning of September prepare your bed by laying this earth six or eight inches above the surface of wet ground, but if a dry soil, three inches will do, whereon you have previously laid the rakings of your heap to drain off the moisture, and upon that four or five inches deep of rotten cow-dung, putting your prepared earth upon the top to the depth of about two feet. If the soil be wet, lay the bed a little round, to shoot off the water; but if dry, bring it nearly to a level. Plant the forward flowers at the latter end of September, those of a middle season any time in October, at the time of some gentle-showers, and cover them from the winter frosts by arching the beds over with hoops, and laying mats and garden cloths upon them. They will flower in the beginning of April, and continue for three weeks or more, according to the mildness of the weather, and the care taken to screen them from the sun. The leaves will begin to decay in June; they must soon after be taken up, cleared from decayed stalks, washed clean, and spread upon a mat in a shady place until they are perfectly dried, and should then be hung up out of the reach of vermin in bags. Observe, in planting the roots, to distribute the different colours, which will greatly increase their beautiful appearance by the contrast with each other. No good florist, however, who has garden room, should omit to sow the seeds; he should provide himself with a quantity of good single or *Poppy Anemones* of the best colours, having more leaves than common, with other good qualities, and plant them early in the beginning of August, either in pots, beds, or tubs of light earth, taking care to rub the seeds between his hands with a slight mixture of dry sand, to separate and prevent them from adhering together; and after sowing them as equally as possible over the bed, taking a strong hair-brush and sweeping it gently over the whole bed, observing not to brush off the seeds, by which he will leave no lumps, and make the distribution complete. Light earth, to the depth of one quarter of an inch, may then be sifted over the seeds; and mats laid over the whole, if the weather be hot and dry. They may be occasionally but sparingly watered, and should always be exposed to gentle showers. In ten weeks the plants will appear; they will be very liable to suffer, if not protected from the frosts of the first winter, and from too much wet, together with the piercing winds of February and March: a low reed-fence on the north and east sides of the bed will be very useful. As the spring advances, they may be thinned if necessary; and as soon as their green leaves decay, you must sift the earth of the bed with a very fine sieve, till you have taken out all the roots you can find; and then level the bed, and let it remain till the next year, when you will again find a plentiful crop from those roots which will unavoidably have escaped you in the sifting. The before-mentioned young roots must be cleaned and dried, as above prescribed for the older plants; but when replanted, the former should be put into the ground three weeks before the latter, that they may gather strength, and flower abundantly in the succeeding year. The single or poppy Anemones, in favourable seasons and warm situations, will flower through most part of the winter and spring, and from their peculiar beauty well deserve admittance into every flower-garden. They need little culture; it will be often enough to take them up every other year, and when they are taken up, they should be replanted very early in the autumn, otherwise they will not flower till the spring. The seeds of these flowers must be gathered daily as they ripen, otherwise they will soon be dispersed by the winds.—This species was cultivated in France, long before it was known in England or Holland.

12. Anemone Hortensis; *Broad-leaved Garden Anemone* Leaves digitate; seeds woolly; leafy stem, and tailed seeds. —This was formerly called *Hard-leaved Anemone* by the Walloons, who imported the roots. It is found wild with single flowers in Italy, Provence, and Germany. It was discovered with red and with purple flowers near the Rhine, and in many parts of Italy and Switzerland; and with white flowers in Germany and in Austria. There are many varieties of this species, to enumerate which would be as tedious as useless. For the culture and propagation of this species, see the preceding species, No. 11. the detail respecting which, is equally applicable to the proper management of both.

13. Anemone Palmata. Leaves heart-shaped, sublobate; calix six-leaved, coloured; stem leafy; seeds tailed. The petals, ten or more, are yellow without and orange within. —Found near the Tagus in Portugal.

14. Anemone Sibirica. Stem one-flowered; involucre leafy, obtuse; flower naked; seeds tailless.—Found in Siberia.

15. Anemone Silvestris; *Large White-flowered Wood Anemone.* Peduncle naked; seeds rounded, shaggy, awnless; flower naked; seeds tailless. The flower is large, and white, with but little beauty; yet there is in the flowers, especially before they expand, a simple elegance, resembling the Snowdrow, which forms a pleasing contrast to the more showy ones of the garden. They appear in May, and produce seeds in June, standing on the tops of the flower-stalks, which sometimes grow two together, but generally single. It is a native of many parts of Germany, and has been seen in Sweden, Alsace, and Siberia.

16. Anemone Fragifera. Peduncle naked; seeds roundish, woolly, awnless, tailless. Flowers naked, without smell, pale purple, solitary, deciduous, hirsute.—Native of Corinthia.

17. Anemone Virginiana; *Virginian Anemone.* Peduncles alternate, very long; fruit cylindric; seeds shaggy, awnless, tailless; flowers naked, and green like the calix, appearing in May and June.—Native of N. America.

18. Anemone Decapetala; *Ten-petalled Anemone.* Stem one-flowered; flower ten-petalled; leaves ternate, lobate, radical. Flower naked, small, and white; seed tailless.—It is found in Brazil.

19. Anemone Pennsylvanica; *Pennsylvanian Anemone.* Stem dichotomous; leaves sessile, stem-clasping, the lowest ternate, trifid, gashed. Flower naked; seed tailless.—Native of Canada and Pennsylvania.

20. Anemone Dichotoma. Stem dichotomous, a foot high; leaves sessile, all opposite, stem-clasping, trifid, gashed. Flower naked; seed tailless; root creeping far and wide; corollas purplish underneath.—Native of Canada and Siberia.

21. Anemone Trifolia, Leaves ternate, ovate, entire, serrate; stem one flowered. Flower naked; seed tailless; corolla six-petalled, and white. It flowers at the end of April.—Grows in the woods of France, Carniola, and Siberia.

22. Anemone Quinquefolia. Leaves quinate, oval, serrate; stem one-flowered; flower naked; seed tailless.—Native of Virginia and Canada.

23. Anemone Nemorosa; *Wood Anemone.* Seeds acute, tailless; leaflets gashed; stem one-flowered; flower naked. Root perennial, creeping; helght of the plant five to ten inches; the usual colour of the flower white. It grows in woods among bushes, in hedges, sometimes in pastures, of most parts of Europe. It almost covers the ground with its flowers in some of the woods of England during March, April, and May. In fine clear weather the blossoms are expanded, and become so erect as to face the sun; but in wet weather, and in the evening, they are closed and hang down. As the paper in which dried specimens of this plant had been preserved was stained brown, it might probably be useful as a *dye.* It is acrid, and slightly poisonous. Linneus informs us, that cattle brought from open to woody pastures, and eating of this plant, have afterwards had the bloody flux, and voided bloody urine. When the flowers become double, the Wood Anemone is cultivated by the gardeners; and, were the same pains taken with it as with the foreign Anemones, it would in all probability be much improved in the eye of the florist. This plant is also called the *Wind Flower.* The juice snuffed up the nose, or the root held in the mouth, excites a discharge of cold watery humours from the head and parts adjacent. The leaves bruised, and applied to ulcers and running sores, cleanse, and dispose them to heal. Some authors recommend it in suppressions of the menses; but it is too acrid in its nature for internal use, and might prove fatal in unskilful hands.—The roots may be taken up when the leaves decay, and transplanted into wildernesses, where they will greatly increase if not disturbed; and in the spring, before the leafing of the trees, the ground will be covered with their flowers.

24. Anemone Apennina; *Mountain Wood Anemone.* Seeds acute, tailless; leaflets gashed; petals lanceolate, numerous, from 12 to 15, disposed in three rows: flowers naked, upright, of a pale blue colour, and sweet smell. This flowers at the same time as the *Wood Anemone* (No. 23.) and makes a fine variety when intermixed with it. Double flowers of both sorts have been obtained from seeds.—Native of the Appennines, near Rome; and of Wimbledon, near Harrow on the Hill, in a wood by Luton Hoe, Bedfordshire, and near Berkhamstead, in Hertfordshire.—It may be propagated by offsets from the root, and will flourish in almost any situation, but loves a light loamy soil.

25. Anemone Ranunculoides; *Yellow Wood Anemone.* Seeds acute, tailless; leaflets gashed; petals roundish; stem mostly one-flowered; flower naked.—This has a yellow corolla; and grows wild in almost all parts of the European continent. In Great Britain it has been found near King's Langley in Herts, and near Wrotham in Kent.

26. Anemone Narcissiflora; *Narcissus-flowered Anemone.* Flowers umbelled; seeds oval, depressed, naked, tailless. Flowers white within, reddish without, forming a salver-shaped corolla.—It grows wild on the mountains of Austria, Switzerland, and Siberia.

27. Anemone Fasciculata. Flowers umbelled, collected, naked; leaves multifid; seeds tailless.—Found in the mountains near the Baikal lake; first observed in the Levant.

28. Anemone Thalictroides; *Meadow Rue-leaved Anemone.* Flowers umbelled, naked; stem-leaves simple, verticillate; radical leaves biternate; seeds tailless.—The corolla is white; and it is a wild native of Virginia and Canada.

Anethum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal and partial manifold; involucre neither universal nor partial; perianth proper obsolete. *Corolla:* universal uniform; floscules all fertile, proper; petals five, involute, entire, very short. *Stamina:* filamenta capillary; antheræ roundish. *Pistil:* germen inferior; styles approximating, obsolete; stigmas obtuse. *Pericarp:* none; fruit subovate, compressed, striated, bipartite. *Seeds:* two, subovate, margined, convex, and striated on one side, flat on the other. Essential Character. *Fruit:* subovate, compressed, striated. *Petals:* involuted, entire.——The species are,

1. Anethum Graveolens; *Common Dill.* Fruit compressed. Dill differs from Fennel, which it otherwise greatly resembles, in having an annual root, and a smaller and lower stem; the umbel of flowers yellow, but smaller than those of Fennel. It has a peculiarly strong and aromatic smell. The bruised herb is anodyne and resolvent; and the seeds being aromatic, and containing an ethereal oil, are used in flatulencies, for which purpose they rub the bellies of children with the oil prepared by infusion; the essential oil is also good for the colic. The seeds given in doses of a drachm, disperse wind in the stomach, help digestion, and cure the colic: they likewise operate by urine, and are said to be an infallible cure for the chincough, but probably without foundation. Culpeper says, that the seeds being roasted or fried, and used in oils or plaisters, dissolve imposthumes and dry up all moist ulcers. The decoction, whether of herb or seed, which must be first bruised, he also prescribes as a "gallant expeller of wind, and provoker of the terms." A distilled water, drawn off to the quantity of a gallon from a pound of seeds, was ordered in the London Pharmacopœia; and occasionally made the basis of carminative draughts and juleps, having a more agreeable flavour than the seeds themselves. Together with this water arises a considerable quantity of essential oil, which is given from one

to three or four drops, or more, as a carminative, and in hiccoughs.—It grows wild among the corn in Spain and Portugal, and also upon the coast of Italy.—This plant is propagated by sowing the seeds soon after they are ripe, in autumn, in a light soil, where they are to remain, allowing them eight or ten inches room to grow. When they appear, hoe them in the same manner as onions, leaving them every way eight or ten inches asunder, and clearing them from weeds. When the seeds begin to form, cut up those intended to put into the pickle for Cucumbers, leaving those that are for seed till ripe; when you must cut, and spread them upon a cloth to dry; and then beat out for use. If the seeds be suffered to fall upon the ground, the plants will appear in the spring without any further care.

2. Anethum Segetum. Three stem leaves; fruits oval; corolla flosculous, yellow. Annual.—Native of Portugal.

3. Anethum Fœniculum; *Fennel*, or *Finckle*. Of this there are three varieties, viz. Fœniculum Vulgare, or Common Fennel; which has a strong fleshy root, penetrating deep into the ground, and continuing many years.—Fœniculum Dulce, or Sweet Fennel;—and Fœniculum Azoricum; Azorian Fennel, or Finochio.—Fruits of both the species and varieties ovate. The first, or *Common Fennel*, flowers in July, and ripens seed in autumn, and though not a native of England, but of Germany, Spain, Italy, Madeira, and China, has sown itself so plentifully in many places where it has been introduced, that it is now become common upon our chalky cliffs, near Gravesend, and other parts of Kent; in Sussex; near Marazion in Cornwall; and inland, near Nottingham castle, Spetchly in Worcestershire, and Burwell in Cambridgeshire. *Sweet Fennel*; the leaves of which are very long and slender; the stalks shorter than those of the common sort; and the seeds longer and of a lighter colour. The seeds are imported from Germany and Italy, and are by some preferred to the common sort, being much sweeter. —The tender buds of *Fennel* are eaten in salads, and the boiled leaves as a sauce to fish, and also raw with pickled fish. In Spain, they are cut up with olives and pickled pork. The seeds of Common Fennel are warmer than those of the Sweet Fennel, but less sweet, and not of so grateful a flavour. There is the same difference in the preparations from them: the spirituous tincture of Sweet Fennel is yellowish; of the common, greenish. The distilled leaves impregnate water with a grateful flavour, and yield a considerable portion of essential oil. An extract made from them by rectified spirit is by no means a despicable aromatic. The essential oil procured from the seeds expels wind, and increases the urinary evacuation, but is not of a heating nature. The roots taken up early in the spring have a pleasant sweetish taste, with a slight aromatic warmth, and are ranked among aperient roots. Hill recommends a decoction of it made with common water, when given in large quantities, as operating by urine, and relieving the gravel and jaundice. Meyrick says, a strong decoction of the root is a good medicine in the jaundice, dropsy, and all other disorders arising from obstructions of the viscera. The seeds reduced to powder, and taken every morning fasting, are said to preserve the sight from decaying, and to restore it when impaired. A decoction of them is good in the small pox and measles; it likewise relieves shortness of breath, and other complaints of the lungs, and promotes urine and the menses. The seeds applied externally in poultices, are found to be useful in dispersing hard swellings in any part of the body. Culpeper remarks, that Fennel is boiled with fish to correct the phlegmatic tendency of that kind of food, though few persons know why they use it, as it is a very ancient custom. He recommends the leaves or seeds to be boiled in barley-water, and drank, as good to increase the quantity and improve the quality of nurses' milk; also, when boiled in water, for the hiccough, and heat of the stomach and loathing; and boiled in wine, as an antidote for those who have eaten poisonous herbs or mushrooms. A pound of Sweet Fennel seeds impregnates a gallon of water strongly with their flavour, in distillation. A great quantity of mild, sweetish, and yellowish essential oil, like that of Aniseeds, floats on the surface of the water, and, like it, also congeals by a slight cold into a white mass like butter. These seeds also contain a considerable quantity of expressed oil, which is extracted by digestion in rectified spirit, along with the aromatic matter of the Fennel, but rises to the surface upon inspissating the filtered tincture; the concentrated extract retains much of the greatest part of both taste and smell.—The best time to sow the seeds of Fennel is soon after they are ripe; the plants will come up in autumn or the following spring, and, as they will grow in any situation, only require to be thinned when too close, and kept free from weeds.—The third variety, or *Finochio*, though a favourite salad herb of Italy, is not much liked, and therefore little cultivated in England, where it seldom survives the cold of winter. It has very short stalks, swelling just above the surface of the ground, to four or five inches broad, and two inches thick, which being tender and fleshy, is eaten, when blanched, with oil, vinegar, and pepper, as a cold salad. The seeds are narrow, crooked, and of a bright yellow colour, with a strong smell like Aniseed, and a very sweet taste. They should be sown in light rich earth early in March, and will be fit for use in July. Sow the seeds about two inches apart, in shallow drills eighteen inches asunder. As soon as the plants appear, remove the weeds with a hoe, and thin them occasionally until they are at least seven or eight inches asunder. When the plants begin to swell in the stem above the surface of the ground, they must be earthed up like Celery to blanch, which will make them very crisp and tender. You may sow successive crops until July, after which it will be too late for them to come to perfection. In case of sharp frosts in autumn, they may be covered with pease-haulm, which will screen them from the cold, and preserve them for winter use. A small bed will suffice for a moderate family; but it will require a bed twenty feet long and four broad to supply a large one.

Angelica; a genus of the class Pentandria, order Digynia. Generic Character.—*Calix:* universal, umbel manifold, roundish; partial when flowering exactly globular; universal involucre three or five leaved, small; partial eight-leaved, small; proper, perianth, five-toothed, scarcely observable. *Corolla:* universal uniform; floscules all fertile; partial, petals five, equal, lanceolate, flattish, incurved, caducous. *Stamina:* filamenta simple, longer than the corolla; antheræ simple. *Pistil:* germen inferior; styles reflex; stigmas obtuse. *Pericarp:* none; fruit roundish, angular, solid, bipartite. *Seeds:* two, ovate, flat on one side, and margined, convex on the other, scored with three lines. Essential Character. *Fruit:* roundish, angular, solid, with reflex styles. *Corolla:* equal, with petals bent inwards.—Every species of this genus may be increased by seed; they are all hardy biennial or perennial plants.——The species are,

1. Angelica Archangelica; *Garden Angelica*. The odd leaflet of the leaves lobed. Root thick, branched, very long, brown on the outside, white within. The stalks of this plant were formerly blanched and eaten as celery. The Norwegians make bread of the roots; and the young shoots are greatly esteemed by the Laplanders. In gardens near London, through which small streams of water run, great quantities of this plant are propagated, the tender stalks of which are

cut in May for the confectioners, who have a great demand for it as a sweetmeat. The roots once formed one of the principal aromatics of European growth, though little regarded at present; the other parts of the plant have the same flavour, but their active principles are far more perishable. Though the seeds, which come nearest to the roots, can scarcely be kept till the spring after they are gathered, they are the only part of the plant ordered by the London College, and that only in compound spirit of Aniseed. Of this plant, Hill says, every part is fragrant, when bruised, and every part is used in medicine; but the roots and seeds possess the highest degree. They are cordial, sudorific, and stomachic, and of great efficacy in pestilential disorders, and contagions of every kind, in all cold flatulent complaints, and seldom fail of removing the ague, if taken three or four times repeatedly on the approach of the fit. A scruple of the dried root in powder, or ten grains of the seed, is a moderate dose. The roots and stalks are sometimes candied, and are then more palatable, and equally efficacious. The root is long and large; that of our own growth is used fresh, but the fine fragrant dried roots are brought from Spain. The whole plant possesses the same virtues, and is cordial and soporific; it has always been famous against pestilential and contagious diseases. The root, the stalks candied, the seeds bruised, or the water distilled from the leaves, may be used; but the seeds are the most powerful, and they are also an ingredient in many compositions. Culpeper prescribes also a water distilled in a glass from the root steeped in wine, as more effectual than the water of the leaves, and, in two or three spoonfuls at a time, to ease all pains produced by cold or wind, if the body be not costive; and taken with some of the root in powder, for the pleurisy and all other diseases of the lungs and breast, such as coughs, phthisic, and shortness of breath, for which he remarks, that a syrup of the stalks will be found equally good.—This plant flowers with us from June till August, and delights in a moist soil. To propagate it, sow the seeds soon after they are ripe; when they are six inches high, transplant them three feet asunder upon the sides of ditches or pools of water, where they will not fail to thrive. The second year they will flower; and if you wish to continue the root, the stems must be cut down in May, which will occasion their putting out heads from the sides of the roots, whereby they may be continued for three or four years; but if they come to seed, they will perish soon after. Where they are cultivated for the seeds, there should be fresh plantations every year.—It is a native of the northern parts of Europe.

2. Angelica Sylvestris; *Wild Angelica.* Leaflets equal, ovate-lanceolate, serrate. It has a smooth stem, six feet high; is perennial; and very common in moist woods and hedges; and by the sides of rivers, flowering in July and August.—This herb yields a good yellow dye; and may be safely used as a medicine instead of the Garden Angelica; but as it only possesses its virtues in an inferior degree, it has been long neglected.

3. Angelica Verticillaris. Leaves very much divaricate; leaflets ovate, serrate; stem verticelled with peduncles; six feet high; flowers green.—A native of Italy and Silesia.

4. Angelica Atropurpurea; *Purple Angelica.* The outermost pair of leaves coadjoined; the terminal leaf petioled. Stem six feet high. A native of North America.

5. Angelica Lucida; *Shining Angelica.* Leaflets equal, ovate, gash-serrate. Stem from one to two feet high; petals of a dirty white or very pale yellow colour; seeds brown, and of a hot aromatic flavour. It flowers in June, ripens its seeds in August—Native of Canada.

6. Angelica Razulii. Leaves bipinnate; leaflets lanceolate, serrate, decurrent. Stem three feet high; corollas a bright purple before they are unfolded, afterwards white.—Native of the Apennines and Piedmontese mountains.

Angelica Tree. See *Aralia.*

Anguina. See *Calla* and *Tricosanthes.*

Anguria; a genus of the class Monœcia, order Diandria.—Generic Character. *Male Flowers. Calix:* monophyllous, quinquefid, swelling at the base; divisions lanceolate, short. *Corolla:* pentapetalous, spreading, growing to the border of the calix. *Stamina:* filamenta two, opposite, inserted into the calix; anthera creeping up and down. *Female Flowers. Calix* and *Corolla,* as in the male. *Stamina:* filamenta as in the male, but without antheræ. *Pistil:* germen inferior, oblong; style semibifid; stigmas bifid, acute. *Pericarp:* a pome, oblong, quadrangular, bilocular. *Seeds:* very many, oval, compressed, nestling. Essential Character. *Male. Calix:* five-cleft. *Corolla:* five-petalled. *Female: Calix* and *Corolla:* as in the *Male. Pome:* inferior, two celled, many seeded.——The species are,

1. Anguria Trilobata. Leaves three-lobed.—This plant has a very shining appearance; and is a native of Carthagena in South America, flowering there in June.

2. Anguria Pedata. Leaves pedate, serrate. This is a perennial plant, which climbs trees to the height of twenty feet, by means of tendrils. The flowers, which are destitute of smell, and have orange-coloured petals, appear in September, and the fruit ripens in December.—Native of St. Domingo.

3. Anguria Trifoliata. Leaves ternate, quite entire.—Native of St. Domingo.

Anise. See *Illicium, Pimpinella,* and *Bubon.*

Annona; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* perianth three-leaved, small; leaflets cordate, concave, acuminate. *Corolla:* petals six, cordate, sessile; the three alternate interior ones less. *Stamina:* filamenta scarcely any; antheræ very numerous, placed on the receptacle. *Pistil:* germen roundish, placed on a roundish receptacle; styles none; stigmas obtuse, numerous, covering the whole germen. *Pericarp:* a berry, very large, roundish, clothed with a scaly bark, one-celled. *Seeds:* very many, hard, ovate-oblong, placed in a ring, nestling. Essential Character. *Calix:* three-leaved. *Petals:* six. *Berry:* many seeded, roundish, with a scaly bark.—These plants require a bark-stove and careful management, plenty of air in warm weather, and to remain constantly in the tan-bed. They have flowered, but never borne fruit in England, where they are only preserved for the beauty of their leaves. They have been known to reach the height of twenty feet, but seldom exceed twelve or fourteen. The earth in which they are planted should be light and rich, and the tan-bed frequently turned over and refreshed, keeping the stove in which these plants are placed at the Ananas' heat, as marked upon the botanical thermometers.——The species are,

1. Annona Muricata; *Rough-fruited Custard Apple,* or *Sour Sop.* Leaves oval-lanceolate, smooth, acute; fruits muricate; petals ovate, the interior ones obtuse, shorter. This tree is twelve, fourteen, or twenty feet high, with an upright trunk, and stiff, round, smooth branches; the flowers coriaceous, yellow. It is common in every savanna of Jamaica, flowering in spring. The large succulent fruit is agreeable to new comers, and over-heated habits; but is so commonly used by the negroes, that the richer sort of people refuse it. The smell and taste of the fruit, flowers, and whole plant, very much resemble those of black currants.

2. Annona Tripetala; *Broad-leaved Custard Apple.* Leaves

ovate, acute, pubescent, beneath; flowers three-petalled; petals lanceolate, coriaceous, tomentose.—A very large tree in South America, producing a fruit highly esteemed by the Peruvians for its delicacy: it is oblong, scaly on the outside, and of a dark purple colour when ripe; the flesh is soft and sweet, and has many brown, shining seeds intermixed with it.

3. Annona Squamosa; *Undulated Custard Apple*, or *Sweet Sop*. Leaves oblong, acute, smooth; fruits obtusely scaled; outer petals lanceolate, inner ones minute.—A small tree, of eight feet high; flowers green without and whitish within.—A native of both Indies; where the fruit, which is sweet, is eaten.

4. Annona Reticulata; *Netted Custard Apple*. Leaves oblong-lanceolate, acute, smooth; fruits ovate, reticulate-areolate; outer petals lanceolate, inner minute. This species attains to the height of twenty-five feet or more, with spreading branches.—Native of both Indies: some say the fruit is much esteemed, and others that it is seldom eaten.

5. Annona Hexapetala; *Long-leaved Custard Apple*. Leaves eliptic-oblong, acute, smooth; petals spatulate, equal, acute.—Native of China, and cultivated in the East Indies.

6. Annona Palustris; *Shining-leaved Custard Apple*. Leaves oblong, rather obtuse, smooth; fruits areolate. This tree seldom exceeds six feet high; grows wild in soft marshy places of Jamaica. Its wood is so very soft, even after it is dried, that it is frequently used instead of corks, and is hence universally called *Corkwood* by the natives; who also call the fruit the *Alligator Apple*, which, though sweet-scented and of no ill flavour, is not eaten, because it is said to be a strong narcotic.

7. Annona Triloba; *Trifid-fruited Custard Apple*. Leaves cliptic, acute, smooth; flowers pendulous, campanulate; calices ovate; petals many, oval. The fruit grows in clusters of three or four together; they are at first green, and when ripe yellow, with a pulp of a sweet luscious taste. Every part of this tree has a rank, if not a fetid smell; and the fruit is relished by few except negroes. It grows in a fat soil, and low shady swamps.—It is a native of the Bahama Islands, also of Carolina, Maryland, and Virginia; and the seeds are frequently brought to England by the title of *Papaw Tree*. It will thrive in warm situations in the air of this country.

8. Annona Glabra; *Smooth Custard Apple*. Leaves lanceolate-ovate; fruits conoid, smooth. This tree attains the height of sixteen feet, and bears an insipid, sweet, eatable fruit, which is the food of guanas and other creatures.—Native of North America.

9. Annona Asiatica; *Asiatic Custard Apple*. Leaves lanceolate, smooth, shining, marked with lines. Native of the East Indies and of China; where it is cultivated; but the fruit, which is an oblong conical berry, filled with a whitish, sweet, eatable pulp, is inferior in flavour to the third sort.

10. Annona Africana; *African Custard Apple*. Leaves lanceolate, pubescent.—Notwithstanding its name *Africana*, it is said to be a native of America.

Anotta. See *Bixa*.

Anserina. See *Potentilla*.

Anteuphorbium. See *Cacalia*.

Anthemis; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix*: common hemispherical; scales linear, subequal. *Corolla*: compound radiate; corollules hermaphrodite, tubular, numerous, in a convex disk; females more than five in the ray. Proper of the hermaphrodite, funnel-shaped, five-toothed, erect: of the female, ligulate, lanceolate, sometimes three-toothed. *Stamina*: in the hermaphrodites, filamenta five, capillary, very short; anthera cylindrical, tubular. *Pistil*: in the hermaphrodites, germen oblong; style filiform, the length of the stamina; stigmas two, reflex: in the females, germen oblong; style filiform, the length of the hermaphrodite; stigmas two, revolute. *Pericarp*: none; calix unchanged. *Seeds*: solitary, oblong; down margined, or none. *Receptacle*: chaffy, convex, or conical. Essential Character. *Receptacle*: chaffy. *Down*: none. *Calix*: hemispherical, nearly equal. *Floscules of the ray*: more than five.—Some plants of this genus are annuals, others perennials, and all, except the fifteenth and nineteenth species, are hardy enough to bear the open air. They are propagated by seeds sown upon poor land in the spring; they flower in July; and only require to be weeded and kept well asunder, as they are generally bushy, and require room.——The species are,

* *With a discolour, or white Ray.*

1. Anthemis Cota. Chaffs of the flowers rigid, pungent. The largest flower of this genus.—An annual; native of ploughed fields in Italy and Spain.

2. Anthemis Altissima; *Tall Chamomile*. Erect, with leaves pinnate; the bases of the pinnas rough, with a reflex toothlet.—Annual; growing wild in the south of France, Spain, and Italy.

3. Anthemis Maritima; *Sea Chamomile*. Leaves pinnate, toothletted, fleshy, naked, dotted; stem prostrate; calices rather tomentose. The flowers have the smell of Feverfew; they flourish in July and August.—It grows wild about Montpelier, in Italy, and in England.

4. Anthemis Tomentosa; *Downy Chamomile*. Leaves pinnatifid, obtuse, flat; peduncles shaggy, leafy; calices tomentose.—Native of the coasts of Greece, Italy, and France.

5. Anthemis Mixta; *Simple-leaved Chamomile*. Leaves simple, jagged, toothed.—An annual; growing wild in Italy and France.

6. Anthemis Alpina; *Alpine Chamomile*. Leaves toothpinnate, quite entire, linear; stem villose, one flowered; petals ovate; chaffs sphacelate.—Perennial; native of Italy.

7. Anthemis Chia; *Cut-leaved Chamomile*. Leaves pinnatifid, jagged; peduncles naked, subvillose.—Seen by Tournefort in the isle of Chios.

8. Anthemis Nobilis; *Common* or *Sweet Chamomile*. Leaves pinnate-compound, linear, acute, subvillose.—It abounds in most of the dry commons of Surry, and in Cornwall, flowering in July and August. The leaves and flowers have a strong, but not ungrateful smell, with a very bitter nauseous taste, especially the flowers, which are more aromatic than the leaves. If they be carefully dried, the taste and smell will not diminish, but improve. The single flowers only should be kept, because the white florets of the ray, which are multiplied in the double flowers, are almost tasteless; and yet double flowers are the only sort ever found in the shops. An infusion of the flowers is often used as a stomachic and antispasmodic, but in large quantities it excites vomiting. Large doses of the powdered flowers have cured agues, even where the bark has failed. Both leaves and flowers are very useful in antiseptic fomentations and poultices. From their antispasmodic powers, they are frequently found to relieve pain, whether internally or externally applied. The decoction is used for clysters, as well as in fomentations; which, with poultices made of the flowers, often prove beneficial in putrid sore throats. Independently of its general virtues as a bitter, it is good in different kinds of colic, particularly such as arise from flatulencies or cold. It is also recommended in hysterical and hypochondriacal dis-

orders, in the gravel, and intermittent fevers. The dose of the dried flowers in substance is from ten or twelve grains to half a drachm, or more; in tea, two or three drachms. The expressed juice is an excellent remedy for the strangury, asthma, jaundice, and dropsy; and the flowers are much used, in conjunction with other ingredients of a similar nature, to promote perspiration. Culpeper says, that bathing with a decoction of Chamomile removes weariness and eases pain, to whatever part of the body it is applied; and that the flowers boiled in posset-drinks provokes sweating, and bringeth down women's courses. Syrup of the juice of Chamomile, with flowers of white wine, he also recommends for the jaundice and dropsy; and a decoction of the flowers in lee, as good to wash the head in disorders of the brain.—This plant may be increased by planting slips a foot asunder in the spring; as it is hardy, it will soon cover the ground; and the gardener would do well to prefer the single-flowered kind, for the reasons above given.

9. Anthemis Arvensis; *Corn Chamomile.* Receptacles conic; chaffs bristle-shaped; seeds crown-margined; leaves thinly downed. Biennial.—It flowers in June and July, and is a common weed amongst corn in most parts of Europe.

10. Athemis Austriaca; *Austrian Chamomile.* Receptacles conic; chaffs oblong, mucronate; seeds naked; leaves bipinnate, woolly-villose. Root annual. It has a bitter taste; flowers the whole summer.—Found by way-sides, in cornfields, and sometimes covering fallow grounds in Austria.

11. Anthemis Cotula; *Stinking Chamomile,* or *Mayweed.* Receptacles conic; chaffs bristly; seeds naked; leaves smooth. Stems much branched, smooth; leaves light green; bipinnatifid; disk of the flower convex, yellow; florets white. An annual plant, the whole of which is fetid, and so acrid as to blister the skin of those who handle it. Loeselius avers, that it drives away fleas, is offensive to bees, and is given as a medicine to sheep troubled with the asthma. An infusion of the root is good in hysteric disorders, and promotes the menses. The herb boiled till it becomes soft, and then applied by way of poultice, is an excellent thing for the piles. Mr. Ray says, it has been beneficially administered in scrophulous cases.—It is a common weed, flowering from May to August, and abounding by way-sides, on dung-hills, and in corn-fields; and farmers are little aware of the vast fertility of this and some other weeds, which they first suffer to exhaust their dunghills, and afterwards to be distributed with them over their fields.

12. Anthemis Pyrethrum; *Spanish Chamomile,* or *Pellitory of Spain.* Stems simple, one-flowered, decumbent; leaves pinnate-multifid. Root perennial, as big as a man's finger, the colour of horse-radish, white within, of an acrid biting taste. Flower large, the florets of the ray purple on the outside. Lewis says, the roots having a hot pungent taste when chewed in the mouth, by stimulating the salival glands, promote a flow of viscid humours from the head and the adjacent parts, and frequently by this means relieve the tooth-ach, head-ach, lethargy, and palsy of the tongue. It is also successfully given in small doses for paralytic and rheumatic complaints. In palsies, its stimulation alone will sometimes restore the voice. According to Culpeper, an ounce of the juice taken in a draught of Muscadel an hour before the fit of the ague comes on, will remove it at the second or third time of taking it; and the powder of the herb, snuffed up the nostrils, removes the head-ach by exciting sneezing.—It is a native of the Levant, and southern parts of Europe.

** *With a concolour, or yellow Ray.*

13. Anthemis Valentina; *Purple-stalked Chamomile.* Stem branching; leaves pubescent, tripinnate, bristle-shaped; calices villose, peduncled.—It grows naturally in Spain, Portugal, and Provence; and is supposed to be the same which Dioscorides recommends as good for the jaundice, and to restore the skin to a good colour. This plant may be easily increased by sowing the seeds upon a bed of common earth in spring, and transplanting them three feet asunder, when they are strong enough to remove. Some of the flowers are white, some sulphur-coloured, and some of a deep yellow; and in large open spots they form a pleasing variety from June till November, which is the time they continue to flower. The Levant seeds produce the tallest plants and largest flowers.

14. Anthemis Repanda; *Repand-leaved Chamomile.* Leaves simple, ovate-lanceolate, repand-crenate.—Native of Spain and Portugal.

15. Anthemis Trinervia; *Three-nerve-leaved Chamomile.* Leaves ovate, serrate, three-nerved, opposite, petiolate; receptacle conic.—Found in South America.

16. Anthemis Americana; *American Chamomile.* Leaves triternate; peduncles terminal, longer than the branch.—Native of America.

17. Anthemis Tinctoria; *Yellow Chamomile,* or *Ox-eye.* Leaves bipinnate, serrate, tomentose underneath; stem corymbed.—A native of dry open pastures in Germany and Sweden; and Mr. Ray found it near the river Jaco in Durham. Linneus says, it is much used in Gothland for dying yellow. A decoction of the fresh herb with ale, is given as a remedy for the jaundice; it operates by urine.

18. Anthemis Arabica; *Arabian Chamomile.* Stem decompound; calices branch-bearing. Root annual.—A native of Arabia. Its flavour is bitter and aromatic, but far weaker than Common Chamomile. It is an ornamental plant, and merits a place among hardy annuals. Its flavour is bitter and aromatic, but far weaker than the officinal Chamomile. Unless the seeds be sown in autumn they will seldom be reproduced in perfection in England.

19. Anthemis Odorata; *Shrubby Chamomile.* Leaves pinnatifid at the tip; peduncles elongate; calices membranaceous; ray barren.—Native of the Cape; flowering in April.

Anthericum; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong, obtuse, spreading very much. *Stamina:* filamenta subulate, erect; antheræ small, incumbent, four-furrowed. *Pistil:* germen obscurely three-cornered; style simple, the length of the stamina; stigma obtuse, three-cornered. *Pericarp:* capsule ovate, smooth, three-furrowed, three-celled, three-valved. *Seeds:* numerous, angular. Essential Character. *Corolla:* six-petalled, expanding. *Capsule:* ovate.—All the plants of this genus, except the 17th species, are perennial, and may be increased by offsets or suckers, taken off during the summer or autumn; and those which do not throw out these freely, by seeds sown in the spring or autumn, on a bed of light sandy earth in a warm situation. They require covering with straw or pease haulm in severe weather, and will last several years if not destroyed by frost.——The species are,

1. Anthericum Floribundum; *Thick-spiked Anthericum.* Leaves flat, smooth, linear-lanceolate, acute, channelled; scape simple; raceme many-flowered, cylindric, compact; petals spreading, stamina smooth. Native of the Cape; flowering in March and April.

2. Anthericum Serotinum. Leaves flattish; scape one-flowered; filamenta generally smooth.—A vernal plant, which appears in Switzerland and on Snowden in Wales, after the melting of the snows, and flowering in April and May.

3. Anthericum Græcum. Leaves flat, channelled; scape simple; flowers corymbed; filamenta woolly.—Native of the Levant.

4. Anthericum Planifolium. Leaves flat, channelled; scape and filamenta woolly.—Native of Portugal, where it flowers in April.

5. Anthericum Revolutum; *Curled-flowered Anthericum.* Leaves flat, channelled; scape branched; corollas revolute; filamenta generally smooth.—Native of the Cape.

6. Anthericum Ramosum; *Branching Anthericum.* Leaves linear-subulate, flat, channelled; scape branched; peduncles solitary; corollas flat; pistilla straight; filamenta generally smooth. The flowers, which are generally white, watch from seven in the morning to three or four in the afternoon.—Native of Sweden, France, Switzerland, and Austria.

7. Anthericum Elatum; *Tall Anthericum.* Leaves flat, channelled; scape branched; peduncles aggregate; corollas flat; filamenta generally smooth. Flowers in a loose spike white, and handsome when fully blown; they appear in August and September.—It is a native of the Cape.

8. Anthericum Triflorum; *Three-flowered Anthericum.* Leaves channelled, sword-shaped; scape simple; bractes remote, three flowered; filamenta generally smooth.—It flowers in November, and is a native of the Cape.

9. Anthericum Canaliculatum; *Channelled Anthericum.* Leaves rather fleshy, hairy, sword-shaped, triquetrous, channelled on the narrow side; scape simple; filamenta generally smooth. It flowers in April.—Native of the Cape.

10. Anthericum Albucoides; *Striped-flowered Anthericum.* Leaves linear, channelled, smooth, with a cartilaginous edge; scape simple; filamenta generally smooth. It flowers in August.—Native of the Cape.

11. Anthericum Liliago; *Grass-leaved Anthericum.* Leaves flat, channelled; scape perfectly simple; corollas flat; pistil bending down; filamenta generally smooth.—Native of Italy, Switzerland, Germany, France, and Denmark.

12. Anthericum Liliastrum; *Savoy Anthericum,* or *Spiderwort.* Leaves flat, channelled; scape perfectly simple; corollas bell-shaped; stamina bending down; filamenta generally smooth. There are two varieties of this plant.—It grows wild upon the mountains of Switzerland and Savoy.

13. Anthericum Spirale. Scape spiral; filamenta generally smooth.—A leafless native of the Cape.

14. Anthericum Frutescens; *Shrubby Anthericum.* Leaves fleshy, columnar; stem shrubby; filamenta bearded.—Native of the Cape.

15. Anthericum Alooides; *Aloe-leaved Anthericum.* Leaves fleshy, subulate, flattish; filamenta bearded. It grows close to the ground. Native of the Cape.

16. Anthericum Asphodeloides; *Glaucous-leaved Anthericum.* Leaves fleshy, subulate, semicolumnar, upright and stiff; filamenta bearded; flowers yellow, growing on long loose spikes.—Native of the Cape.

17. Anthericum Annuum; *Annual Anthericum.* Leaves fleshy, subulate, columnar; scape subracemed; filamenta bearded; flowers yellow.—It is found at the Cape.

18. Anthericum Hispidum; *Hairy-leaved Anthericum.* Leaves fleshy, compressed, hispid; filamenta bearded; flowers white; antheræ yellow.—A native of the Cape.

19. Anthericum Ossifragum; *Lancashire Anthericum,* or *Asphodel.* Leaves sword-shaped; filamenta woolly.—It grows wild on the bogs of the northern countries of Europe; and in Lancashire, and other northern counties; in Cambridgeshire, in Norfolk, on Putney heath; flowering in July and August.

20. Anthericum Caliculatum. Leaves sword-shaped; perianths three-lobed; filamenta smooth; flowers three-pistilled.—Grows wild in Lapland, Sweden, Denmark, Siberia, Switzerland, and in several places in Scotland.

21. Anthericum Japonicum. Leaves sword-shaped, convolute, smooth; scape branching, angled; flowers racemed, nodding.—Native of Japan, China, and Java.

22. Anthericum Filiforme; *Thread-leaved Anthericum.* Leaves filiform, rather cylindric, rough; filamenta smooth; petals lanceolate: perennial.—It flowers in April.

23. Anthericum Flexifolium. Leaves subulate, smooth, flexuose; stem branching.

24. Anthericum Muricatum. Leaves fleshy, compressed, muricated, streaked.

25. Anthericum Latifolium. Leaves fleshy, wide, sword-shaped, smooth; raceme very long; stem simple.

26. Anthericum Cauda-felis. Leaves channelled, sword-shaped, scape simple; raceme oblong.

27. Anthericum Triquetrum. Leaves filiform, triquetrous, shorter than the simple scape; raceme ovate.

28. Anthericum Ciliatum. Leaves sword-shaped, fleshy, subtriquetrous, ciliate; scape simple; raceme very long.

29. Anthericum Falcatum. Leaves fleshy, sword-shaped, sickled, smooth; stem branching, racemed.

30. Anthericum Contortum. Leaves flat, sword-shaped; stem branching; flowers very remote.

31. Anthericum Scabrum. Leaves triquetrous, serrulate; stem branching, rugged; fruit-bearing peduncles, recurved.

32. Anthericum Squameum. Scape imbricate, with membranous tumid scales.—The above species, from 22 to 31, are all natives of the Cape.

33. Anthericum Cirratum. Leaves lanceolate, flattish: scape panicled; leaves bearded, bicirrate.—Native of New Zealand.

34. Anthericum Adenanthera. Leaves linear, ensiform, connate at the base; a gland between the filament and anther.—Native of New Caledonia.

Anthesteria; a genus of the class Polygamia, order Monœcia.—Generic Character. *Calix:* glume four-valved, three or four flowered; valves equal, oblong, flat, blunt, leathery, erect-expanding: hermaphrodite floscule, sessile; males pedicelled, very like the hermaphrodite. *Corolla:* glume two-valved; valves lanceolate, acute, awnless, the outer larger. *Stamina:* filamenta three, short, filiform; antheræ oblong, erect. *Pistil:* in the hermaphrodite; germen oblong, from the base a twisted awn; styles two; stigmas club-shaped, hairy. *Pericarp:* none, except the closed calix. *Seed:* oblong, smooth, marked with a furrow. Essential Character. *Calix:* cleft at the base into four equal divisions.——There is only one species discovered, viz.

1. Anthesteria Ciliata. Root annual; culms many, a foot high, branched, jointed, smooth, nodding a little; raceme terminating, leafy, decompound, nodding.

Anthoceros; a genus among the Algæ, in the class Cryptogamia.

Antholyza; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spathes two-valved, alternate, imbricate, separating the flowers, permanent. *Corolla:* petal one, gradually dilated from the tube into a compressed ringent throat; upper lip straight, slender, very long furnished with two short divisions at the base; under lip shorter, trifid. *Stamina:* filamenta long, slender, under the upper lip; antheræ acute. *Pistil:* germen inferior; style filiform, situation and length of the upper stamina; stigma trifid, capillary, reflex. *Pericarp:* capsule roundish, three-cornered, three-celled, three-valved. *Seeds:* many, triangular. Essential Character. *Corolla:* tubular, irregular, recurved. *Capsule:* inferior.—Plants of this genus are propa-

gated by offsets, which the bulbous roots send forth in great plenty; or by seeds sown soon after they are ripe, in pots of light earth, plunged into an old tan-bed which has lost its heat, and is shaded during hot weather from the heat of the day. They must be screened by glasses from the cold, and may be kept two years in the pots, and may then be transplanted into small separate pots, placed during summer in the open air, but in winter must go back to the hot-bed frame. The flowers are ornamental; and as the plants do not require much culture, they deserve a place in every good garden. The seeds are very seldom perfected in Europe; and every one of the species is a native of the Cape.——They are,

1. Antholyza Ringens; *Narrow-leaved Antholyza.* Lips of the corolla divaricate; throat compressed. The flower-stem rises immediately from the root, two feet high, hairy, with several flowers on each side, they are red, and appear in June; the seeds ripen in September.

2. Antholyza Plicata; *Plaited-leaved Antholyza.* Leaves plaited, stem branching, hirsute; corolla ringent, shorter than the stamina. The stamina are shorter in this than those of the first species.

3. Antholyza Cunonia; *Scarlet-flowered Antholyza.* Corollas straight; the two outer lobes of the five-parted lip broader and ascending. This has a compressed bulbous root somewhat like that of the corn-flag; from which rises the flower-stalk above a foot high, generally curved two opposite ways, the upper part terminated by a spike of loose flowers, coming out of large spathes, of a beautiful scarlet colour, and flowering about the latter end of April or beginning of May, and makes a fine appearance.—Plant it in pots of light earth, which may remain in the open air till October, and must then be sheltered under a glass-case, or hot-bed frame, where the leaves will grow throughout the winter, and the stalks arise and flower in spring. Water them sparingly once a week in winter, in spring oftener; and when the flowers are past, remove them into the open air to perfect their seeds; these ripen at the latter end of June, the stalk then decays, and remains inactive until September. As soon as they decay, take them up, keep them in a dry room till the end of August, and then plant them again. It may also be easily increased by offsets, which require the same treatment: both seeds and offsets should be planted in the middle of August, where they can enjoy the morning sun.

4. Antholyza Æthiopica; *Broad-leaved Antholyza.* Corollas incurvate; the two alternate lobes of the five-parted lip spreading, large, and lanceolate. Flowers scarlet, appearing in May and June.

5. Antholyza Meriana; *Red-flowered Antholyza.* Corollas funnel-shaped; leaves linear, sword-shaped. The flowers have long tubes of a copper colour outside, and deep red within, appearing in April and May.

6. Antholyza Merianella; *Dwarf Antholyza.* Corollas funnel-shaped; leaves linear. The flowers are of a pale red and larger than those of the fifth species.

7. Antholyza Lucidior. Radical leaves, with filiform base, broad-awled, furrowed at top; stem simple, leafy, spiked. Flowers oblong, a little bent, purple above, cut into six lanceolate parts.

Anthospermum; a genus of the class Polygamia, order Diœcia, or Diœcia Tetrandia.—Generic Character. *Male Calix:* perianth one-leafed, conical, quadrifid beyond the middle; divisions ovate-oblong, revolute, obtuse, a little coloured. *Corolla:* none, unless the calix be so termed. *Stamina:* filamenta four, capillary, erect, the length of the calix, inserted into the receptacle; anthera twin, oblong, four-cornered, obtuse, erect. *Female. Calix* and *Corolla:* as in the male. *Pistil:* germen inferior, ovate, four-cornered; styles two, recurved; stigmas simple. Essential Character. *Calix:* four-parted. *Corolla:* none. *Stamina:* four. *Pistil:* two. *Germen:* inferior. Male and Female in the same, or a distinct plant.—These plants are propagated by cuttings placed in a border of light earth, during any of the summer months; or if planted in pots, plunged into a very moderate hot-bed, they will sooner take root, and be of surer growth Afterward they should be taken up with a ball of earth to their roots, and replanted in a pot of light sandy earth, and exposed to the open air until October, but must then be removed under shelter for the winter, during which they must be sometimes watered, and have fresh air admitted. The first and second sorts may be raised from layers. They are all natives of the Cape of Good Hope.

1. Anthospermum Æthiopicum; *Amber-tree.* Leaves polished. The beauty of this shrub consists in its small evergreen leaves, which grow as close as heath, and emit a very fragrant odour when bruised between the fingers.

2. Anthospermum Ciliare. Leaves ciliated along the keel and edge; root perennial and woody, much branched.

3. Anthospermum Herbaceum. Leaves six, polished; stem herbaceous; flowers axillary.

Anthoxanthum; a genus of the class Diandria, order Digynia.—Generic Character. *Calix:* glume one-flowered, two-valved; valves ovate, acuminate, concave; the inner one larger. *Corolla:* glume one-flowered, two-valved, the length of the greater valve in the calix; each valve emitting an awn from the lower part of the back, one of them jointed. Nectary two-leaved, very slender, cylindric; leaflets subovate, embracing. *Stamina:* filamenta two, capillary, very long; anthera oblong, forked at both ends. *Pistil:* germen oblong; styles two, filiform; stigmas simple. *Pericarp:* glume of the corolla grows to the seed. *Seed:* one, pointed at both ends, roundish. Essential Character. *Calix:* glume two-valved, one-flowered. *Corolla:* glume two-valved acuminate. *Seed:* one.—For the propagation and culture of this genus, see *Grass.*

1. Anthoxanthum Odoratum; *Sweet Vernal Grass.* Spike oblong-ovate; flowers longer than the awn, on short peduncles. Root perennial, odorous; colour of the spike pale yellow.—This is the Grass which gives that delightful sweetness of scent to new-mown hay, from which it has derived its specific name Odoratum, *sweet-scented;* from the earliness of its flowering, it has obtained the other English name of *Vernal* or Spring Grass. It will grow on any soil, but prefers that which is moderately dry, having, according to some, a great tendency to curl its leaves in rich ground. It is common in pastures and also in woods, and in the middle of May is in full bloom; the seed, which is never very abundant, ripens in June, and separates easily when rubbed. Cattle of all sorts are fond of it, and in good meadows it grows to a considerable height, forming a thick tuft of tender succulent leaves at the bottom, though in point of crop it is not so productive as some other Grasses. As the best mutton comes from places where it abounds, it is probably a good Grass for sheep pastures; especially as it is found on all grounds, from the driest and sandiest to the most stiff and moist, and even in bogs. It is very easy to gather, and abounds plentifully in the best meadows about Hampstead and Hendon, near London. It retains its odour for a long time; and Boecone says, that a distilled water is prepared from it, as the vehicle of some perfumes.

2. Anthoxanthum Indicum. Spike linear; flowers sessile, shorter than the awn.—Native of the East Indies.

3. Anthoxanthum Crinitum. Culm high, smooth; panicle spike-form, cylindrical, awned, the awns long, spreading, loose.—Native of New Zealand.

P. 116.

ARCTIUM LAPPA.

Woolly-headed Burdock.

P. 106.

The Seed Vessels.

ANTHOLYZA CUNONIA.

Scarlet-flowered Antholyza.

G. Dobie sc.

Published by Henry Fisher. Caxton, Liverpool. May, 1819.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Anthyllis; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, ovate-oblong, swelling, villose; the mouth five-toothed, unequal, permanent. *Corolla:* papilionaceous; banner longer than the wings; the sides reflex; claw the length of the calix; wings oblong, shorter than the banner; keel compressed, the length of the wings. *Stamina:* filamenta connate, rising; antheræ simple. *Pistil:* germen oblong; style simple, ascending; stigma obtuse. *Pericarp:* legume roundish, concealed within the calix, very small, bivalve. *Seeds:* one or two. Essential Character. *Calix:* swelling. *Legume:* roundish, concealed.——The species are,

1. Anthyllis Tetraphylla; *Four-leaved Anthyllis,* or *Kidney-Vetch.* Leaves pinnate, with four lobes; flowers lateral. An annual plant with trailing branches; leaves by fours, at each joint; flowers in clusters on the sides of the stalks. The flowers yellow, appearing in July, and producing seeds in September.—Native of France, Spain, Portugal, Italy, and Sicily, where it is a weed in arable land.

2. Anthyllis Vulneraria; *Common Ladies' Finger,* or *Kidney-Vetch.* Leaves pinnate, unequal; head double. There are several varieties, with red, white, and yellow flowers.—Native of most parts of Europe, and flowers from May to July. This and the following species may be propagated by seed sown either in autumn or spring.

3. Anthyllis Montana; *Mountain Anthyllis,* or *Kidney-Vetch.* Leaves pinnate, equal; head terminal, one-ranked; flowers oblique.—Both this and the preceding species are found wild in several parts of Europe; in Pembrokeshire, and Anglesea in Wales, and in the Isle of Man. They abound greatly in the best meadows of the Pyrenees; and are recommended as an excellent pasture for sheep.

4. Anthyllis Cornicina. Leaves pinnate, unequal; heads solitary.—Native of Spain.

5. Anthyllis Lotoides. Leaves three-parted; calices prismatic, fascicled, the length of the legumes.—Native of Spain.

6. Anthyllis Gerardi. Leaves pinnate, unequal; peduncles lateral, longer than the leaf; heads leafless. Annual.—It grows wild upon the sea-shores of Provence.

7. Anthyllis Quinqueflora; *five-flowered Anthyllis.* Leaves ternate, linear; head five-flowered; corollas yellow.—A native of the Cape.

8. Anthyllis Involucrata. Sub-herbaceous: leaves ternate, petiolate, stipuled, sword-shaped; flowers in a head, yellow.—A native of the Cape.

9. Anthyllis Linifolia. Leaves ternate, sessile, sword-shaped; flowers in a head, yellow, shrubby, eight feet high.

10. Anthyllis Barba Jovis; *Silvery Anthyllis,* or *Jupiter's Beard.* Leaves pinnate, equal, tomentose; flowers in a head. This is sometimes called *Silver Bush,* from the whiteness of its leaves. It is a shrub, often growing ten or twelve feet high, with flowers of a bright yellow colour, appearing in June.—Native of the south of France, Spain, Portugal, Italy, and the East. It may be propagated either by seeds or cuttings, sown or planted in pots filled with light earth, and placed under a frame to protect them from the winter's frost. They may be planted during any of the summer months.

11. Anthyllis Heterophylla. Leaves pinnate, the floral leaves ternate. A small shrub, bearing minute flowers in pairs.—Grows naturally in Portugal and Spain.

12. Anthyllis Visciflora. Leaves digitate-pinnate; calices shaggy; corolla yellow.—Seen at the Cape.

13. Anthyllis Cytisoides; *Downy-leaved Anthyllis.* Leaves ternate, unequal; calices woolly, lateral; corolla yellow.—It is a low shrub, and a native of Spain, &c.

14. Anthyllis Hermanniæ; *Lavender-leaved Anthyllis.* Leaves ternate, sub-peduncled; calices naked.—Six feet high; a native of Greece, Crete, and Palestine; and may be propagated by cutting in the same manner as the tenth species. It was formerly in several English gardens, but the severe frost of 1739-40 destroyed most of them.

15. Anthyllis Erinacea; *Prickly Anthyllis.* Spinose; leaves simple.—Grows nine feet high; native of Portugal and Spain. It is propagated by seeds only, and will survive mild winters in the open air, but hard frosts destroy it.

16. Anthyllis Tragacanthoides. Shrubby: leaves pinnate, equal, tomentose; petioles spinescent; flowers in racemes, purple.—Native of Mount Lebanon.

17. Anthyllis Indica. Shrubby: leaves pinnate, equal, smooth; racemes oblong, subterminating; corolla white.—Native of the Cochin-chinese mountains.

Antichorus; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved, very much expanded; leaflets lanceolate, acuminate, deciduous. *Corolla:* petals four, obovate, obtuse, the length of the calix. *Stamina:* filamenta setaceous, erect, shorter than the corolla; anthera roundish. *Pistil:* germen superior, ovate; style cylindric, the length of the stamina; stigma obtuse. *Pericarp:* capsule subulate, four-celled, four-valved. *Seeds:* very many, truncate, placed over each other in four rows. Essential Characteа. *Calix:* four-leaved. *Petals:* four. *Capsule:* superior, subulate, four-celled, four-valved. *Seeds:* very many.——There is but one species.

1. Antichorus Depressus. It resembles the Corchorus; and is a small procumbent annual plant, with alternate branches, bearing yellow-flowers.—Native of Arabia.

Antidesma; a genus of the class Diœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth five-leaved; leaflets oblongish, concave. *Corolla:* none. *Stamina:* filamenta five, capillary, longer than the calix, equal; antheræ roundish, semibifid. *Female. Calix:* as in the male, permanent. *Corolla:* none. *Pistil:* germen superior, ovate; style none; stigmas five, obtuse, *Pericarp:* drupe roundish, one-celled, crowned with the stigmas, and having a furrowed shell. Essential Character. *Male. Calix:* five-leaved. *Corolla:* none. *Antheræ:* semibifid. *Female. Calix:* five-leaved. *Corolla:* none. *Stigmas:* five. *Berry:* cylindric, one-seeded.——The species are,

1. Antidesma Alexiteria. This is a middle-sized tree, the bark of which is used for making ropes. A decoction of the leaves is reputed to be an antidote against the bite of serpents.—It is a common evergreen in Malabar, where the fruit, which it continues to bear to the age of seventy years, is much esteemed for its pleasant cooling qualities.

2. Antidesma Acida. Leaves obovate; spikes solitary.—Native of the East Indies.

3. Antidesma Scandens. Leaves palmate, serrate; stem climbing, without tendrils.—Native of China, near Canton.

Antirrhinum; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth five-parted, permanent; divisions oblong, the two lower more gaping. *Corolla:* monopetalous, ringent; tube oblong, gibbous; limb bilabiate; upper lip bifid, reflex on the sides; lower trifid, obtuse; palate convex, usually closed by a prominency between the lips produced from the under lip; the throat being concave beneath; nectary at the base of the corolla, produced downwards, prominent. *Stamina:* filamenta four, enclosed under the upper lip, nearly of the same length with the corolla, yet two are shorter; antheræ converging. *Pistil:* germen roundish; style simple, of the length and in the situation of the stamina; stigma obtuse. *Pericarp:* capsule roundish, obtuse, two-celled, of different form and

aperture in the different species. *Seeds:* very many. *Receptacles:* reniform, solitary, affixed to the partition. ESSENTIAL CHARACTER. *Calix:* five-leaved. *Corolla:* with the base produced downwards, and nectariferous. *Capsule:* two-celled.——The species are,

**Leaves angular.*

1. Antirrhinum Cymbalaria; *Ivy-leaved Toadflax.* Leaves heart-shaped, five-lobed, alternate; stalks procumbent. Root perennial.—A native of Italy, but is now become common upon walls in and near London. The whole plant is smooth, and has a disagreeable smell, varying a white flower: it flowers from June until October; and is well adapted to ornament rock-work, which if moist, it will soon cover with a thick tapestry. When once established it is hard to eradicate, and will thrive in any situation.

2. Antirrhinum Pilosum; *Hairy-leaved Toadflax.* Leaves kidney-shaped, hairy, alternate.—Native of the Alps.

3. Antirrhinum Elatine; *Sharp-pointed Toadflax,* or *Fluellin.* Leaves hastate, alternate; stalks procumbent. Root annual, whitish: the whole plant is hairy, and varies with blue and yellow flowers.—It grows wild in corn-fields in Italy, Germany, France, Switzerland, and England, and flowers with us from July till October. It is the bitterest plant of the whole genus; and the expressed juice, or distilled water, is said to check foul old ulcers, disposing them to heal. It is likewise a good medicine for internal bruises, the bloody flux, and other hæmorrhages, such as the overflowing of the menses. The leaves bruised, and applied with barley-meal to watery eyes that are hot and inflamed by defluxions of the head, is said to be very efficacious. Culpeper informs us, that this herb was originally named the *Female Speedwell;* and gravely adds, that it received its present name of *Fluellin* from the gratitude of a Welsh gentleman whose nose it had preserved from the dreadful ravages of the venereal disease. But notwithstanding he avers, if taken inwardly it may cure that disorder, its antivenereal virtues are entirely unknown at the present day; though he is probably correct, in calling it a herb of a fine cooling and drying quality.—The seeds ripen in autumn, and if sown or permitted to scatter at that time, will produce an abundant crop.

4. Antirrhinum Spurium; *Round-leaved Toadflax,* or *Fluellin.* Leaves ovate, alternate; stalks procumbent.—Grows wild in the fields of Germany, England, France, and Italy.

5. Antirrhinum Cirrhosum; *Tendrilled Toadflax.* Leaves hastate, alternate; stems spreading; petioles every where tendrilled.—Annual; and a native of Egypt.

6. Antirrhinum Ægyptiacum; *Egyptian Toadflax.* Leaves hastate, alternate; stem erect, very branching; pedunceles stiffish. Corolla yellow, with a purplish dotted palate.—A native of Egypt.

***Leaves opposite.*

7. Antirrhinum Triphyllum; *Three-leaved Toadflax.* Leaves ternate, ovate. An annual plant, with yellow flowers.—Native of Spain and Portugal. It seldom ripens its seed in England, where it flowers in July. The seeds should be sown in spring, upon a warm dry border. Thin and weed them when they come up, which is all the culture they require.

8. Antirrhinum Triornithophorum. Leaves in fours, lanceolate; stem erect, branching, flowers peduncled. It has large purple flowers.—Native of Portugal and America.

9. Antirrhinum Purpureum; *Purple Toadflax.* Leaves quaternate, linear; flower-bearing stem erect, spiked. Root perennial; corolla all purple.—Native of Italy, about Naples, and at the foot of Mount Vesuvius, flowering from July till September. The seeds of this and the threee following species, if permitted to scatter, will produce plenty of young plants without any further care; they prefer a dry soil, and when placed upon an old wall, they will come up, and endure longer than upon the ground. They may also be increased by parting the roots.

10. Antirrhinum Versicolor; *Spike-flowered Toadflax.* Leaves linear-lanceolate; the lower ones ternate; stem erect, spiked.—A native of the southern countries of Europe; resembling Common Toadflax. See the ninth species.

11. Antirrhinum Repens; *Creeping Toadflax.* Leaves linear, crowded, below quaternate; calices equalling the capsule. It has a perennial root, and pale blue flowers, destitute of scent, which appear in July, and seed in autumn.—Native of France, Italy, and England, in Hertfordshire, and about Henley in Oxfordshire. See the ninth species.

12. Antirrhinum Monspessulanum; *Montpellier Toadflax.* Leaves linear, filiform, succulent, scattered, crowded; stem erect; spur shorter than the calix. Root perennial; flowers in loose spikes, of a pale blue colour, and sweet smell.—Found near Montpellier in the south of France, and in England near Penryn in Cornwall. See the ninth species.

13. Antirrhinum Sparteum; *Branching Toadflax.* Leaves awl-shaped, channelled, fleshy; the lower ones ternate; stem panicled, and corollas yellow, very smooth, flowering in May and June, and very common in a dry sandy soil about Madrid.—It may be sown in spring like other hardy annuals, but will flower earlier if raised in the autumn.

14. Antirrhinum Bipunctatum; *Dotted-flowered Toadflax.* Leaves linear, smooth; the lower ones quaternate; stem erect, panicled; flowers spike-headed.—It is an annual plant, growing wild in the corn-fields of France, Spain, and Italy; and producing a yellow flower in May and June.

15. Antirrhinum Triste; *Dark-flowered Toadflax.* Leaves linear, scattered, the inferior ones opposite; nectaries awl-shaped; flowers subsessile. Corolla very dark purple; capsule shaped like the human skull.—Native of Spain; flowering during most of the summer months. It is easily propagated by cuttings, which if watered and shaded will soon take root, and may be afterwards planted in pots filled with light fresh undunged earth, which may have plenty of free air in mild weather, but must be sheltered in winter.

16. Antirrhinum Supinum; *Procumbent Toadflax.* Leaves subquaternate, linear; stalk diffused; flowers racemed; spur straight.—Native of sandy grounds in France and Spain.

17. Antirrhinum Arvense; *Yellow Corn Toadflax.* Leaves sublinear, the lower ones quaternate; calices hairy viscid; flowers spiked; stem erect. It varies with flowers blue or yellow.—Grows in the sandy corn-fields of Italy, France, Germany, or England.

18. Antirrhinum Peliserianum; *Violet-coloured Toadflax.* Stem-leaves linear, alternate; root-leaves lanceolate, ternate; flowers corymbed, purple, with a white palate, marked with obscure purple veins.—Native of France and Italy. Annual.

19. Antirrhinum Saxatile; *Rock Toadflax.* Leaves lanceolate-linear, scattered, villose; the inferior quaternate; stem decumbent; flowers spiked. Root perennial; corolla yellow, with two orange spots on the palate.—Native of Spain.

20. Antirrhinum Viscosum; *Clammy Snapdragon.* Root-leaves quaternate, lanceolate; stem-leaves linear, alternate; calices villose, approximating the stem.—Native of Spain.

21. Antirrhinum Multicaule; *Many-stalked Toadflax.* Leaves quinate, linear, fleshy; flowers headed. There are two varieties, one with a deep yellow, the other with a sulphur-coloured flower.—Native of Sicily and the Levant.

22. Antirrhinum Glaucum. Leaves quaternate, awl-shaped, fleshy; stems erect; flowers spiked. An annual, with a yellow corolla.—Native of the south of Europe and the Levant.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 104

ANTHEMIS. *Pellitory of Spain.*

P. 109

ANTIRRHINUM. *Rock Toad-flax, or Snap-Dragon.*

P. 115

ARBUTUS. *Common Strawberry Tree.*

P. 122

ARISTOLOCHIA. *Common Birthwort.*

23. Antirrhinum Alpinum; *Alpine Toadflax.* Leaves quaternate, linear-lanceolate, sea-green; stem diffuse; flowers racemed, with a straight spur. Root perennial; flowers very elegant, of a fine violet purple colour, with a rich gold-colour in the centre, and which blows most part of the summer. The plant has a bitter disagreeable taste.—Native of moist rocky places in the Alps. This beautiful flower may be propagated by cuttings, as well as seeds, which it does not produce plentifully in England. It succeeds best in a pot or on rock-work, but requires some care.

24. Antirrhinum Bicorne; *Horned Toadflax.* Leaves opposite, ovate-oblong, serrate; stem erect; flowers racemed; capsules two-horned.—An annual; native of the Cape.

25. Antirrhinum Villosum. All the leaves opposite, ovate, villose; stems simple; flowers yellow, opposite, lateral.—Observed in Spain. Perennial.

26. Antirrhinum Origanifolium. Leaves mostly opposite, oblong; flowers alternate.—Annual; growing wild upon the Pyrenees, and near Marseilles.

27. Antirrhinum Pinnatum. Leaves opposite, pinnatifid; stem erect; flowers racemed.—Native of the Cape.

**** Leaves alternate.*

28. Antirrhinum Minus; *Lesser Toadflax.* Leaves mostly alternate, lanceolate, obtuse; stem very much branched, diffuse. The corolla is small, the tube and upper lip violet, the beard and chin whitish, and the throat closed with a pile of orange hairs. Annual; flowering from June till September, and growing wild in corn-fields, dry pastures, and upon walls in most parts of Europe.

29. Antirrhinum Dalmaticum. Leaves alternate, heart-shaped; stem-clasping. The flowers, which are of a deep yellow colour, appear in July, but seldom produce ripe seed in England. Native of Crete and Armenia. It is propagated by seed, sown early in the spring, upon a border of light earth, removing them, when they come up, to pots of light sandy earth placed in the shade, till they take root, and under a hot-bed frame after October, to preserve them from the frost. It will endure more cold than the other species.

30. Antirrhinum Hirtum; *Hairy Toadflax.* Leaves lanceolate, shaggy; flowers spiked, the upper leaf of the calix largest. Annual; having a pale yellow flower, with a few dark stripes, and the chaps of a gold colour.—Native of Spain.

31. Antirrhinum Genistifolium; *Brown-leaved Toadflax.* Leaves lanceolate, acuminate; panicle wand-like, flexuose; flowers bright yellow.—Native of Siberia, Lower Austria, Switzerland, Dauphiny, and Piedmont.

32. Antirrhinum Junceum; *Rush-stalked Toadflax.* Leaves linear, alternate; stem panicled, wand-like; flowers racemed.—Discovered in Spain.

33. Antirrhinum Linaria; *Common Yellow Toadflax,* or *Calves-snout.* Leaves lanceolate-linear, crowded; stem erect; spikes terminal, sessile; flowers imbricate. Root perennial, hard, woody, creeping; stems several, one to two feet high, full of leaves, round and smooth; leaves pointed, blueish, growing without order; flowers yellow, with orange palates, in a thick terminal spike.—It grows wild in most parts of Europe upon banks by road-sides, and in dry pastures, flowering from June till August. In Worcestershire it is called *Butter-and-Eggs,* from the colour of its flowers. It abounds in an acrid oil, that is almost empyreumatic; and when inwardly given, excites nausea, purges, and increase of urine. The fresh tops are used: an infusion of them works by urine, and has been recommended by some in the jaundice, and other diseases arising from obstructions in the viscera; but Hill says, We have so many English plants that excel in this particular, and the taste of the infusion is so far from agreeable, that it is not worth while to have recourse to it. Withering prescribes an infusion of the leaves as both diuretic and purgative, and informs us that an ointment prepared from them gives relief in the piles. A decoction of the whole plant, in all, purges briskly, operates by urine, and is frequently found serviceable in the jaundice and incipient dropsies. The juice of the leaves cleanses old ulcerous sores.—The plant is very apt to spread so as to become troublesome, and therefore is seldom admitted into gardens. The flowers however make a pretty appearance, and are well worth retaining in pots.

34. Antirrhinum Linifolium. Leaves lanceolate, three-nerved; flowers racemed; peduncles distant, shorter than the bracte. Corolla yellow; spur the length of the flower.—It is perennial, and found upon the sea-coasts of Italy.

35. Antirrhinum Chalepense; *White-flowered Toadflax.* Leaves linear-lanceolate, alternate; flowers in racemes, white; calix longer than the corolla; stem erect. An annual, flowering in July, and ripening seed in autumn.—Native of Sicily, Italy, and France.

36. Antirrhinum Reflexum. Leaves ovate, smooth; peduncles axillary, fruit-bearing, elongate, recurved; stem procumbent. Root annual; corolla white, with a yellow mouth.—It flowers in May and June; and is common in vineyards and gardens about Messina; and has been found in Barbary.

37. Antirrhinum Pedunculatum. Leaves linear, remote; flowers panicled; peduncles longer than the leaf, stiff, and upright. Corollas yellow, streaked with blue.—Found in Spain.

38. Antirrhinum Lagopodioides. Leaves scattered, soft, recurved at the tip; spikes ovate, villose.—Native of Siberia.

39. Antirrhinum Aphyllum. A very singular plant, having no appearance of an herb, but resembling a Moss, no part of it producing any leaves.—Found near the Cape.

***** Corollas gaping,* or *tailless.*

40. Antirrhinum Majus; *Great Toadflax,* or *Snap-dragon.* Corollas tailless; flowers in spikes; calices rounded. Stem a foot, eighteen inches, two, and even three feet high. There are several varieties of this species, and the differences in the colour of the flowers are endless; the most common are red, yellow, purple, white; red with white or yellow mouths; white and red; yellow and red; yellow and white; purple and white; purple, with yellow mouths, and scarlet dotted with gold colour.—Found in the southern countries of Europe, growing in hedges, and on rocks and ruins. In England it flowers during June and July, and grows on walls, Dover cliffs, between Northfleet and Gravesend, &c. In Russia they express an oil from the seeds of this plant, which is little inferior to oil of olives.—All the varieties of Snap-dragon are raised from seed sown in April or May upon a dry soil, and transplanting them to large borders in July, where they will flower in the following spring. Any of the sorts may be continued by parting the roots, or by planting cuttings in the summer months, which will easily take root. They resist the cold of winter well, require little attention, and are pretty ornaments, well worthy of admittance into every garden. Whenever these plants are intended for rocky barren soils, or to grow upon walls, sow the seed early in March, where they are designed to remain; and all the further trouble they require is merely to keep them free from weeds: they will begin to flower in July, and continue till the frost prevents them. They will continue two or three years, and are rarely hurt by frost.

41. Antirrhinum Orontium; *Small Toadflax.* Corollas tailless; flowers subspiked; calices longer than the corolla. Stem seldom more than a foot high; corollas a pale purple;

lips rose-coloured; palate yellow; spur very short, obtuse. It is a poisonous annual plant, native of England, growing on a light soil, in cornfields and vineyards, and flowering in July and August, and is seldom admitted into gardens.

42. Antirrhinum Papilionaceum. Corollas tailless; flowers axillary; calices papilionaceous, five-leaved; leaves fleshy, ovate, entire, alternate.—Native of Persia.

43. Antirrhinum Asarina; *Heart-leaved Toadflax.* Corollas tailless; leaves opposite, heart-shaped, crenate; stems procumbent.—Native of Italy, and the south of France; a low trailing annual plant.

44. Antirrhinum Molle; *Woolly-leaved Toadflax*, or *Snapdragon.* Corollas tailless; leaves opposite, ovate, tomentose; stems procumbent. Corollas villose, white, with a yellow palate; the upper lip streaked with red.—Native of Spain.

45. Antirrhinum Unilabiatum. Corollas tailless, with two calluses; leaves alternate, pinnate; stem panicled.—Found near the Cape of Good Hope.

***** *Corollas gaping.*

46. Antirrhinum Bellidifolium; *Daisy-leaved Toadflax.* Root-leaves tongue-shaped, toothed, marked with lines; stem-leaves parted, quite entire. A biennial, or at most triennial plant, with a blue corolla.—Native of Spain, Italy, and the south of France; also found near Geneva. Propagated by seeds sown where they are to remain, upon a border of light earth, and to be thinned and weeded when they appear in the following spring, which is all the culture they require.

47. Antirrhinum Canadense; *Canada Toadflax.* Leaves linear, alternate; lower lip of the corolla spreading and flat. Annual.—Native of Virginia and Canada.

48. Antirrhinum Micranthum; *Small-flowered Toadflax.* Stem herbaceous, upright; lower leaves in fours, upper ones alternate; flowers very small, white; spur short, interior. Root annual.—Native of Spain, near Madrid, where it flowers in March and April.

49. Antirrhinum Reticulatum; *Reticulate Toadflax.* Leaves linear, channelled, scattered, those on the radical shoots generally in fives; calix hairy; flower-stalks shorter than the bractes. Root perennial; flowers very beautiful, variable in colour, and without scent.—Discovered in Algiers.

50. Antirrhinum Pygmæum; *Dwarf Toadflax.* Leaves sagittate; peduncles capsulaceous; corolla yellow.

51. Antirrhinum Æruginum. Lower leaves in fours, linear; flowers in racemes; the upper leaflet of the calix twice as long as the rest. An annual, with a yellow corolla; and a native of Spain.

52. Antirrhinum Hexandrum. Leaves opposite, cordato-ovate, serrate; peduncles axillary, one-flowered.—Native of Otaheite in the South Seas.

Apactis; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix*: none. *Corolla*: four-petalled; petals roundish, crenate, concave, unequal; two opposite broader. *Stamina*: filamenta from sixteen to twenty. *Pistil*: germen superior; style one. Essential Character. *Corolla*: four-petalled. *Calix*: none.——The only species known is,

1. Apactis Japonica. A tree erect and very branching; flowers in racemes at the end of the branchlets.

Apargia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix*: common imbricate, oblong, scales several, linear, parallel, unequal, longitudinal, incumbent. *Corolla*: compound imbricate, uniform; corollets hermaphrodite, numerous, equal; proper, monopetalous, ligulate, linear, truncate, five-toothed. *Stamina*; filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil*: germen subovate; style filiform, length of the stamina; stigmas two, recurved. *Pericarp*: none. *Calix*: oblong, straight. *Seeds*: solitary, oblong, striated; down sessile (in the central seeds somewhat stiped) pulmose; rays chaffy beneath; receptacle naked, subvillose. Essential Character. *Calix*: subimbricate, with linear, parallel, unequal scales. *Down*: pulmose, subsessile. *Receptacle*: naked, subvillose.——The species are,

1. Apargia Hispida. The whole calix upright; leaves lanceolate, toothed, hispid with forked bristles; scape one-flowered, naked.—It is common in meadows and pastures, where it flowers in May: the flowers open at four in the morning, and close at three in the afternoon.

2. Apargia Hirta. The whole calix upright, smoothish; leaves toothed, rough with hairs that are undivided; scape smooth, without any floral leaf; outer seeds without down.—The whole of this plant is much smaller than the first species.—It grows in Germany, Switzerland, France, and Spain, and is frequent on Hampstead Heath, Barnes Common, and other commons near London.

3. Apargia Danubialis. The whole calix upright, smooth; leaves toothed, smooth; scape one-flowered, almost naked.—It flowers in June, and is found in meadows on the islands in the Danube.

4. Apargia Tuberosa. Calix acute, hirsute; leaves runcinate, scabrous.—Native of meadows in Tuscany and the south of France.

5. Apargia Autumnalis. Stem branched, almost naked; peduncles scaly; leaves lanceolate, toothed, quite entire, smooth. Root perennial; florets yellow on both sides, the tubular part a little hairy. The flowers open at seven in the morning, and close at three in the afternoon; they appear from July until October.—This plant is common in pastures; horses, goats, and swine are said to eat it, but cows and sheep refuse it. Old English writers call it *Yellow Devil's Bit; Small Hare's Hawkweed*; or *Small Hawkweed with bitten roots.*

6. Apargia Pyrenaïca. Peduncles scaly; leaves lanceolate; with very few teeth; calices villose, root end-bitten. Perennial; florets yellow.—Native of the south of Europe.

7. Apargia Taraxaci. Peduncles somewhat scaly at the top; leaves entire or pinnatifid, smooth; calix woolly; root end-bitten.—Found in Lapland, the south of Europe, and in Wales and Scotland in mountainous situations; flowering in July.

Aphanes; a genus of the class Tetrandria, order Digynia, or class Monandria, order Monogynia.—Generic Character. *Calix*: perianth one-leafed, tubular, permanent; mouth flat, eight-parted. *Corolla*: none. *Stamina*: filamenta four, or one, erect, subulate, very small, placed on the mouth of the calix; antheræ roundish, or one, twin. *Pistil*: germen ovate; style filiform, the length of the stamina, inserted into the base of the germen; stigma headed. *Pericarp*: none. *Calix*: containing the seeds in the bottom, converging at the mouth. *Seeds*: ovate, acuminate, compressed. Essential Character. *Calix*: eight-cleft. *Corolla*: none. *Seeds*: two, or one naked.——The only species is,

1. Aphanes Arvensis; *Parsley Piert.* Stems many, slender, leafy, four inches long, round; leaves roundish, three-parted, deeply laciniate; flowers herbaceous, axillary; calix cut into eight segments. An European small annual plant, growing in fallow fields and dry pastures, and flowering from May to August.—As a medicine, the whole plant is to be made use of, and it is best when fresh gathered, in which state it is easy to obtain it. A strong infusion of it is beneficial in the gravel, as it operates powerfully by urine, cleansing the kidneys and urinary passages from all sabulous concretions in a short time. It is likewise good in the jaundice, and other complaints arising from obstructions of the liver or any other viscera; and

many people fancy that it has the power of dissolving the stone in the bladder; hence its old name of *Parsley Breakstone.* Culpeper calls this plant a very good salad herb, and says it were well that the gentry would pickle it up as they pickle up samphire, for their use all the winter, because it is a very wholesome herb, and it may be kept either dried or in a syrup. He prescribes a drachm of the powder in white wine, to carry off gravel from the kidneys insensibly and without pain.

Aphyllanthes; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* glumes univalve, lanceolate, several, imbricate. *Corolla:* petals six, ovate, spreading in the border; claws slender, erect, converging into a tube. *Stamina:* filamenta setaceous, shorter than the corolla, inserted into the throat; antheræ oblong. *Pistil:* germen superior, three-cornered, turbinate; style filiform, the length of the stamens; stigmas three, oblong. *Pericarp:* capsule turbinate, triangular, trilocular. *Seeds:* ovate. Essential Character. *Corolla:* six-petalled. *Filamenta:* inserted into the throat of the corolla. *Capsule:* superior. *Glume:* of the calix univalve, imbricate.—One species only is known,

1. Aphyllanthes Monspeliensis. Root creeping; culm naked; glume two-valved; two-flowered.—Grows wild in barren pastures and rocky places, about Montpellier and Nice.

Aphyteia; a genus of the class Monadelphia, order Triandria.—Generic Character. *Calix:* perianth monophyllous, semitrifid, funnel-shaped, large, fleshy, erect, permanent. *Corolla:* rudiments of three petals, growing to the divisions of the calix. *Stamina:* filamenta connate at bottom, short; antheræ convex, cordate, striated. *Pistil:* germen inferior; style thickish, short; stigma three-cornered, channelled. *Pericarp:* berry one-celled. *Seeds:* numerous, nestling. Essential Character. *Calix:* large, funnel-shaped, semitrifid. *Petals:* three, inserted into the throat of the tube in the calix, and shorter than it.——The only known species belonging to this genus is,

1. Aphyteia Hydnora. A vegetable without leaves, stem or root, being parasitical, terrestrial, consisting of a fructification only. The smell of the flower and ripe fruit is not unpleasant. The latter is much liked by foxes and weasels; and eaten both raw and roasted by the Hottentots.—This plant is parasitical at the root of Euphorbia, and was first observed in the parched sandy plains of the Cape.

Apios. See *Glycine* and *Euphorbia.*

Apium; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, of fewer rays than those of the partial; involucre universal small, of one or more leaflets; partial similar: proper perianth obsolete. *Corolla:* universal uniform; floscules almost all fertile; proper petals roundish, inflex, equal. *Stamina:* filamenta simple; anthera roundish. *Pistil:* germen inferior; styles reflex; stigmas obtuse. *Pericarp:* none; fruit ovate, striated, splitting in two. *Seeds:* two, ovate, striated on one side, plane on the other. Essential Character. *Fruit:* ovate, striated. *Involucre:* one-leafed. *Petals:* equal.——The species are,

1. Apium Petroselinum; *Common Parsley.* Stem-leaflets linear; involucels minute; stems round, smooth, striated; flowers pale yellow; seeds short, turgid. There are three varieties: the common Garden Parsley, the Curled, and the Large-rooted Parsley. It is a biennial plant, cultivated for culinary use.—Parsley roots are sometimes used in decoctions, and supposed to be aperient and diuretic, but liable to produce flatulencies. In distilling large quantities, two or three drachms of essential oil separate from two hundred pounds: the leaves, which are warmer but not so sweet as the roots, yield about ten drachms from the same quantity. The seeds are warmer and more aromatic than any other part, and are accounted to be carminative, resolvent, and diuretic, and are recommended for destroying cutaneous diseases in children. Parsley is said to be fatal to small birds; and is accused of causing epilepsies, or of increasing them where before existing, and also of injuring the eyes. A poultice of the leaves is reported to be resolvent and discutient, if applied to glandular tumors; and also to be an efficacious remedy for the bites or stings of poisonous insects. Independently of its uses at table, the seeds disperse flatulencies in the stomach, and relieve those who are troubled with the colic. A strong decoction of the roots is a powerful diuretic, and is excellent in obstructions of the viscera, and such disorders as arise therefrom; and when drank for some time, will bring away gravel and other sabulous concretions from the kidneys and bladder, and is very serviceable in the jaundice and dropsy. The distilled water of Parsley, says Culpeper, is a familiar medicine with nurses, to give their children when they are troubled with wind in the stomach or belly. The leaves, laid to inflamed eyes, also are very efficacious; and when fried in butter, and applied to women's breasts, which are hard through the curdling of their milk, will give speedy relief; and also remove black and blue marks produced by blows or falls.—The Common and the Curled Parsley must be sown early in spring, and, if for medicinal use, but thinly. They only require hoeing and weeding. It is sown by skilful persons in fields about the end of February, for the use of sheep, and is a sovereign remedy to preserve them from the rot, provided they are fed twice a week for two or three hours each time. One bushel of seed will sow an acre of land.

2. Apium Graveolens; *Smallage,* or *Wild Celery.* Stem-leaves wedge-shaped; corolla small and white. It is biennial, flowering in ditches and marshes, from July to September. The varieties, according to Miller, are as follows: the Upright Celery, the Turnip-rooted Celery, and Portugal Celery. The fresh roots, especially in their native watery places, are fetid, acrid, and supposed to be noxious: they loose the greatest part of their ill flavour, and become sweetish when dried, and in that state have been used for decoctions as aperients and diuretics. The seeds have been sometimes used as carminatives and aperients; they have a moderately strong grateful smell, and a warm bitterish taste. Culture corrects its noxious qualities, and renders it mild and esculent. The lower part of the stem and leaf-stalks blanched, by being covered up with earth, are eaten raw, stewed, and boiled in soups, and are excellent antiscorbutics. A strong decoction of the roots operates by urine, and is good in fits of the stone or gravel: the seeds operate more powerfully by urine than any other part of the plant. Culpeper recommends the juice, with honey of roses and barley-water, as good to gargle within ulcerated sore throats; and says, that the seed kills worms, and sweetens a stinking breath.—Smallage is a common weed by the sides of ditches and brooks of water. The seeds should be sown soon after they are ripe, on a moist spot of ground; and when the plants have attained six or eight inches in height, they may either be transplanted into a moister soil, or into trenches, in order to be earthed up on each side as they advance in growth, and have their stalks blanched or whitened, to render them crisp and tender.

Apluda; a genus of the class Polygamia, order Monœcia.—Generic Character. *Calix:* involucre common, univalve; valve ovate, concave, terminated by a very short point or leaflet, two-flowered; the inferior flower sessile in the short, ovate, truncate, hollow base, which is continued into opposite, glumaceous, linear, flat, vertical footstalks, on one of which sits the superior flower, on the other a very short

rudiment of a flower. *Flower inferior*, hermaphrodite, almost entirely lying hid between the foot-stalks. *Calix:* involucre-proper univalve; valvelets lanceolate, compressed, rigid, double-toothed at the tip, smooth, embracing the flower with its margins beneath, opposite to the common involucre. Glume one-flowered, two-valved; valvelets membranaceous, transparent, shorter than the involucre; the exterior navicular, gibbous on the back, keeled, contracted towards the tip, acuminate; the interior ventricose, somewhat sharp, smaller. *Corolla:* glume bivalve, membranaceous, extremely thin, transparent; valve exterior navicular, compressed, smooth, hyaline, gibbous on the back, bifid, acute, awned below the tip, hid within the exterior valve of the calix, and shorter than it; the interior lanceolate, flat, acute, doubled together at each margin, the exterior rather longer; nectary very small, two-leaved, truncate-rounded, hyaline. *Stamina:* filamenta three, capillary; antheræ linear, bifid on each side. *Pistil:* germen oblong, small; styles two, capillary, upright, longer than the germen; stigmas oblong, villose, spreading, protruded on each side from the flower. *Pericarp:* none; corolla cherishes the seed, gapes, and drops it. *Seed:* ovate-oblong, compressed, smooth. *Flower superior*, smaller. *Calix:* glume two-flowered, two-valved; valves lanceolate, broadish, flat, sharp, nervose, nearly equal; one floscule female, the other male or neuter. *Corolla:* of the female, glume bivalve; valves membranaceous, hyaline; the exterior ventricose, cornered, sharp-pointed; the interior lanceolate, narrower, shorter, obtuse. Glume of the male, bivalve; valves lanceolate, membranaceous, hyaline; the exterior somewhat ventricose, sharp; the interior narrower, shorter. Nectary on both, as in the *inferior* flower. *Stamina:* of the male, as in the inferior flower. Pistil of the female, as in the inferior flower. *Pericarp* and *Seed* of the female as in the inferior flower. ESSENTIAL CHARACTER. *Calix:* glume common, bivalve; female floret sessile; males peduncled. *Male. Calix:* none. *Corolla:* bivalve. *Stamina:* three. *Female. Calix:* none. *Corolla:* bivalve. *Style:* one. *Seed:* one, covered.——The species are,

1. Apluda Mutica. Leaves lanceolate; all the flowers awnless; culm very long, weak, smooth.—Native of India.

2. Apluda Aristata. Leaves lanceolate; male flowers awnless, except one at the end, which is sessile and awned; culm a foot long, inflected.—Native of India.

3. Apluda Zugites; *Mountain Reed Grass.* Leaves ovate; male flowers awnless; one at the end sessile and awned.—This curious little plant is a native of Jamaica.

4. Apluda Digitata. Spikes digitate; flowers pointing one way.—A lofty East Indian grass.

Apocynum; a genus of the class Pentandria, order Digynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, five-parted, acute, short, permanent. *Corolla:* monopetalous, bell-shaped, semiquinquefid; divisions revolute. Nectary, of five glandular oval corpuscles surrounding the germen. *Stamina:* filamenta very short; antheræ oblong, erect, acute, bifid at the base, converging. *Pistil:* germen two, ovate; styles short; stigma roundish, bifid at the tip, muricate, glued to the antheræ. *Pericarp:* follicles two, long, acuminate, one-valved, one-celled. *Seeds:* numerous, very small, crowned with a long down *Receptacle:* subulate, very long, rough, free. ESSENTIAL CHARACTER. *Corolla:* bell-shaped. *Nectaries:* five, alternate with the stamina.—The first three species are propagated by parting the roots in March. They flower in July, are hardy, and will thrive in a light dry soil. The fourth will bear the open air in a warm situation and dry soil. All the rest are tender, and may be propagated by cuttings, and must be constantly kept in a hot-house, plunged into a tan-bed. They rarely seed in England, and are an ornament at all seasons, retaining beautiful green leaves throughout the year.——The species are,

1. Apocynum Androsæmifolium; *Tutsan-leaved Dog's-bane.* Stem straightish, herbaceous; leaves ovate, smooth on both sides; cymes terminating. Root perennial; corolla white. This plant is said to kill the flies that alight upon it. The Canadian French say, that it is poisonous to some persons, but harmless to others. Kalm relates, that he saw a soldier whose hands were blistered all over, merely from plucking it; whereas he frequently rubbed his own hands with the juice, without feeling any inconvenience.—Native of Virginia and Canada; flowering from July till September.

2. Apocynum Cannabinum; *Hemp Dog's bane.* Stem straightish, herbaceous; leaves oblong, in pairs, abounding with a milky juice; cymes lateral, longer than the leaf.—Native place and flowering time, same as No. 1.

3. Apocynum Hypericifolium; *St. John's-Wort-leaved Dog's bane.* Stem straightish, herbaceous; leaves oblong-cordate, smooth; cymes shorter than the leaf. Root perennial, creeping; flower small, scentless, and white. The whole plant is smooth, and abounds in milk. Flowers in June and July.—Native of North America.

4. Apocynum Venetum; *Spear-leaved Dog's-bane.* Stem straightish, herbaceous; leaves ovate-lanceolate. Root perennial; stems two feet high. It varies with purple and with white flowers, which appear in July and August.—Found in the Adriatic Islands.

5. Apocynum Minutum; *Petty Dog's-bane.* Stem prostrate; leaves hastate.—Found at the Cape of Good Hope.

6. Apocynum Filiforme; *Thread-leaved Dog's-bane.* Stem prostrate, herbaceous; leaves filiform; flowers umbelled.—Native of the Cape of Good Hope.

7. Apocynum Frutescens; *Shrubby Dog's-bane.* Stem erect, shrubby; leaves lanceolate-oval; corollas acute, villose at the throat; flowers small, in loose bunches, and of a purple colour.—Native of the East Indies, Ceylon, and the coast of Guinea.

8. Apocynum Reticulatum; *Net-leaved Dog's-bane.* Stem twining, perennial; leaves ovate, veined. The leaves of this species are of a dark and very shining green, with a beautiful net of milky veins.—Native of the East Indies, and Cochin-china.

9. Apocynum Lineare; *Linear-leaved Dog's-bane.* Stem twining, herbaceous; leaves linear, flat; umbells axillary, compound.—Native of the Cape.

10. Apocynum Triflorum; *Three-flowered Dog's-bane.* Stem twining, herbaceous; leaves lanceolate; umbels axillary, two or three flowered.—Native of the Cape.

11. Apocynum Juventas; *Renovating Dog's-bane.* Stem twining, shrubby; leaves ovate, hairy; racemes dichotomous. Flowers greenish-yellow colour.—A native of Cochin-china, where the country physicians imagine the root of this plant to refresh the animal spirits to such a degree, as by long-continued use to endow old age with all the strength and vigour of youth.

12. Apocynum Alterniflorum; *Alternate-flowered Dog's-bane.* Stem climbing, shrubby; leaves ovate, acuminate, smooth; axils alternate, umbelliferous. Flowers pale, and scentless.—Native of the islands near Canton in China.

13. Apocynum Africanum; *African Dog's-bane.* Stem suberect, shrubby; leaves ovate-oblong; peduncles two or three flowered. Stem eight feet high; flower pale.—Found in a sandy plain upon the coast of Zanguebar in Africa.

14. Apocynum Scandens; *Climbing Dog's-bane.* Leaves oblong-cordate, stiff; flowers lateral; stem shrubby, twining.

It abounds near Carthagena, in New Spain; and flowers in August and September.

15. Apocynum Nervosum; *Nerve-leaved Dog's-bane.* Leaves ovate, nerved, cymes lateral; flowers yellow, large; tube very long; stem shrubby, climbing. Flowers large, bright yellow.—Native of New Spain, near Carthagena.

16. Apocynum Cordatum; *Heart-leaved Dog's-bane.* Leaves oblong-cordate, pointed, sessile; flowers lateral; stem climbing.—This and the following species are natives of Vera Cruz, in New Spain: they both have climbing stalks, by which they mount the highest trees; even in English hothouses they have risen upwards of twenty feet high. The pods of these plants afford a cottony down, which is greatly esteemed in France (where it is called *Delawad*) for stuffing easy chairs, and making warm light quilts for persons afflicted with the gout; hence, in the south of France, where it will thrive and produce seed in the open air, there are many plantations of it, for the sake of the down. As these plants are plentiful in the uncultivated parts of Jamaica, abundance of the down might be procured from thence; and if it were only to become *fashionable*, would soon become *vendible* in England. There they require no cultivation; the only trouble would be to collect the down, which on some of the large-podded sorts is produced in great quantities.

17. Apocynum Villosum; *Villose-flowered Dog's-bane.* Leaves cordate, smooth; flowers villose, lateral, on long peduncles; stem climbing. See the foregoing species.

Aponogeton; a genus of the class Dodecandria, order Tetragynia.—Generic Character. *Calix:* none, except a spathaceous scale surrounding the outer side of the flower, simple, sessile, ovate, obtuse, entire, upright, smooth, coloured. *Corolla:* none. *Stamina:* filamenta eleven to nineteen, in the upper flowers fewer, inserted between the spathe and the capsules, subulate, smooth, white, many times shorter than the spathe. *Pistil:* germina usually four, seldom three or five; styles none; stigmas subulate, bent in. *Pericarp:* capsules four, seldom three or five, ovate, subulate-acute, gibbous on the outside, flat on the inner side, smooth, one-celled. *Seeds:* in each capsule three, affixed to the base of it, sessile, obovate, very blunt, subcompressed, smooth. Essential Character. *Calix:* an amentum. *Corolla:* none. *Capsule:* three-seeded.—These plants belong to the greenhouse or cape-stove, and may be increased by offsets from the bulbs.——The species are,

1. Aponogeton Monostachyon; *Single-spiked Aponogeton.* Spike simple; leaves cordate-oval.—Common in fields that are flooded for rice in the East Indies.

2. Aponogeton Distachyon; *Broad leaved Aponogeton.* Spike bifid; leaves linear, oblong, floating; bractes entire; flowers many-stamined.—Found at the Cape of Good Hope. It bears white flowers almost all the year round; they have a very fragrant smell.

3. Aponogeton Angustifolium; *Narrow-leaved Aponogeton.* Spike bifid; leaves linear-lanceolate, erect; bractes two-parted; flowers six-stamined. Flowers almost all the year.—Native of the Cape.

Apple, Custard. See *Annona.*

Apple, Love, and *Mad.* See *Solanum.*

Apple, Pine. See *Bromelia.*

Apple, Purple, and *Sour.* See *Annona.*

Apple, Thorn. See *Datura.*

Apple-Tree. See *Pyrus.*

Apple, Water. See *Annona.*

Apricot, or *Apricock.* See *Prunus.*

Aquartia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth monophyllous, permanent; tube bell-shaped; limb subquadrifid, expanding; two opposite divisions obsolete. *Corolla:* monopetalous, rotate; tube very short; limb quadrifid; divisions linear, widely spreading. *Stamina:* filamenta short; anthera erect, very large, linear. *Pistil:* germen ovate, style filiform, declined, the length of the corolla; stigma simple. *Pericarp:* berry, globular, one-celled. *Seeds:* very many, compressed. Essential Character. *Calix:* bell-shaped. *Corolla:* wheel-shaped, with linear divisions. *Berry:* many-seeded.——One species only is known, viz.

1. Aquartia Aculeata. A perennial spinous plant, with a white inodorous flower. In St. Domingo, of which Jacquin says it is a native, it flowers and bears a yellow shining fruit, the size of a pea, in October.—Native of South America.

Aquilaria; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, permanent; tube bell-shaped; border five-cleft; clefts ovate, acute, flat, spreading. *Corolla:* none; nectary one-leafed, pitcher-shaped, length of the tube of the calix, half five-cleft; cleft bifid, obtuse. *Stamina:* filamenta ten, alternate to, and shorter than, the clefts of the nectary; antheræ oblong, versatile. *Pistil:* germen ovate, on a very short pedicle, superior; style none; stigma simple. *Pericarp:* capsule on a very short pedicle, obovate woody, two-celled, two-valved; with the partition contrary, and bipartite. *Seeds:* solitary, oblong. Essential Character. *Calix:* five-cleft. *Nectary:* pitcher-shaped, half five-cleft, with bifid clefts. *Capsule:* superior, woody, two-celled, two-valved. *Seeds:* solitary.—The only species discovered is,

1. Aquilaria Ovata. Leaves alternate, ovate, mucronate. —This is a large tree, the wood of which in its natural state is white and inodorous: it has the name of lign-aloes, or *wood aloes*, from its bitter taste. No part of this plant is poisonous; the *aroma* which it produces arises from a disease, caused by oleaginous particles stagnating and concreting in the inner parts of the trunk into a resin, which is extracted from the wood when split. The perfume made of the wood is highly esteemed by the Oriental nations. From its bark of the tree the common writing paper of the Chinese is made. The perfume is said to be good in vertigo and palsy; the powder restrains vomiting and alvine fluxes, by its astringent and corroborating power. Three kinds of this wood are used in the shops; they are called *Calumbac, Common Lign-aloes,* and *Calambour.* The first is the finest and most resinous; the last is almost a mere chip; and the second a middling kind. They all have the property of acting as cordials, and strengthening the stomach, but in different degrees, and are not much used.

Aquilegia; a genus of the class Polyandria, order Pentagynia.—Generic Character. *Calix:* none. *Corolla:* petals five, lanceolate-ovate, flat, spreading, equal. Nectaries five, equal, alternate with the petals, each horned, gradually broader upwards, with an oblique mouth, ascending outwardly, annexed inwardly to the receptacle, each produced below into a long attenuated tube, with an obtuse top. *Stamina:* filamenta thirty to forty, subulate, the outer ones shorter: antheræ oblong, erect, the height of the nectaries. *Pistil:* germina five, ovate oblong, ending in subulate styles, longer than the stamina; stigmas erect, simple; chaffs ten, wrinkled, short, separate, and involving the germina. *Pericarp:* capsules five, distinct, cylindric, parallel, straight, acuminate, one-valved, gaping from the tops inward. *Seeds:* very many, ovate, keeled, annexed to the gaping suture. Essential Character. *Calix:* none. *Petals:* five. *Nectaries:* five, horned between the petals. *Capsule:* five, distinct.—These plants should always be raised from seeds, since the old roots

are apt to degenerate, and produce plain flowers. Sow them in a nursery-bed in August or September; they will appear in spring, and in May should be transplanted, eight or nine inches every way apart, upon beds of good fresh undunged earth; and in the following autumn will be strong enough to be taken up, and placed in the borders of the flower-garden, where they will flower in the summer following. To ensure good flowers, let them flower in the nursery, and then select the best for transplantation; but the best way is to sow fresh seeds every year. Take care that no seeds of the plain sorts are mixed with the variegated kinds, or they will cause the whole to degenerate.——The species are,

1. Aquilegia Viscosa; *Clammy Columbine.* Stem almost naked, with viscid hairs, and one or two flowers; leaves subtrilobate. Root perennial; stem a foot high.—Native of the south of France, and the mountains of Piedmont.

2. Aquilegia Vulgaris; *Common Columbine.* Nectaries blue, yellow at the tip, and incurved. Stem three feet high, erect, leafy, branching; the flowers are produced from the tops of the naked branches, and hang down. There are many varieties. In a wild state, the flowers are usually blue: red and white is common about Berne in Switzerland, and also in Norfolk. Double flowers have been found in the Pays de Vaud.—Native of most parts of Europe, in woods, hedges, and bushes. It is perennial, and the flowers vary much by culture; with us they appear in June, and are blue, white, red, purple, flesh-coloured, ash-coloured, chesnut-coloured, and striped or variegated blue and purple, blue and white, and red and white. The root, herb, flowers, and seed, are recommended as medicines upon good authority; but this plant is of a suspicious tribe, and Linneus says, that children have lost their lives by an over-dose of it. The sensible qualities of the seeds, says Lewis, afford little foundation for their supposed virtues in the jaundice, measles, and small-pox, as they only differ from the cold seeds in being somewhat more mucilaginous, with a disagreeable relish. The virtues ascribed to a tincture of the flowers, as an antiphlogistic, and for strengthening the gums, and deterging scorbutic ulcers in the mouth, are better founded. The tincture is made with an addition of the vitriolic acid, and differs little from our tincture of roses. Notwithstanding this, Hill observes, that the seeds operate by sweat and urine, open obstructions of the viscera, and are good in the jaundice, in fevers, and in the small-pox and measles, to throw out the pustules. A decoction of the leaves is good for sore throats; and a tincture of the flowers in brandy is recommended by Tournefort as an excellent gargle for scorbutic affections of the gums.

3. Aquilegia Alpina; *Alpine Columbine.* Nectaries straight, shorter than the lanceolate petal. Root biennial; corolla blue. Flowers in May and June.—Said to be found in Westmoreland; but is a native of the Alps.

4. Aquilegia Canadensis; *Canadian Columbine.* Nectaries straight; stamina longer than the corolla. Root perennial; stems very slender, redish; corolla red without, and yellow within.—Native of North America; flowering in April, and ripening seeds in August. It flowers a month sooner than the other sorts.

5. Aquilegia Viridiflora; *Green-flowered Columbine.* Nectaries straight, thickened, and a little bent in at the tip; stamina nearly equal to the corolla. Root perennial; petals pale green.—It flowers in May, ripens seed in July; and was found by Professor Pallas in Siberia.

Arabis; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved, deciduous; leaflets from parallel converging, two opposite larger, ovate-oblong, acute, a little prominent at the base, gibbose, concave; the two others linear, erect. *Corolla*: four-petalled, cruciform; petals spreading, ending in claws the length of the calix; nectaries four, each from a little scale, within the bottom of the calicine leaflet, affixed to the receptacle, reflex, permanent. *Stamina*: filamenta subulate, upright, two the length of the calix, four twice as long; antheræ cordate, erect. *Pistil*: germen columnar, the length of the stamina; style none; stigma obtuse, entire. *Pericarp*: silique compressed, very long, linear, unequal, with swellings at the seeds; valves almost the length of the partition. *Seeds*: very many, roundish, compressed. Essential Character. Nectareous glands four; one within each leaflet of the calix, like a reflex scale.—They are all hardy plants, producing seed plentifully, thriving in any situation, and may easily be propagated by sowing the seed in autumn, or permitting them to scatter themselves.——The species are,

1. Arabis Alpina; *Alpine Wallcress.* Leaves stem-clasping, toothed; root creeping, perennial. The flowers grow in bunches towards the top; petals white; calix yellowish. It increases with great facility, and is esteemed for its early flowering, and the pretty appearance it makes in cold abject situations, where few other things will thrive.—Native of the Alps, and other European mountains, upon rocks, and in woods and caverns.

2. Arabis Lucida; *Shining Wallcress.* Leaves stem-clasping, shining: perennial.—A native of Hungary.

3. Arabis Grandiflora; *Great-flowered Wallcress.* Stem naked; perennial, with a white corolla.—Native of Siberia.

4. Arabis Thaliana; *Common Wallcress.* Leaves petiolate, lanceolate, quite entire. This flowers in March and April; seeds in May; and is common upon walls, and among corn in sandy soils.

5. Arabis Bellidifolia; *Daisy-leaved Wallcress.* Leaves subdentate, the radical ones obovate, those of the stem lanceolate. Root perennial; the flowers corymbed, inodorous, white, appearing in May and June.—Native of moist places, near the Alps, and in Austria.

6. Arabis Lyrata; *Lyrate-leaved Wallcress.* Leaves smooth; the radical lyrate; the stem leaves linear. Root annual; flower white.—Native of North America.

7. Arabis Hispida; *Rough Wallcress.* Leaves wedge-shaped, sublyrate, hispid; the stem-leaves half stem-clasping, lanceolate; siliques stiff, ancipital. Root annual; petals white.—Native of the south of France, Switzerland, and Austria: observed also upon Mont Saleve in Savoy, near Geneva, by Mr. Ray, and upon St. Vincent's rocks near Bristol: it flowers in May.

8. Arabis Halleri; *Haller's Wallcress.* Stem-leaves sublyrate, those on the branches lanceolate, gashed; stem erect, six inches high; petals white, with green claws.—Native of Germany, Carniola, and Piedmont.

9. Arabis Canadensis; *Canadian Wallcress.* Stem-leaves lanceolate, toothed, smooth; flowers pendulous, in lateral racemes.—Native of North America.

10. Arabis Pendula; *Pendulous Wallcress.* Leaves stem-clasping; siliques ancipital, linear; calices subpilose. Stem nearly a foot high; corolla white.—Native of Siberia.

11. Arabis Turrita; *Tower Wallcress.* Leaves stem-clasping; siliques bending down, flat, linear; calices subrugose. Root biennial; stem from nine inches to two feet high; flowers white or yellowish, on short peduncles.—Native of Austria, Switzerland, and Dauphiny. It flowers with us in June, and grows upon the walls of St. John's College at Cambridge, and of Magdalen College at Oxford.

12. Arabis Saxatilis. Stem erect; leaves stem-clasping,

lanceolate, toothed; siliques the length of the raceme. Root annual; umbel of flowers terminating, nodding; petals white; stem a palm or a palm and a half high.—Found upon rocks, in most parts of the south of Europe.

13. Arabis Scabra. Root-leaves roundish, scabrous, toothed; stem-leaves embracing, hirsute. Stem six inches high; petals milky white.—Native of the south of Europe.

14. Arabis Serpyllifolia. All the leaves elliptic, quite entire; stem flexuose; biennial.—A Native of Dauphiny.

15. Arabis Recta. Stem straight; leaves rectangularly toothed, and sessile; siliques from erect spreading. The flowers are white. It grows upon rocks and walls about Grenoble in France.

Arach. See *Atriplex.*

Arachis; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth two-parted, gaping; upper lip ovate, semitrifid; the intermediate division the largest, emarginate; under lip lanceolate, concave, acute, rather longer than the upper. *Corolla:* papilionaceous, resupine; banner roundish, flat-deflex, very large, emarginate, longer than the calix; wings free, subovate, shorter than the banner; keel subulate, incurved, the length of the calix, very slightly bifid at the base. *Stamina:* filamenta ten, all united at the bottom, subulate, the length of the keel; antheræ alternately roundish and oblong. *Pistil:* germen oblong; style subulate, the length of the germen, ascending; stigma simple. *Pericarp:* legume, ovate-oblong, columnar, valveless, gibbous, torulose, veined, coriaceous, one-celled. *Seeds:* two, oblong, obtuse, gibbous, truncate at one end. Essential Character. *Calix:* bilabiate. *Corolla:* resupine. *Filamenta:* connected. *Legume:* gibbous, torulose, veined, coriaceous.—The seeds must be sown upon a hot-bed in the spring, and kept under glasses till the middle of June, when, if the weather prove warm, they may be gradually exposed to the air. The branches trail upon the ground, and, as soon as the flower begins to decay, the germ thrusts itself into the ground, and there the pod is formed and ripened.—The species are,

1. Arachis Hypogæa; *Common Earth,* or *Ground Nut.* Stem herbaceous, procumbent. Annual; three feet high; flowers gold-coloured, growing singly on long axillary peduncles.—Native of the East Indies, and much cultivated in China and Cochin-china. All the European settlements of America now abound with this plant: in South Carolina the inhabitants roast the *nuts,* as they are called, and use them as chocolate. In the eastern countries they are a substitute for almonds, and abound in a thin limpid oil, much used for lamps in Cochin-china, where, though inferior in flavour, it supplies the place of oil of olives for culinary use.

2. Arachis Fruticosa; *Shrubby Earth,* or *Ground Nut.* Stem shrubby, upright; flowers of a yellow colour.—Native of the East Indies, in Tranquebar, and the island of Ceylon.

Aralia; a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* involucre very small, of a globular umbellule; perianth five-toothed, very small, superior. *Corolla:* petals five, ovate, acute, sessile, reflex. *Stamina:* filamenta five, subulate, the length of the corolla; anthera roundish. *Pistil:* germen roundish, inferior; styles very short, permanent; stigmas simple. *Pericarp:* berry roundish, striated, crowned, five-celled. *Seeds:* solitary, hard, oblong. Essential Character. *Flowers* in an umbellule, with an involucre. *Calix:* five-toothed, superior. *Corolla:* five-petalled. *Berry:* five-seeded.—The species are,

1. Aralia Spinosa; *Thorny Aralia,* or *Angelica Tree.* Arborescent: stem and leaves prickly. Rises eight or ten feet high; and is a native of Virginia.—It is propagated by seed, which is easily procured from North America. Sow them in pots of light earth as soon as they arrive, and plunge them during autumn either in an old tan-bed or a warm border, and cover them with pease-haulm, if the winter be severe. When they appear, water and weed, but do not disturb them the first season. They are also easily increased by the roots.

2. Aralia Pentaphylla; *Five-leaved Aralia.* Arboreous, prickly: leaves quinate; flowers in umbels, peduncled.—Native of Japan; flowering in May and June.

3. Aralia Chinensis; *Chinese Aralia.* Shrubby: stem and petioles prickly; leaflets unarmed, villose.—Native of Malabar; found in China and Cochin-china.

4. Aralia Japonica; *Japanese Aralia.* Shrubby: leaves lobate; stem unarmed, six feet high; flowering in November and December; has no involucre.—Native of Japan.

5. Aralia Racemosa; *Berry-bearing Aralia.* Stem leafy, herbaceous, smooth: height three or four feet. The flowers are of a whitish colour. The French and Indians of Canada eat the berries, and use both the leaves and roots as salads and pot-herbs.—This and the next sort should have their seeds sown soon after they are ripe in autumn, and weeded when they appear during the summer; and in the next autumn they may be transplanted where they are to remain. The roots also may be parted in autumn, and planted well asunder; they are hardy plants, and will grow in any situation.

6. Aralia Nudicaulis; *Naked-stalked Aralia.* Stem naked; leaves in pairs, ternate. The roots of this plant are used by the Canadians for Sarsaparilla. Propagated like No. 5.

7. Aralia Cordata; *Heart-leaved Aralia.* Herbaceous: stem angular, unarmed; leaves simple, heart-shaped; flowers axillary, umbelled.—Native of Japan.

8. Aralia Octophylla; *Digitate-leaved Aralia.* Stem arboreous, unarmed; leaves digitate, with eight leaflets; panicle umbelled. A tree ten feet high, with a yellow flower sprinkled with red.—It is cultivated in Cochin-china, where it is a native, and used medicinally in dropsical cases.

9. Aralia Palmata; *Palmate-leaved Aralia.* Stem scandent, prickly; leaves five-lobed; umbels simple, lateral. Stem shrubby; flower white.—Native of China; where the bark is employed in cutaneous and dropsical disorders.

Arbor Vitæ. See *Thuya.*

Arbutus; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, obtuse, very small, permanent. *Corolla:* monopetalous, ovate, flattish at the base, diaphanous, with a quinquefid mouth; divisions obtuse, revolute, small. *Stamina:* filamenta ten, subulate, swelling, very slender at the base, affixed to the edge of the base of the corolla, and half the length of it; antheræ slightly bifid, nodding. *Pistil:* germen subglobular, on a receptacle marked with ten dots; style cylindric, the length of the corolla; stigma thickish, obtuse. *Pericarp:* berry, roundish, five-celled. *Seed:* small, bony. Essential Character. *Calix:* five-parted. *Corolla:* ovate, diaphanous at the base. *Capsule:* five-celled.—The species are,

1. Arbutus Unedo; *Common Strawberry Tree.* There are three varieties, viz. the common white-flowered Strawberry-tree: flowers simple; corollas whitish. The red-flowered Strawberry-tree: flowers simple; corollas reddish. And the double-flowered Strawberry-tree: flowers full; stem arborcous; leaves oblong-lanceolate; panicles smooth, nodding. The common Arbutus rises to the height of twenty or thirty feet, and forms a great ornament, both with its flowers and fruit, when other trees are past their beauty.—Native of the south of Europe, Greece, and Palestine; and grows in the west of Ireland, near the lake of Killarney, on barren limestone rocks.—The best way of propagating them is from

seed. Gather the fruit when perfectly ripe, which is from the middle of November till the end of December, and mix it with dry sand, to preserve it until the time of sowing. The surest way of raising the plant, is to sow the seed in pots in December, plunging them into an old bed of tanner's bark which has lost its heat, and covering the bed with glasses. If the seeds be good, the plants will come up in the beginning of April, and must be often, but sparingly watered, and kept free from weeds. During the first summer shade them from the heat of the day, and in the beginning of October transplant them singly into small pots filled with light earth. When they are two or three feet high, in April following, shake them out of the pots, and replant them, with balls of earth about their roots, into the open ground where they are to remain. This tree delights in a moist soil, seldom producing much fruit in a dry ground.

2. Arbutus Laurifolia; *Laurel-leaved Strawberry Tree.* Stem arborescent; leaves oblong, acuminate at both ends, sharply serrate, smooth; racemes axillary, one-ranked, sessile, solitary.—Native of North America.

3. Arbutus Andrachne; *Oriental Strawberry Tree.* Stem arboreous; leaves oval, quite entire, and serrate; panicles pubescent, erect. A middle-sized tree.—Common in Crete, and between Aleppo and Antioch.

4. Arbutus Ferruginea; *Long-flowered Strawberry Tree.* Stem arborescent; leaves oblong, obtuse, smooth, quite entire; racemes terminal.—Found in America.

5. Arbutus Mucronata; *Pointed-leaved Strawberry Tree.* Stem shrubby; leaves alternate, ovate, serrate, pointed; peduncles axillary, one-flowered.—This is a very stiff shrub; found in Terra del Fuego.

6. Arbutus Pumila; *Dwarf Strawberry Tree.* Stems diffused; leaves alternate, distich, oblong, quite entire; flowers lateral, solitary.—A low shrub with nodding flowers; a native of Terra del Fuego.

7. Arbutus Acadiensis; *Acadian Strawberry Tree.* Stems procumbent; leaves ovate, subserrate; flowers scattered; berries many-seeded.—It never produces fruit in England; but grows naturally upon swampy land in Acadia, and other northern parts of America.

8. Arbutus Alpina; *Black-berried Alpine Arbutus.* Stems procumbent; leaves rugose, serrate.—This is a very common plant in Sweden, Denmark, Switzerland, Dauphiny, Savoy, Siberia, and many of the Highlands of Scotland; flowering in May, in a dry barren soil.

9. Arbutus Uva Ursi; *Berry-bearing* or *Trailing Arbutus.* Stems procumbent; leaves quite entire. This shrub abounds in most parts of the continent, and in heathy, mountainous, and rocky places, throughout the Highlands; also, near Hexham, in Northumberland.—The leaves have been greatly celebrated as a remedy in stony and gravelly complaints. The dose is half a drachm of the powder of the leaves, every morning, or twice or thrice daily. De Haen relates, after great experience of this medicine in the hospital of Vienna, that suppurations, though obstinate and of long continuance, in the kidneys, ureter, bladder, urethra, scrotum, and perinæum, where there was no venereal taint, nor marks of calculi, were in general completely cured by it; that even of those who had a manifest calculus, several found permanent relief, so that long after the medicine had been left off, they continued free from pain or inconvenience in making water, though the catheter shewed that the calculus still remained: that others, who seemed to be cured, relapsed on leaving off the medicine, and were several times successively relieved by again repeating its use; while others obtained from it only temporary and precarious relief, the complaints being often as severe during the operation of the medicine as when it was not used. The trials made of it in this country have not answered the general expectation. Some have had their complaints entirely removed, others have thought them aggravated by it. But though it frequently fails of performing a cure in those dreadful maladies, stone, gravel, &c. it many times alleviates the symptoms, and procures intervals of ease when all other means are ineffectual; which is a matter of no small moment, and certainly entitles it to some notice. It is probably not superior upon the whole to other vegetable astringents, some of which have long been successfully used by the country people in gravelly complaints, although they are not noticed by medical practitioners. Whatever may be the ultimate decision as to its medical qualities, the whole plant is certainly very serviceable in dyeing an ash-colour, but particularly in tanning leather. In this view it well deserves attention in those countries, the Highlands and Western Islands of Scotland for instance, where whole mountains are covered with this trailing shrub. The berries, which are red, and of the size of those of the Holly, are food for grouse and other game.

10. Arbutus Thymifolia; *Thyme-leaved Arbutus.* Stems procumbent; leaves oval, acute, obscurely serrate, strigose underneath; flowers axillary, eight stamined.—Very abundant in the swamps of North America; where the berries are used for tarts and other kinds of pastry, for which purpose the London confectioners import and employ them; but they are inferior to cranberries of our own growth.

Arbutus, Trailing. See *Epigæa.*

Archangel. See *Lamium.*

Archangel, Baum-leaved. See *Melittis.*

Archangel, Yellow. See *Galeopsis.*

Arctium; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common globular, imbricate; scales lanceolate, ending in long subulate prickles, reflex and toothed at the end. *Corolla:* compound tubular, uniform; corollules hermaphrodite, equal; proper monopetalous, tubular; tube slender, very long; limb ovate, quinquefid; divisions linear, equal. *Stamina:* filamenta five, capillary, short; anthera cylindric, tubular, the length of the corolla, five-toothed. *Pistil:* germen oblong, with a villose top; style filiform, longer than the stamina; stigma bifid, reflex. *Pericarp:* none. *Calix:* converging. *Seeds:* solitary, vertically pyramidal, with the two opposite angles obliterated, gibbous on the outside; down simple, shorter than the seed. *Receptacle:* chaffy, flat; chaffs setaceous. Essential Character. *Calix:* globular; the scales furnished at the end with inflected hooks.—These plants are readily increased by seeds, but will not flower till the second year, and the roots decay when the seeds are perfected.——The species are,

1. Arctium Lappa; *Common Burdock, Burr,* or *Clotburr.* Leaves alternate, large, rough, undulated; root biennial; stem three feet high; corolla purple, with a white tube.—It is very common by road-sides, on rubbish, and ditch-banks, throughout Europe, flowering in July and August; it also abounds in Japan. In England, few animals except the ass will touch it; birds feed upon the seeds; and snails, slugs, and some sorts of caterpillars, on the leaves. The stems are eatable, if stripped of their rind before the flowers appear, either boiled or raw, with oil and vinegar. Some excellent physicians think a decoction of the root equal if not superior to that of Sarsaparilla. Two ounces of the dried root are boiled in three pints of water till one pint is wasted, and a pint or more of this liquid is taken warm every day. A strong infusion of the root operates powerfully by urine, and is good in the jaundice and dropsy. The decoction above mentioned is also serviceable in the gravel, stone in the kidneys, and blad-

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 85.

AMARYLLIS REGINÆ. — *Mexican Lily.*

P. 117.

ARCTOTIS GRANDIFLORA.

Published by Henry Fisher. Caxton, London, 1823

der, and venereal disorders; also for consumptive and asthmatical habits. The roots are said to be sudorific, and useful in fevers; but its virtue in operating by urine is its greatest value. The herb being burnt green between the time of flowering and seeding, in a hole made in the ground, without suffering the flame to escape, three pounds of the ashes produced sixteen ounces of very white alkaline salt, as good as the best potash.—There are many varieties of this common plant, differing in colour, and size, and smoothness or woolliness of the heads; the most remarkable of which is the Woolly-headed Burdock, which differs only in having the leaves whiter beneath, the heads more compact, and the florets of a bright red colour, but principally in having the calix all over beautifully netted with a fine down.

2. Arctium Personata: *Cut-leaved Burdock.* Leaves decurrent, ciliate, spiny; root-leaves pinnate; stem-leaves oblong-ovate. Root biennial, black, woody.—Flowers in July and August; native of Switzerland, Austria, Silesia, and Siberia.

3. Arctium Carduelis. Leaves pinnatifid, prickly; stem upright, prickly, grooved; root perennial.—Found in the mountains of Upper Carniola and Silesia.

Arctopus; a genus of the class Polygamia, order Dicœcia.—Generic Character. *Male. Calix:* umbel universal long, unequal; partial shorter, more abundant; involucre universal five-leaved, short; partial five-leaved, the length of the umbellule; perianth five-parted, very small. *Corolla:* universal uniform; proper petals five, entire, oblong. *Stamina:* filamenta five, setaceous, longer than the corolla; antheræ simple. *Pistil:* germen none; styles two, setaceous, longer than the stamina; stigmas simple. *Pericarp:* abortive. *Female,* (or *androgynous,*) on a distinct plant. *Calix:* umbel partial with sessile floscules; involucre partial one-leafed, four-parted, spreading, spiny at the edge, many-flowered, very large. *Corolla:* proper of the disk male, several, as in the male; of the ray female, four, pentapetalous. *Stamina:* to the males of the disk, as in the male. *Pistil:* to the females, germen subulate, hispid, under the receptacle of the floscule; styles two, reflex, permanent; stigmas simple. *Pericarp:* none; involucre converging with spines. *Seeds:* to the females solitary, cordate, acuminate, bent outward, hispid above, bilocular, the size of the involucre. Essential Character. *Male:* umbel compound; involucre five-leaved; corolla five-petalled; stamina five; pistil two, abortive. *Female,* or *androgynous:* umbel simple; involucre four-parted, spiny, very large, containing very many male floscules in the disk, and four female ones in the ray. *Male:* petals five; stamina five. *Female:* petals five; styles two; seed one, bilocular, inferior.——The onl species known is,

1. Arctopus Echinatus; *Prickly-leaved Arctopus.* A handsome plant; with the leaves crowded, sinuate and ciliate, with spines on the upper surface; flowers terminating among the leaves.—Native of the Cape.

Arctotis; a genus of the class Syngenesia, order Polygamia Necessaria.—Generic Character. *Calix:* common roundish, imbricate; lower scales more lax, subulate; middle ovate; inmost oblong, scariose, rounded, and concave at the end. *Corolla:* compound radiate; corollules hermaphrodite, very many, in the disk; females ligulate, near twenty, longer than the diameter of the disk; proper of the hermaphrodites funnel-shaped; border quinquefid; ends reflex, equal; of the females ligulate, lanceolate, very finely three-toothed; tube very short. *Stamina:* of the hermaphrodites; filamenta five, capillary, short; anthera cylindric, tubular, five toothed, length of the corolla. *Pistil:* of the hermaphrodites; germ scarcely visible; style cylindric, a little longer than the corolla; stigma simple: of the females, germ ovate, four-cornered, villose, crowned with its proper calicle; style filiform; stigmas ovate, oblong, thickish, erect. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites, none; in the females solitary, roundish, villose, crowned with a calicle, usually of five leaves; leaflets ovate, spreading. *Receptacle:* villose or chaffy, flattish. Essential Character. Receptacle villose or chaffy; down with a five-leaved crown; calix imbricate, with scales scariose at the end.—All the plants of this genus are natives of the Cape of Good Hope; the annual sorts may be raised from seed sown in a warm border of light earth in the middle of April: the shrubby sorts may be propagated by cuttings or slips from the roots in any of the summer months; and in six weeks will be rooted sufficiently to be transplanted into pots filled with fresh earth. Some of them require to be sheltered in the green-house during winter.

* *Receptacles villose.*

1. Arctotis Calendulacea; *Marygold-flowered Arctotis.* Radiant florets barren; leaves runcinate, rather tomentose. Annual. There are several varieties of this species, all natives of the Cape of Good Hope.

2. Arctotis Serrata. Radiant florets barren; leaves lanceolate, undivided, tooth-serrate; corolla yellow.

3. Arctotis Tenuifolia. Radiant florets barren; leaves linear, undivided, naked. Perennial.

4. Arctotis Grandiflora; *Great-flowered Arctotis.* Radiant florets fertile; leaves pinnatifid, toothletted, cobwebbed, three-nerved; petals straw-coloured, with a tinge of red underneath. Biennial; flowering from March to May.

5. Arctotis Plantaginea; *Plantain-leaved Arctotis.* Radiant florets fertile; leave lanceolate-ovate, nerved, toothletted, stem-clasping. Perennial.

6. Arctotis Argentea; *Silvery Arctotis.* Radiant florets fertile; leaves lanceolate-linear, quite entire, tomentose. A biennial plant, with yellow flowers.

7. Arctotis Angustifolia. Leaves oblong, toothed. There is a variety with the stem creeping, cobweb-like; leaves lyrate, with two teeth on each side: the whole plant white.

8. Arctotis Aspera. *Rough Arctotis.* Radiant florets fertile; leaves pinnate-sinuate; villose; divisions oblong, toothed, stem stiff, villose, with purple streaks: perennial.—There are several varieties of this species.

** *Receptacle chaffy.*

9. Arctotis Paradoxa; *Chamomile-leaved Arctotis.* Radiant florets barren; chaffs coloured, longer than the disk; leaves bipinnate, linear; chaffs elongate, coloured, almost the length of the ray, whence the flower appears double.

10. Arctotis Scariosa; *Southernwood-leaved Arctotis.* Radiant florets barren; chaffs equalling the florets of the disk; leaves decompound; stem shrubby.

11. Arctotis Paleacea; *Chaffy Arctotis.* Radiant florets barren; chaffs equalling the florets of the disk; leaves pinnate linear; corolla yellow. Flowers from April to August.

12. Arctotis Dentata; *Fine-leaved Arctotis.* Radiant florets barren; leaves pinnate; pinnas pinnatifid, indented; flowers small; ray purple. An annual, flowering in July.

13. Arctotis Anthemoides. Chaffs shorter than the florets; leaves supra decompound, linear. Very like Chamomile.

14. Arctotis Tenuifolia. Radiant florets barren; leaves linear, undivided, smooth; corolla yellow.

15. Arctotis Acaulis; *Dwarf Arctotis.* Peduncles radical; leaves lyrate. A low plant, with large yellow flowers.

Ardisia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft; clefts subulate, upright, coloured, permanent.

Corolla: one-petalled; tube short, length of the calix; border five-parted; parts lanceolate, acute, spreading, at length reflex. *Stamina:* filamenta five, subulate, upright; anthera acute, upright, bifid at the base, converging at top round the style. *Pistil:* germen superior, ovate, very small; style subulate, longer than the stamina, upright, at length ascending; stigma simple, acute, permanent. *Pericarp:* berry roundish, large. *Seed:* single, roundish, covered with a hard brittle bark, like a nut. ESSENTIAL CHARACTER. *Calix:* five-cleft. *Corolla:* one-petalled, five-parted, reflex. *Stigma:* simple. *Berry:* roundish, one-seeded.——The species are,

1. Ardisia Excelsa; *Laurel-leaved Ardisia* or *Aderno.* Racemes axillary, simple; leaves obovate, cartilaginous, serrate at the edge.—Native of Madeira.

2. Ardisia Zeylanica. Flowers terminating, panicled; leaves ovate, subpetioled, quite entire; stem arboreous.—Native of Ceylon, where the berries, which are esteemed cooling and refreshing, are given in ardent fevers.

3. Ardisia Tinifolia. Flowers panicled; leaves elliptic, entire, nerved; stem arboreous; flowers purplish.—A tree thirty feet high, and a native of Jamaica.

4. Ardisia Coriacea. Flowers panicled; leaves oblong, entire, veinless, coriaceous.—Native of the West Indies.

5. Ardisia Serrulata. Flowers panicled; leaves ovate, lanceolate, acuminate, wrinkled; stem shrubby, pubescent.—Native of St. Domingo.

6. Ardisia Lateriflora. Racemes lateral or axillary, compound; flowers umbelled; leaves oblong, acuminate, quite entire; stem shrubby.—Grows in the West Indies.

7. Ardisia Parasitica. Racemes axillary, simple; leaves sessile, lanceolate-ovate, marked with lines; stem shrubby.—Native of Montserrat.

Arduina; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth five-parted, erect, acute, small, permanent. *Corolla:* one-petalled, funnel-shaped; tube cylindrical, a little curved inwards at top; border five-parted, acute, spreading. *Stamina:* filamenta five, simple, shorter than the tube, and inserted into the lower part of it; anthera oblong, within the throat of the corolla. *Pistil:* germen superior, ovate; style filiform, the length of the tube; stigma bifid, thickish. *Pericarp:* herry globular-oval, two-celled. *Seeds:* solitary, oblong, hard. ESSENTIAL CHARACTER. *Corolla:* one-petalled. *Stigma:* bifid. *Berry:* two-celled. *Seeds:* solitary.——Only one species is known, viz.

1. Arduina Bispinosa; *Two-spined Arduina.* A low shrubby plant, seldom rising more than five feet high. The flowers are small, white, and have an agreeable smell, but seldom come to seed in England.—Native of the Cape of Good Hope. It may be increased by cuttings planted in July, and shaded from the sun, and must be preserved in the green-house during autumn and winter.

Areca; a genus of the class Monœcia, order Enneandria; ranking in the natural order of Palms.—GENERIC CHARACTER. *Male Flowers. Calix:* spathe bivalve; spadix branched. Proper perianth three-leaved. *Corolla:* petals three, acuminate, rigid. *Stamina:* filamenta nine, the three outer longer than the rest. *Female Flowers:* in the same spadix. *Calix:* spathe common with the males. Proper perianth three-leaved. *Corolla:* petals three, acuminate, rigid. *Pericarp:* berry subovate, fibrose, surrounded at the base with the imbricate calix. *Seed:* ovate. ESSENTIAL CHARACTER. *Corolla:* three-petalled. *Male:* nine stamina. *Female:* a drupe, with an imbricate calix.—For the propagation and culture, see *Palms.*——The species are,

1. Areca Catechu. Fronds pinnate; leaflets folded back, opposite, end-bitten.—This Palm is forty or fifty feet high, the trunk six or eight inches in diameter. The fruit does not fall off even when ripe. The Indians call it *Chotool,* and present it to all their guests green when it can be procured, and stripped of the outer rind, but otherwise dried. They are continually chewing it, and swallowing their saliva tinctured with the juice; which is esteemed to be an excellent antiscorbutic for the gums, and a strengthener of the stomach and appetite. It is also used in constipations of the bowels, and in worm cases. A decoction of the nuts is employed in dyeing, and is supposed both to set and enliven the colours.—A native of the East Indies and of Cochin-china.

2. Areca Oryzæformis. Fronds pinnate; leaflets smooth, three-nerved. A straight slender Palm, ten feet high, and only an inch and half in diameter; fruit smaller than the preceding.—Native of Cochin-china, Amboyna, &c.

Areca Oleracea; *Cabbage Tree.* Leaflets quite entire.—This is the loftiest of the American Palms. The West Indians cut off the green top of the trunk, take out the white heart of two or three inches in diameter, consisting of the leaves closely folded together, and eat it raw with pepper and salt, or fried with butter; it has somewhat the taste of an artichoke. The best cabbage is obtained when the tree is young. The outward part of the tree is used for lathing, and boards for outhouses; the seeds serve to feed the wild hogs in the season; and the spathes are frequently made into mats by the negroes.—The Barbadoes Cabbage-tree, says Browne, is the most beautiful tree I have ever seen: it grows to a very considerable size, and may be esteemed the queen of the woods.

Arenaria; a genus of the class Decandria, order Trigynia.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets oblong, acuminate, spreading, permanent. *Corolla:* petals five, ovate, entire. *Stamina:* filamenta ten, subulate, five alternately interior; antheræ roundish. *Pistil:* germen ovate; styles from erect reflex; stigmas thickish. *Pericarp:* capsule ovate, covered, one-celled, three or six valved. *Seeds:* very many, kidney-shaped. ESSENTIAL CHARACTER. *Calix:* five-leaved, expanding. *Petals:* five, entire. *Capsule:* one-celled, many-seeded.——The species are,

1. Arenaria Peploides; *Sea Sandwort,* or *Chickweed.* Leaves ovate-acute, fleshy; root creeping, perennial.—Common on sandy coasts in the north of Europe; as, near Sheerness in Kent, Yarmouth in Norfolk; Southwold in Suffolk, and Leith in Scotland: it flowers in June and July.

2. Arenaria Tetraquetra; *Square Sandwort.* Leaves pointed, recurved; flowers aggregate, they are white, and grow five or six together.—Native of the Pyrenean and Arragon mountains; flowering in July or August.

3. Arenaria Biflora; *Two-flowered Sandwort.* Leaves obovate, obtuse; stems procumbent; peduncles two-flowered, lateral.—Native of the high Alps of Savoy and Switzerland.

4. Arenaria Lateriflora; *Side-flowering Sandwort.* Leaves ovate, obtuse; peduncles lateral, two-flowered.—Discovered in Siberia.

5. Arenaria Trinervia; *Plaintain-leaved Chickweed* or *Sandwort.* Leaves ovate, acute; petiolate-nerved.—This species has an annual root; and is not very common, growing only in and about woods, and flowering in May and June.

6. Arenaria Ciliata; *Ciliate Sandwort.* Leaves ovate, nerved, ciliate, acute. Biennial; flowering from March till August.—Found upon Mount Cenis, and in the turf of the mountains of Dauphiny, and by Sir Joseph Banks in Iceland.

7. Arenaria Balearica; *Majorca Sandwort.* Leaves ovate, shining, rather fleshy; stem creeping; peduncles one-flowered: perennial.—Native of Majorca and Minorca.

8. Arenaria Multicaulis; *Many-stalked Sandwort.* Leaves

ovate, nerveless, sessile, acute; corollas larger than the calix. —Native of the Swiss and Pyrenean mountains.

9. Arenaria Serpyllifolia; *Least Chickweed,* or *Thyme-leaved Sandwort.* Leaves ovate, subsessile, rough; calix hirsute, five-nerved; flowers small, white.—An annual plant, common upon walls, among rubbish, and in dry barren places, not only in Europe, but Japan; flowers from May to August.

10. Arenaria Triflora; *Three-flowered Sandwort.* Leaves lance-subulate, ciliate; branches mostly three-flowered; petals marked with lines, obtuse: perennial.—Found upon rocks in the south of Europe.

11. Arenaria Montana; *Mountain Sandwort.* Leaves linear-lanceolate, rugged; stems barren, very long, procumbent.—Native of Spain, and the south of France.

12. Arenaria Rubra; *Purple Spurrey,* or *Sandwort.* Leaves filiform; stipules membraneous, sheathing. There is a variety called Sea Spurrey, with linear leaves, the length of the internodes. Corolla purple, appearing in June and July, and frequently continuing till September. Annual.—Sheep and goats dislike this plant.

13. Arenaria Media; *Middle* or *Downy Sandwort.* Leaves linear, fleshy; stipules membranous; stems pubescent. The flower, which appears in June and July, is purple, and open at noon.—It is found plentifully on the shell-coast of the isle of Shepey, and is also a native of Germany and France.

14. Arenaria Bavarica; *Bavarian Sandwort.* Leaves semicylindric, fleshy, obtuse; petals lanceolate; peduncles terminal, mostly binate: perennial.—Native of Bavaria, Monte Baldo, and Little St. Bernard.

15. Arenaria Gypsophiloides. Leaves linear, short; radical ones bristly; panicle subpubescent; petals lanceolate: perennial.—Native of the Levant.

16. Arenaria Saxatilis; *Rock Sandwort.* Leaves subulate; stems panicled; leaflets of the calix ovate, obtuse; petals white: perennial.—Native of France, Germany, Switzerland, Carniola, and Siberia.

17. Arenaria Verna; *Vernal Mountain Sandwort* or *Chickweed.* Leaves subulate; stems panicled; calices pointed, striated. Petals oval, and white: it flowers from May till August.—Found upon mountains in Daupbiny, Savoy, Austria, and Great Britain, as, near the Land's End in Cornwall, about Kendal, Settle, and Matlock; at Arthur's seat near Edinburgh; near Holywell, St. Asaph, and Llanberys, in Wales.

18. Arenaria Hispida; *Hispid Sandwort.* Leaves subulate, hispid underneath.—Native of Montpellier.

19. Arenaria Juniperina; *Juniper Sandwort.* Leaves subulate, thorny; stems erect; calices striated; capsules oblong; root perennial.—Native place unknown.

20. Arenaria Tenuifolia; *Fine-leaved Chickweed* or *Sandwort.* Leaves subulate, acute; stem panicled; capsules erect. Flowers small, white; petals shorter than the calix, and lanceolate; root annual.—Native of almost every country in the north of Europe; it is found in England upon Gog-magog Hills, and the borders of Triplow heath in Cambridgeshire; near Bury; near Cley in Norfolk; Cornbury quarry, near Charlbury in Oxfordshire; Malvern hill in Worcestershire; and at Battersea and Deptford, flowering in June and July.

21. Arenaria Laricifolia; *Larch-leaved Sandwort.* Leaves bristly; stem nakedish above; calices rather shaggy. Root perennial.—It flowers in July and August; and is a native of France, Switzerland, Savoy, Piedmont, and Westmoreland.

22. Arenaria Striata; *Striated Sandwort.* Leaves linear, erect, pressed to the stem; calices oblong, striated.—It flowers from July to August; and is a native of Switzerland.

23. Arenaria Fasciculata; *Cluster-flowering Sandwort.* Leaves subulate; stem erect, stiff; flowers fascicled; petals very short, white; root annual.—It flowers in August, and is a native of the south of France, the alps of Piedmont, &c.

24. Arenaria Grandiflora; *Great-flowered Sandwort.* Leaves subulate, flat, stiff; the radical ones crowded; stems one-flowered; root perennial.—Native of the south of France, near Geneva, Mont Cenis, the Vaudois, Carniola, &c.

25. Arenaria Austriaca; *Austrian Sandwort.* Stems under-shrubby, prostrate, then herbaceous, and erect; leaves subulate; flowers twin: petals emarginate: perennial.—Native of the mountains of Austria, Switzerland, and Piedmont.

26. Arenaria Liniflora; *Flax-flowered Sandwort.* Stems erect, branching below, and under-shrubby; leaves subulate; flowers twin: perennial.—Native of the south of Europe.

27. Arenaria Recurva. Radical leaves heaped, recurved subulate; stem simple, bearing about three flowers. Root biennial.—Native of Provence, and of rocky pastures in the high Alps of the Vaudois in Piedmont; also of the high mountains of Switzerland.

28. Arenaria Obtusa. Leaves linear, flat, obtuse; calices viscid: perennial.—Native of the high Swiss alps, &c.

29. Arenaria Lanceolata. Leaves lanceolate, three-nerved, acute; calices lanceolate, three-nerved; root perennial, dark-coloured, tough, with a very few fibres, creeping.

30. Arenaria Dianthoides. Leaves linear, scabrous at the edge; flowers capitated; bractes ventricose, longer than the peduncles. Perennial.—Found by Tournefort in Armenia.

31. Arenaria Cucubaloides. Leaves linear, scabrous at the edge; panicles dichotomous, pubescent; petals obovate. Root perennial.—Found by Tournefort in Armenia.

Arethusa; a genus of the class Gynandria, order Diandria. —Generic Character. *Calix:* spathe leafy; perianth none. *Corolla:* ringent; petals five, oblong, subequal, two outer, all converging into a helmet; nectary one-leafed, tubular at the base, within the bottom of the corolla two-parted; lower lip reflex, broad, wrinkled, the length of the petals, hanging down forwards; upper lip linear, very tender, fastened to the style, lobed at the top. *Stamina:* filamenta two, very short, sitting on the top of the pistil; anthera ovate, compressed, covered with the folding of the inner lip of the nectary. *Pistil:* germen oblong, inferior; style oblong, incurved, clothed with the inner lip of the nectary; stigma funnel-shaped. *Pericarp:* capsule oblong-ovate, one-celled, three-valved, gaping at the angles. *Seeds:* numerous, chaffy. Essential Character. Nectary tubular, within the bottom of the corolla; the lower lip fastened to the style.—The first three are hardy, and will endure the rigour of our climate; the next three must be kept in the Cape-stove, and the last in the bark-stove. They grow in bogs and watery places. ——The species are,

1. Arethusa Bulbosa; *Bulbous-rooted Arethusa.* Root globose; scape sheathed; spathe two-leaved.—This and the two next species are natives of bogs in North America.

2. Arethusa Ophioglossoides; *Adder's Tongue-leaved Arethusa.* Root fibrous; leaf of the scape oval, spathaceous; leaflet lanceolate.

3. Arethusa Divaricata; *Lily-leaved, Heleborine* or *Arethusa.* Root subpalmate; leaf of the cape and leaflet of the spathe lanceolate; the outer petals rising.

4. Arethusa Capensis; *Cape Arethusa.* Bulb round; stem two-leaved, simple, one-flowered; leaves two, alternate, sheathing, awl-shaped.—Found at the Cape.

5. Arethusa Villosa; *Villose Arethusa.* Bulb round; leaves ovate, ciliate, pubescent.—Found also at the Cape.

6. Arethusa Ciliaris; *Ciliated Arethusa.* Root fleshy; leaf kidney-shaped, orbiculate; lip ciliate. Also a native of the Cape.

7. Arethusa Biplumata; *Two-feathered Arethusa.* Scape sheathed; spathe cowled; flower terminal, erect, purple; the two lower petals elongated, bearded on the upper side; roots fascicled, or in bundles.—Found at Buenos Ayres.

Aretia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, semiquinquefid, bluntish, permanent. *Corolla:* monopetalous, salver-shaped; tube ovate, the length of the calix, contracted at the neck; limb five-parted; divisions obovate. *Stamina:* filamenta five, conic, in the middle of the tube very short; antheræ erect, sharpish, within the throat of the corolla. *Pistil:* germen roundish; style filiform, the length of the tube; stigma flat-headed. *Pericarp:* capsule one-celled, five-valved. *Seeds:* five. Essential Character. *Corolla:* salver-shaped, five-cleft; tube ovate; stigma flat-headed. *Capsule:* one-celled, globular, with about five seeds.—These little Alpine plants are rather difficult to preserve in gardens; they require a shady situation, where the seeds should be sown as soon as ever they can be procured. They may be also propagated from offsets or slips, and by parting the roots.——The species are,

1. Aretia Helvetica; *Imbricated Aretia.* Leaves imbricate; flowers subsessile. Root perennial, corolla white.—Native of the western Swiss Alps, and of Dauphiny.

2. Aretia Alpina; *Linear-leaved Aretia.* Leaves linear, spreading; flowers pedunculated.—Found in various parts of Switzerland, and in Austria. There are besides two varieties of this species: the first has white flowers with a purple eye; and the second forms beautiful tufts of red flowers, which grow upon Mount St. Bernard, at the height of almost *ten miles* above the level of the sea!

3. Aretia Vitaliana; *Grass-leaved Aretia.* Leaves linear, recurved; flowers subsessile. A small plant, always lying on the ground; flowers of a deep yellow.—Native of the Pyrenees, and high Alps between the Valais and Italy, and in Dauphiny.

Argemone; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth three-leaved, roundish; leaflets roundish with a point, concave caducous. *Corolla:* petals six, roundish, from erect spreading, larger than the calix. *Stamina:* filamenta numerous, filiform, the length of the calix; antheræ oblong, erect. *Pistil:* germen ovate, five-angled; style none; stigma thickish, obtuse, reflex, quinquefid, permanent. *Pericarp:* capsule ovate, five-angled, one-celled, half-valved. *Seeds:* numerous, very small. *Receptacles:* linear, fastened to the angles of the pericarp, not gaping. Essential Character. *Corolla:* six-petalled. *Calix:* three-leaved. *Capsule:* half-valved.——The species are,

1. Argemone Mexicana; *Prickly Argemone,* or *Poppy.* Capsules six-valved; leaves spiny.—This is called the *Yellow Thistle* in the West Indies, where it is a troublesome weed in cultivated lands. The whole plant abounds with a milky glutinous juice, which turns to a fine bright yellow in the air, and when reduced to consistence, is not distinguishable from gamboge; and, in very small doses, it is probably equally efficacious for dropsies, jaundice, and cutaneous eruptions. It is reckoned very detersive, and generally used in diseases of the eyes; but the infusion is looked upon as a sudorific and resolutive, which may be most successfully applied. The seeds are said to be a much stronger narcotic than opium. The inhabitants of the sugar colonies think them an excellent remedy in diarrhœas and bloody fluxes; they have a pungent warm taste, but it is not immediately perceived by the palate. They work both by stool and vomit, and have been administered in the dry belly-ach; but we have much better medicines for both these disorders, though this may be successfully given when the parts are relaxed or weakly, or the disorder proceeds from indigestion, which is frequently the case in hot climates.—The seeds must be sown upon a bed of light earth in the spring, where they are to remain. They must be thinned till each is four inches apart from the rest.

2. Argemone Armeniaca. Capsules three-valved.—Discovered in Armenia by Tournefort.

3. Argemone Pyrenaica. Capsules four-valved; stem naked.—Native of the Pyrenees.

Argophyllum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth short, quinquefid; divisions sharp. *Corolla:* petals five, lanceolate, spreading, three times greater than the calix. Nectary five-angled, pyramidal, open at the top, consisting of many converging papillæ, connate at the base. *Stamina:* filamenta five, subulate, inserted into the receptacle; shorter than the nectary; antheræ ovate. *Pistil:* germen turbinate, fastened at the bottom to the calix, flat above; style filiform, the length of the nectary; stigma globular. *Pericarp:* capsule hemispherical, flat above, growing to the calix, three-celled, opening into three parts. *Seeds:* very many, globular, porous. Essential Character. *Capsule:* three-celled. *Nectary:* pyramidal, five-angled, the length of the corolla.——One species only is known, viz.

1. Argophyllum Nitidum. A perennial; found in New Caledonia.

Argythamnia; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male flowers. Calix:* perianth four-leaved; leaflets lanceolate, erect. *Corolla:* petals four, lanceolate-ovate, ciliate on the margin, shorter than the calix; nectary four glands between the petals, roundish, depressed. *Stamina:* filamenta four, longer than the petals approximated at the base, dilated; antheræ simple. *Pistil:* rudiment of a style. *Female flowers,* in the same raceme under the male ones. *Calix:* perianth five-leaved leaflets lanceolate. *Corolla:* none. *Pistil:* germen ovate, somewhat three-cornered; styles three, spreading, half two-cleft; each of the clefts bifid; stigmas lacerate. *Pericarp:* capsule tricoccous, three-celled, six-valved. *Seeds:* solitary, roundish. Essential Character. *Male. Calix:* four-leaved. *Corolla:* four-petalled. *Female. Calix:* five-leaved, *Corolla:* none. *Styles:* dichotomous. *Capsule:* tricoccous, with solitary seeds.——The only species known is,

1. Argythamnia Candicans.—A shrub seldom rising above five feet high, with long branches, and common upon the lower hills and gravelly soils of Jamaica. The leaves when bruised are very odoriferous.

Aristea; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spathes bivalve. *Corolla:* petals six, oblong, spreading, nearly equal. *Stamina:* filamenta three, filiform, shorter than the petals; antheræ oblong, erect, incumbent. *Pistil:* germen inferior, three-cornered; style filiform, longer than the filamenta, declinate; stigma funnel-form, gaping, fimbriated on the margin, somewhat three-cornered. *Pericarp:* capsule oblong, three-cornered, three-celled, three-valved. *Seeds:* very many. Essential Character. *Petals:* six. *Style:* declinate. *Stigma:* funnel-form, gaping. *Capsule:* inferior, with many seeds.——The only species yet discovered is,

1. Aristea Cyanea; *Grass-leaved Aristea.*—A small fibrous plant, six or eight inches high; native of the Cape.

Aristella. See *Stipa.*

Aristida; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume one-flowered, bivalve; valves linear-subulate, membranaceous, uneoual.

Corolla: glume bivalve, thicker than the calix; outer valve linear, converging longitudinally, hirsute at the base, terminated by three awns, subequal, patulous; inner valve lanceolate, sharp, very short, wrapped within the outer valve; nectary two-leaved; leaflets lanceolate, obtuse. *Stamina:* filamenta capillary; antheræ oblong. *Pistil:* germen turbinate; styles capillary; stigmas villose. *Pericarp:* none; glume converging, involving, gaping. *Seed:* one, filiform, the length of the corolla, naked. ESSENTIAL CHARACTER. *Calix:* two-valved. *Corolla:* one-valved, with three terminal awns.——The species are,

1. Aristida Adscensionis. Panicle branching; spikes scattered; corollas one-valved; culms in tufts.—Native of Jamaica, in dry sands; there called Bearded Grass.

2. Aristida Americana. Panicle simple; corollas two-valved, one with dorsal, the other with terminating awns; culm half a foot high.—Native of Jamaica.

3. Aristida Plumosa. Panicled: the middle awn longest and woolly; culms villose.—Found in America.

4. Aristida Arundinacea. Panicled: corollas two-valved, middle awn longer, smooth; culms four feet high; leaves narrow, even, striated.—It was found in the East Indies.

5. Aristida Gigantea. Panicle elongated, loose, one-ranked; calices one-flowered; awns of the corolla subequal, straight.—A very lofty, branching, and smooth Grass; found upon the island of Teneriffe.

6. Aristida Hystrix. Panicle divaricated, very spreading; flowers quite simple, smooth; awns straight, divaricated.—A creeping, stoloniferous, smooth Grass; observed in Malabar.

Aristolochia; a genus of the class Gynandria, order Hexandria.—GENERIC CHARACTER. *Calix:* none. *Corolla:* monopetalous, tubular, irregular; base swelling, subglobular, torulose; tube oblong, hexagon-cylindric; limb dilated, extended below into a long tongue. *Stamina:* filamenta none; antheræ six, fastened at bottom to the stigmas, four-celled. *Pistil:* germen oblong, inferior, angular; style scarcely any; stigma subglobular, six parted, concave. *Pericarp:* capsule large, six-angled, six-celled. *Seeds:* several, depressed, incumbent. ESSENTIAL CHARACTER. Stigmas six. *Calix:* none. *Corolla:* monopetalous, tongue-shaped, entire. *Capsule:* six-celled, inferior.—All the plants of this genus, that are natives of hot climates, are propagated by seed procured from their native countries; sown in small pots of light earth, as soon as they arrive, and, if it be autumn or winter, they must be plunged into the tan of the bark-stove between some large plants, to screen them from the sun, as they delight in shade. In March they must be removed into a hot-bed frame, where the plants will appear in May.——The species are,

1. Aristolochia Bilobata; *Two-lobed Birthwort.* Leaves two-lobed, cordate; stem twining, filiform, subdivided.—It flowers from November until January, and covers the trees and shrubs in Dominica and Hispaniola.

2. Aristolochia Trilobata: *Three-lobed Birthwort.* Leaves three-lobed; stem twining; flowers very large, bagged at the base; tongue linear, very long.—A climbing plant, with an aromatic stem.—The roots of this and the tenth species are accounted warm attenuants, and active diuretics and stomachics; they are administered in infusions, and greatly used among the slaves of Jamaica, where they naturally grow. This species abounds most on the north side of the island, and is therefore called *Contrayerva of the North-side.* It is also a native of the South American continent.

3. Aristolochia Pentandra; *Five-stamined Birthwort.* Leaves cordate, hastate, subtrilobate; stem twining; bracte cordate, embracing.—Native of America.

4. Aristolochia Peltata; *Peltated Birthwort.* Leaves kidney-shaped, subpeltate; stem twining, filiform, striated; root woody, corky, perennial.—It flowers in February and March, and is a native of St. Domingo, in very dry coppices and also of the continent of South America.

5. Aristolochia Maxima; *Greatest Birthwort.* Leaves oblong, acuminate; stem twining; peduncles many-flowered; flowers curved, in loose clusters; stem corky next the root.—Found near Carthagena in New Spain.

6. Aristolochia Bilabiata; *Two-lipped Birthwort.* Leaves cordate, tongue-shaped, obtuse; stem twining; corollas two-lipped, brown-purple, striated.—Flowers in spring, and is found upon a calcareous soil, in the hedges of Hispaniola; it is also a native of South America.

7. Aristolochia Erecta; *Upright Birthwort.* Leaves lanceolate, sessile, subhirsute; stem erect; peduncles solitary, one-flowered; flowers very long, dark purple; rises three feet high.—It was discovered at La Vera Crùz, in New Spain.

8. Aristolochia Arborescens; *Tree Birthwort.* Leaves cordate, lanceolate; stem erect, shrubby; flowers solitary, axillary.—Called *Snakeroot* in North America, where it naturally grows to the height of two feet.

9. Aristolochia Caudata; *Tailed Birthwort.* Leaves cordate, obtuse, emarginate at the tip; lobes incumbent, lip-tailed.—Native of America.

10. Aristolochia Odoratissima; *Sweet-scented Birthwort.* Leaves cordate; stem twining, shrubby; peduncles solitary: lip of the corolla very large, yellowish.—It has a long round geniculated root, as thick as a finger; the whole plant has a strong and very grateful smell. In Jamaica, where it naturally grows, it is called *Contrayerva of the South-side,* to distinguish it from the second species; which see.

11. Aristolochia Sipho; *Broad-leaved Birthwort.* Leaves cordate, petioled; flowers solitary; border, trifid, equal; corolla purplish-brown; bracte ovate.—A tall twining shrub, flowering in June and July: a native of North America.

12. Aristolochia Anguicida; *Snake-killing Birthwort.* Leaves cordate, acuminate; stem twining, shrubby; peduncles solitary; stipules cordate; root long, thick, pale coloured; corolla purple.—If the juice of the root, mixed with the saliva, be put into the mouth of a serpent, he may be safely handled, but will recover himself after two hours; several of the other species are said to produce the same effect.—Native of Mexico and the West Indies.

13. Aristolochia Maurorum; *Moorish Birthwort.* Leaves hastate, quite entire; stem weak, simple; flowers solitary, recurved, brown.—This plant has an unpleasant smell: seen in olive-grounds near Aleppo.

14. Aristolochia Indica; *Indian Birthwort.* Leaves cordate, rather acute; stem twining, shrubby; peduncles many-flowered; corolla dusky purple.—A native of the East Indies, and Cochin-china. It is bitter, but has not much smell, and is thought to be an attenuant, and remover of obstructions.

15. Aristolochia Bœtica; *Spanish Birthwort.* Leaves cordate, rather acute; stem twining; peduncles about three, longer than the petioles; root very long, pale-coloured, acrimoniously astringent.—It is an evergreen, flowering in January and February, and a native of Spain.

16. Aristolochia Sempervirens; *Evergreen Birthwort.* Leaves cordate-oblong, acuminate, waved; stem weak; flowers solitary; roots many, slender, odorous.—It flowers in May and June, and is a native of the isle of Candia.

17. Aristolochia Serpentaria; *Virginia Birthwort,* or *Snake-root.* Leaves cordate-oblong, flat; stems weak,

flexuose, round; flowers solitary, blue or purplish; root a congeries of small fibres, of a yellow colour, and aromatic smell and taste.—It is a warm diaphoretic and diuretic; it is reckoned one of the principal alexipharmics, and is in general use in low malignant fevers, and epidemic diseases. It is given in substance from a few grains to a scruple or half a drachm; in decoction or infusion, to a drachm or upwards. A tincture of it is prepared by digesting three ounces in a quart of spirit of wine eight days; and a spiri-alexiterial water, mixed with one-sixth its quantity of distilled water. It is also an ingredient in the compound tincture of bark.—Native of Virginia and Carolina.

18. Aristolochia Pistolochia. Leaves cordate-crenulate, netted underneath, petioled; stems angular, branching, weak; flowers solitary; roots round, numerous.—Native of the south of France, Switzerland, and Spain.

19. Aristolochia Rotunda; *Round-rooted Birthwort.* Leaves cordate, subsessile, obtuse; stem weak; flowers solitary, of a purplish black colour.—This has long tap-roots, shaped like those of Carrots. It is a native of the south of Europe, and of Japan, and flowers at the same time in both, from June through the autumn. The root, which is the only part used, is a rough and disagreeable medicine; it often offends the stomach, but is an excellent drug for promoting the necessary evacuations after delivery. There are two kinds of Birthwort roots kept in the shops; the one called the Long Birthwort, the other the Climbing Birthwort. They possess the same virtues with the Round, but in a less degree, and are therefore less regarded: see species 20 and 22.

20. Aristolochia Longa; *Long-rooted Birthwort.* Leaves cordate, petioled, obtuse; stem weak; flowers pale purple, solitary; fruit ovate.—Native of the south of Europe, and Japan. Meyrick informs us, tht it will sometimes resist the severity of an English winter in the open air, and that it flowers with us at the latter end of summer. He adds, the roots are kept in the shops, and many authors represent them as being of an extremely hot and pungent nature; but such as are commonly met with among druggists, exhibit no very striking qualities of that kind. On first chewing them when dry, scarcely any taste is perceptible; but they soon fill the mouth with a nauseous bitterness, which remains for a long time. As a medicine, they heat, stimulate, cut and attenuate a tough phlegm, and promote the fluid secretions in general; but their principal efficacy consists in removing feminine obstructions, and promoting the necessary evacuations after delivery; from which it is probable the plant received its name. The dose is from a scruple in weight to upwards of a drachm. A decoction of them is recommended to be used externally as a fomentation, for cleansing and healing wounds and ulcers, and in cutaneous disorders. They have likewise been recommended as powerful alterants in gouty complaints; but whoever has been attentive to their effects must have observed, that in some cases they are improper: see the 22d species. Simon Pauli informs us, that the *Long Birthwort* roots, applied as an epithem or fomentation, were found remarkably serviceable in stubborn ulcers of the legs.

21. Aristolochia Hirsuta; *Rough Birthwort.* Leaves cordate, rather obtuse, shaggy; flowers solitary, pendulous, recurved, subtruncate. The whole plant is bitter, the flower scentless: it has been recommended for the gout.—Native of the island of Schio or Chios.

22. Aristolochia Clematitis; *Common Birthwort.* Leaves cordate; stem erect; flowers axillary, crowded, pale yellow.—It has an erect stem, from two to three feet high, simple striated, round, and smooth; and is found all over the continent of Europe. In England, in a wood two miles from Thorndon in Essex; near Maidstone and other places in Kent; near Stuston in Suffolk; and in the hedges at Whittlesford in Cambridgeshire.—The roots have an aromatic smell, and a warm bitterish taste; they are celebrated as warm attenuants and deobstruents, particularly in suppressions of the uterine purgations. The dose is from a scruple to a drachm and upwards. Boerhaave observes, that the pituitous gout, as he calls it, is often relieved by an infusion of these roots in spirit of Juniper berries, sweetened with sugar, and taken to the quantity of a spoonful at a time; but that in other kinds of gout, and in subjects of a tender constitution, this medicine produces loss of appetite, a weakness of the stomach, and a languidness more distressing than the gout itself: a powder composed of this and other similar materials, (prescribed by the ancients as an antiarthritic, and again come into esteem,) has produced complaints of the same kind.

23. Aristolochia Scandens. Leaves cordate, on very long petioles; stem climbing; flowers terminal, on very long peduncles.—This species grows naturally near Tolu in New Spain.

24. Aristolochia Conferta. Leaves cordate, petioled; stem climbing; flowers axillary, crowded, dark purple.—Discovered at Campeachy in New Spain.

25. Aristolochia Bracteata. Leaves cordate, obtuse; stem weak; flowers solitary; bractes cordate, petioled.—Native of the East Indies, where it is used as a medicine.

26. Aristolochia Obtusata. Leaves cordate, rounded at the tip, three-nerved, netted and tomentose beneath; stem twining; peduncle solitary.—Native of the Caribbee Islands.

27. Aristolochia Grandiflora. Leaves broad, cordate; stem twining, subherbaceous; peduncles solitary; tip of the corolla very large, with a very long tail.—It bears very large flowers, seldom under five or six inches round the margin: very common in St. Ann's, Jamaica.

Aristotelia; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five parted; divisions lanceolate, concave, acute, upright. *Corolla:* petals five, wedge-shaped, concave, erect, lying over each other at the sides, scarcely longer than the calix. *Stamina:* filamenta fifteen, very short; anthera linear, shorter than the germen. *Pistil:* germen superior, roundish, rather three-cornered; style filiform, longer than the corolla; stigmas three, recurved. *Pericarp:* berry subglobular, obtusely three-cornered, three-celled. *Seeds:* two, or solitary in each cell, angular. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Berry:* three-celled. *Seeds:* two in each cell.——One species only is known,

1. Aristotelia Macqui: *Shining-leaved Aristotelia.*—A small shrub, native of Chili, where the inhabitants make a wine from the berries, which are slightly acid, and eatable, and given in malignant fevers. Dombey, while in Chili, used it successfully against the plague.—It flowers in April and May, and is hardy enough to bear the open air in general; though severe winters will probably kill it, unless protected by a green-house.

Arnica; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common, imbricate, shorter than the ray of the corolla; leaflets lanceolate, the length of the calix, erect. *Corolla:* compound, radiate. *Corollules:* hermaphrodite in the disk, very numerous. Females in the ray, about twenty. *Proper* of the hermaphrodite, tubular, erect, five-cleft, equal. Female lanceolate, very long, three-toothed, spreading. *Stamina:* to the hermaphrodites, filamenta very short: anthera cylindric: to the females, filamenta subulate, erect; anthera none. *Pistil:* germen oblong; style simple, the length of the stamina; stigma bifid. *Pericarp:* none. *Calix:* unchanged. *Seeds:*

solitary, oblong. *Down:* simple, in the hermaphrodites pubescent, long. *Receptacle:* naked. Essential Character. *Receptacle:* naked. *Down:* simple; corollules of the ray have five filamenta without antheræ.—The European sorts, which are hardy, require a moist shady situation; and may be propagated by parting the roots in autumn, when the stalks begin to decay, or by seeds sown soon after they are ripe in autumn, for those sown in spring often fail; but if the seeds are permitted to scatter, they will appear of themselves, and only require to be kept free from weeds. The other species must be kept in pots under a frame or in a dry-stove; they may be increased by seeds, cuttings, or parting the roots.——The species are,

1. Arnica Montana; *Mountain Arnica.* Leaves ovate, entire; stem-leaves twin, opposite; flowers a deep yellow; root perennial, and aromatic. The whole plant is acrid, and has a strong scent.—The flowers follow the sun; goats are fond of it, but cows refuse to touch it. In Smaland they snuff the powder of the leaves up the nostrils, and smoke them as tobacco. In Germany it is esteemed a specific for resolving coagulated blood, occasioned by falls and bruises, and is recommended in obstinate chronical disorders; but it appears to be too violent in its operation for general use. Dr. Collins, of Vienna, recommends beginning with an infusion of one drachm of the herb in flower, morning and evening, gradually increasing the dose to half an ounce, and keeping the body open. Infused in small beer, and taken as common drink, it is reported to have removed the chronical rheumatism of the loins; and in one or two doses, taken two hours before the fit, to have put a stop to intermittents of long standing. Bergius tried this infusion, and also the powder of the root, in quartan agues, without success. Allioni relates, that the palsy was cured by the flowers, but that his patients could not endure the quantity of the infusion of them which Dr. Collins above recommends; and that he never gave more than three drachms, and divided them into several doses. Villars celebrates the *Arnica* as one of the best remedies of the vegetable kingdom; as eminently diuretic and tonic; as a febrifuge, antiparalytic, and antiarthritic. He says, that all parts of it may be used in infusion or decoction; in a dose of *half a grain*, or, if given in substance, less, especially at the beginning, because it is apt to discourage patients by giving them the heartburn. "How many sick," he exclaims, "have I benefited, and even cured of the dropsy, by this simple remedy!"—It flowers in July in Great Britain, and is a native of most parts of Europe, and of Siberia.

2. Arnica Piloselloides; *Mouse-ear Arnica.* Leaves quite entire, elliptic, villose; scape one-flowered, woolly; calix equalling the ray.—Native of the Cape of Good Hope.

3. Arnica Scorpioides: *Alternate-leaved Arnica.* Leaves alternate, toothed. The roots are contorted, and the whole plant has a strong disagreeable smell, especially in the shade.—Native of Switzerland, Savoy, Dauphiny, and Austria.

4. Arnica Doronicum. Leaves alternate, subserrate, oblong, rough.—Natives of the high Alps of the Grisons, of Dauphiny, Piedmont, and Austria.

5. Arnica Maritima; *Sea Arnica.* Leaves lanceolate, the lower ones serrate; stem leafy, many-flowered.—Native of Kamtschatka and North America.

6. Arnica Crocea; *Saffron-flowered Arnica.* Leaves ovate, repand, toothletted, tomentose underneath; scape one-flowered.—Native of the Cape of Good Hope.

7. Arnica Ciliata; *Ciliate-leaved Arnica.* Leaves stem-clasping, ovate, toothed, ciliate, smooth; stem simple, one-flowered; flower terminating, red, the size of a small pear.—This, and the two following, are natives of Japan.

8. Arnica Japonica; *Japonese Arnica.* Leaves gash-palmated, toothletted; flowers red, terminal, sub-binate.

9. Arnica Palmata; *Palmate-leaved Arnica.* Leaves gash-palmated, toothed; flowers panicled, small, yellow.

10. Arnica Gerbera. Leaves pinnatifid; lobes rounded.—Native of the Cape of Good Hope.

11. Arnica Coronopifolia. Leaves pinnate; divisions linear.—Native of the Cape of Good Hope.

12. Arnica Oporina. Shrubby: leaves lanceolate, callous, crenate, tomentose beneath; peduncles one-flowered, solitary, terminating, scaly.—Native of New Zealand.

Arnotto. See *Bixa.*

Arrow-Head. See *Sagittaria.*

Arrow-headed Grass. See *Triglochin.*

Arrow-Root, Indian. See *Maranta.*

Arsesmart. See *Polygonum.*

Artedia; a genus of the class Pentandria, order Digynia.—Generic Character. Umbel universal, spreading, flat, manifold; partial small, similar; involucre universal, about ten-leaved; leaflets ovate, oblong; three-bristled at the end, nearly the length of the umbel; partial two or three-leaved, vergingoutwards; leaflets linear, pinnate, longer than the umbellule. *Corolla:* universal, difform, radiate; floscules of the disk, abortive; proper of the disk, male; petals five, cordate-inflex, erect; of the ray, hermaphrodite, with similar petals, but the outmost larger. *Stamina:* filamenta five, capillary in all the florets; anthera simple, roundish. *Pistil:* of the ray; germen small inferior; styles reflex; stigmas simple. *Pericarp:* none; fruit roundish, compressed, leafy, scaled on the edge, bipartite. *Seeds:* two, oblong, set about the edge with roundish spreading scales. Essential Character. Involucre pinnatifid; floscules of the disk male; fruit rough, with scales.——The only species known is,

1. Artedia Squamata. An annual plant, and a native of the East, producing a large umbel of white flowers in July. If the seed be sown where they are to remain upon a warm border in autumn, and the plants kept six or eight inches apart, and clear from weeds, they will thrive; but to secure their seeding in England, they should be raised in a hot-bed, and kept in a green-house.

Artemisia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common, roundish, imbricate; scales rounded, converging. *Corolla:* compound; corollula hermaphrodite, tubular, several in the disk; females almost naked in the circumference; proper of the hermaphrodite funnel-shaped; border five-cleft. *Stamina:* in the hermaphrodites; filamenta capillary, very short; anthera cylindric, tubular, five-toothed. *Pistil:* in the hermaphrodites; germen small; style filiform, the length of the stamina; stigma bifid, revolute: females, germen very small; style longer than in the hermaphrodites; stigma similar. *Pericarp:* none. *Calix:* scarcely changed. *Seeds:* solitary, naked. *Receptacle:* flat or villose. Essential Character. *Receptacle:* subvillose, or almost naked. *Down:* none. *Calix:* imbricate, with rounded converging scales. *Corolla:* of the ray none.—Most of the numerous plants of this genus are hardy perennials, and may be increased without much difficulty, by seeds, by parting the roots, and by slips or cuttings.

* *Shrubby, erect.*

1. Artemisia Vermiculata. Leaves acerose, crowded, very small; panicle racemed; flowers sessile.—Native of the Cape of Good Hope: it requires a light soil in a green-house, and may be there increased by slips or cuttings.

2. Artemisia Capillaris. Leaves simple, capillaceous;

flowers white, inodorous, small, appearing in October.—Native of Japan, and cultivated in China and Cochin-chiaa.

3. Artemisia Judaica. Leaves obovate, obtuse, lobed, small; flowers panicled, pedicelled.—Native of Judea, Arabia, Caramania, the Mogul country, and China. The taste is bitter, and the eastern nations use both the leaves and seeds in medicine as tonics, stomachics, and anthelmithics.

4. Artemisia Æthiopica. Leaves palmate, linear, very minute, panicled, racemed; flowers sessile.—Native of Spain and the Cape of Good Hope. This, and the fifth, sixth, and seventh species must be sheltered from frost under a frame during winter. They are easily propagated from cuttings.

5. Artemisia Contorta. Leaves palmate, linear, minute; panicle racemed; flowers sessile.—Found in Persia, see No. 4.

6. Artemisia Abrotanum; *Southernwood.* Leaves setaceous, very branching.—It seldom rises above three or four feet high. *Common Southernwood,* which is merely a variety of this species, is bitter and aromatic, with a very strong smell. It is not much in use, but promises considerable effects, outwardly, in discussing contusions and tumours; inwardly, for destroying worms, and in disorders peculiar to the female sex. It may have great efficacy in catarrhal malignant fevers, by its quality of promoting perspiration, which it possesses in a very high degree. A table-spoonful of the expressed juice may be given, half an ounce of the decoction, or a whole ounce of the infusion of the herb. In the present practice it is seldom used, except as an ingredient in discutient and antiseptic fomentations. A strong decoction of the leaves destroys worms; but it is a very nauseous medicine. The leaves are also esteemed as a good ingredient in fomentations, for easing pain, dispersing swellings, and stopping the progress of gangrenes. The top of the young branches, beaten into a conserve with three times their weight of sugar, are rendered less unpleasant to take, and in this form are good for all nervous disorders, and in all hysteric complaints. Culpeper says, that the distilled water was formerly given for the stone. It is held by all writers, ancient and modern, to be more offensive to the stomach than Wormwood. The branches of it dye wool a deep yellow.

7. Artemisia Arborescens; *Common Narrow-leaved Tree Wormwood.* Leaves tripinnatifid, silky, cinerous; leaflets linear; flower-bearing branchlets simple. The stalk is woody, six or seven feet high. The flowers globular, in spikes, terminating the branches.—Native of Piedmont: see No. 4.

8. Artemisia Argentea; *Broad-leaved Tree Wormwood.* Leaves bipinnatifid, silky, white; leaflets lanceolate-linear; flowers globose; flower-bearing branchlets wandlike.—Native of Madeira.

9. Artemisia Arragoniæ. Leaves linear, bipinnate, hoary; flowers racemed. Scarcely a foot high.

10. Artemisia Messerschmidii. Leaves linear, multifid; racemes erect, slender, loose, tomentose.—Found in Tartary.

11. Artemisia Tatarica. Lower leaves bipinnate; pinnas equal; upper leaves pinnate, linear; racemes erect, loose, many-flowered, tomentose.—Native of Tartary.

12. Artemisia Nitrosa. Lower leaves finely multifid; upper entire, obtuse; corymbs erect, hoary, oblong, spiked, sessile.—Native of Siberia.

13. Artemisia Lerchiana. Lower leaves pinnate, short, finely divided; pinnas palmate: upper leaves linear, undivided; corymbs sessile, very copious, spiked, oblong. A shrubby hoary plant.—Observed in Astracan, and on the Volga.

14. Artemisia Tenella. Leaves short, very finely multifid; panicles slender, loose, leafy; peduncles one or two flowered; stem woolly.—Native of Spain.

15. Artemisia Pauciflora. Branches virgate, filiform: corymbs one-ranked; spikes subsessile.—Native of the banks of the Volga.

16. Artemisia Italica. Leaves tomentose, loosely pinnate; pinnas long, linear; root-leaves dotted; spikes dense; flowers erect.—Native of Italy.

17. Artemisia Hispanica. Leaves loosely pinnate; pinnas long, linear; spikes very dense; calices oblong.—Native of Spain.

18. Artemisia Gmelini. Leaves doubly pinnate, obtuse, linear; corymbs green, roundish, nodding.

19. Artemisia Lobellii. Leaves petiolate palmate; multifid, linear: the upper ones single, angular.—The flowers are of a fine yellow; and the whole plant, which is a native of Piedmont, the Genoese Alps, and Dauphiny, is remarkable for a strong, balsamic, camphorated smell.

** *Procumbent before flowering.*

20. Artemisia Santonica; *Tartarian Southernwood,* or *Wormseed.* Stem-leaves pinnate, multifid; branches undivided; spikes one-ranked, reflex; flowers with five florets.—Native of Tartary: whence the seeds are brought to England, and used in worm cases: they are reckoned a good balsamic, tonic, and stomachic medicine. It will grow with us in a dry soil and sheltered situation. The seed supplied by our druggists is frequently mixed with the unripe flowers; they are an excellent medicine against worms, and are best given in treacle after reducing them to powder. They may be used in all cases where bitters are likely to be serviceable. For persons of delicate palates, they may be powdered and made into boluses.

21. Artemisia Campestris; *Field Southernwood.* Leaves multifid, linear; stems procumbent, wand-like; root fusiform.—It grows at Elvedon or Elden, in Suffolk, between Newmarket and Lynn; also near Barton Mills and Thetford; and in most parts of Europe. It flowers in August, and has the same qualities, in a less degree, as Garden Southernwood. Linneus recommends an infusion of it in the pleurisy.

22. Artemisia Palustris; *Marsh Southernwood.* Leaves linear, pinnate, quite entire; flowers glomerate, subsessile, yellow.—Native of Siberia.

23. Artemisia Crithmifolia; *Samphire-leaved Southernwood.* Leaves compound, divaricate, linear, fleshy, smooth; stem rising, panicled.—Native of the sandy shores of Portugal: flowering from May till August.

24. Artemisia Vallesiaca; *Downy Southernwood.* Leaves pinnate, many-parted, filiform, tomentose; flowers sessile, erect, subcolumnar, having few florets.—Native of Spain, Piedmont, and the Valais. It flowers in July and August; and sheep feed upon it.

25. Artemisia Maritima; *Sea Wormwood.* Leaves many-parted, tomentose; racemes drooping; receptacle naked; female florets three; root woody, perennial.—It has a strong smell of camphor when wild, but it diminishes upon cultivation. It is used as an ingredient in distilled waters. A conserve of the tops is made by beating them with thrice their weight of fine sugar; they are also used in decoctions for fomentations. It is less unpleasant, but not so strong, as Common Wormwood; and though not so valuable as an antiseptic or anthelmintic, is more eligible as a stomachic. The tops fresh gathered, and the whole plant dry, are used. In the shops and markets, it is called the *Roman Wormwood,* see No. 30. all the virtues of which it possesses; but it is more disagreeable than it, and less so than the *Comwon Wormwood,* see No. 34. It is friendly to the stomach, strengthening it, and expelling wind. It is a common ingredient in the bitter infusions and tinctures of the shops; but it answers very well

alone; boiling water poured upon it, and suffered to stand till it is cold, and then strained off, is an excellent medicine to procure an appetite. Put into white wine, it also gives a pleasant bitter flavour, with the same virtues.—It is common about ditches, in salt-marshes, and wherever salt-water comes.

26. Artemisia Glacialis: *Silky Wormwood.* Leaves palmate, multifid, silky; stems ascending; flowers glomerate, level-topped. Flowers in July and August.—Native of Switzerland, the Valais, Austria, Dauphiny, and Piedmont. It may be propagated by the side-shoots, planted in a shady border, during any of the summer months, where it will strike root if watered, and in the autumn may be transplanted where it is intended to remain: see No. 28.

27. Artemisia Rupestris; *Creeping Wormwood.* Leaves pinnate; stems ascending; flowers globose, nodding; receptacle pappose; receptacle hairy.—Native of mountainous situations in most parts of Europe; very hardy, and easily increased by cuttings. See No. 28.

28. Artemisia Spicata; *Spiked Wormwood.* Root-leaves biternate; stem ascending, spiked; flowers erect; leaflets of the calix ovate, dark-coloured, and hence called *Genipi noir.* —Native of the Alps of Switzerland, Austria, Piedmont, and Dauphiny. This and the two preceding species are in great request among the inhabitants of the Alps, for restoring a suppressed perspiration, pains of the sides, and intermittent fevers. They are an useful medicine, where diaphoretics are employed, as in rheumatism, intermittent and catarrhal fevers; but are dangerous in the pleurisy, though they are used indiscriminately by the peasants in all inflammatory disorders.

**** Erect, herbaceous, with compound Leaves.*

29. Artemisia Anethifolia; *Dill-leaved Wormwood.* Leaves multifid, very slenderly divided; corymbs roundish, nodding, one-ranked, loosely spiked.—Native of Siberia.

30. Artemisia Pontica; *Roman Wormwood.* Leaves many-parted, tomentose beneath; flowers roundish, nodding; receptacle naked; root creeping.—The bitterness of this plant is so mixed with a kind of aromatic flavour, as scarcely to be disagreeable; and it appears to be more eligible than either Common or Sea Wormwood, as a stomachic and corroborant; for which purpose, a conserve of the tops has been greatly recommended, and is, undoubtedly, an elegant and useful preparation. It will grow in any moderately moist soil, and may be propagated, by parting its creeping roots, in the middle of October, and planting them two or three feet asunder.—Native of Germany.

31. Artemisia Austriaca; *Austrian Wormwood.* Leaves many-parted, tomentose, hoary; flowers oblong, nodding; receptacles naked; stems upright: annual.—Native of Austria.

32. Artemisia Annua; *Annual Wormwood.* Leaves threefold, pinnate, smooth on both sides; flowers subglobose, nodding; receptacle smooth, conical; stem erect, smooth, streaked. An annual.—Native of Siberia and China: it has a most agreeable scent, which it retains a long time after it has been dried. Loureiro, who introduced it into Portugal, where plants ten feet high have been produced from the seeds, recommends a decoction of the leaves and flowers in hectic fevers, the dysentery, and putrid ulcers.

33. Artemisia Tanacetifolia; *Tansy-leaved Wormwood.* Leaves bipinnate, underneath tomentose, shining; pinnas transverse: racemes simple; root perennial.—This has no perceptible odour; and is a native of very lofty situations in Dauphiny, Piedmont, and Siberia.

34. Artemisia Absinthium; *Common Wormwood.* Leaves compound, multifid, of a silky white; flowers subglobose, pendulous, yellow; receptacle villose.—It flowers from July until October, and is found wild in the rocky places, roadsides, rubbish, and farm-yards, of almost every part of Europe. The leaves and flowers are very bitter; the roots are warm and aromatic. It produces a considerable quantity of essential oil in distillation, sometimes *two ounces* from ten pounds, which is used both externally and internally to destroy worms. The leaves put into sour beer soon destroy the acescency; they also resist putrefaction, and are therefore a principal ingredient in antiseptic fomentations. A weak infusion of them forms a good stomachic; and with the addition of fixed alkaline salt, produced from the burnt plant, is a powerful diuretic in some dropsical cases. The ashes yield a purer alkaline salt than most other vegetables, excepting Bean-stalks, Broom, and the larger trees. Linneus mentions two cases, wherein an essence prepared from this plant, and taken for a considerable time, forbidding the use of wine and acids, prevented the formation of stones in the kidneys or bladder; and though like other bitters, it will weaken the action of the nervous system, in these instances it did not produce that effect. The plant steeped in boiling water, and repeatedly applied to a bruise, will speedily remove the pain, and prevent the swelling and discoloration of the part. An infusion of it given to a nurse makes her milk bitter; and it gives a bitterness to the flesh of sheep that eat it. Wormwood leaves give out nearly the whole of their smell and taste both to aqueous and spirituous menstrua; the cold water infusions are the least offensive. A bitter of little or no particular flavour may be extracted from it, either in a solid form, or in that of a watery or spirituous solution. The spirituous extract seems preferable as a vermifuge. Meyrick informs us, that a light infusion of the tops of this plant, is excellent for most disorders to which the stomach is subject, creating an appetite, promoting digestion, and preventing sickness after meals; but will produce the contrary effect if made too strong. The flowers, dried and powdered, destroy worms more effectually than worm-seed, and are excellent in agues. The expressed juice of the leaves operates by urine; and though insufferably nauseous, it is good in the jaundice and dropsy. There are two other kinds of Wormwood recommended; the *Roman*, see No. 30. and the *Sea Wormwood*, see No. 25. which possess the same virtues in a less degree, and therefore all three may be indiscriminately used.—Common Wormwood is easily propagated by parting the roots, by slips, or by seeds, sown in the autumn, soon after they are ripe; or if the seeds be permitted to scatter, the plants will spring up without further care.

35. Artemisia Vulgaris: *Mugwort.* Leaves pinnatifid, flat, gashed, tomentose underneath; racemes simple, recurved; ray five-flowered.—Found wild all over Europe, China, and Japan, on the borders of fields and ditch-banks, by way-sides, in waste places, and about farm-yards. It flowers with us in August and September. The *Moxa* of Japan, see No. 41. is, according to Thunberg, prepared from this species. The leaves are collected in June, dried in the shade, and beat in a mortar till they become like tow; this substance is then rubbed between the hands, till the harder fibres and membranes are separated, and there remains nothing but a very fine cotton, which the Japanese use for tinder; and twice in a year, young and old, rich and poor, are indiscriminately singed with it, either to prevent disorders, or cure the rheumatism. Mugwort has been chiefly recommended for promoting the uterine evacuations, and abating hysteric spasms; for which purposes infusions of it have been drank as tea, and used as a bath. It appears to be one of the mildest substances used in such cases, and may perhaps be of service where medicines of more activity would be improper. The flowery tops are considerably stronger than the leaves. It is

used in some countries as a culinary aromatic, and a decoction of it taken for the ague. A woman who had been afflicted with hysteric fits for many years, and had taken assafœtida and æther without obtaining any relief, was cured in a few days by taking a drachm of the powdered leaves four times daily. The Chinese bruise the leaves, and apply them to fresh wounds, which they soon heal. It is, says Hill, an excellent medicine in hysteric complaints, and in all obstructions of the viscera, for which a strong infusion is most serviceable. Meyrick informs us, that a decoction of it, sweetened with honey, eases the most violent coughs, and is good in sciatic pains. An ointment, made of the juice of the leaves and hog's lard, disperses wens, and hard knots and kernels about the neck and throat. Culpeper observes, that the herb itself taken fresh, or the juice of it, is an especial remedy for removing the bad effects of taking too much opium. A decoction made with Chamomile and Agrimony, he assures us will remove all the pains of the sinews and the cramp, by bathing the affected part with it. No quadruped seems to feed on this plant.—It may be raised by slips, cuttings, or parting the roots. There are several varieties.

36. Artemisia Pectinata. Leaves pinnate, pectinate, smooth, sessile; flowers axillary, solitary, sessile, having four florets. —This is an elegant and exceedingly fragrant plant, with an annual root, and an upright herbaceous stem about eight inches high.—Found in the dry lands of Dauria.

**** *Leaves simple.*

37. Artemisia Integrifolia; *Entire-leaved Mugwort.* Leaves lanceolate, tomentose underneath, entire, or with one or two teeth; female florets five. It is as hardy as the Common Mugwort, and multiplies as fast.—Native of Siberia.

38. Artemisia Japonica; *Japonese Mugwort.* Leaves on the branches smooth, lanceolate, entire; on the stem, oblong and trifid; flowers racemed, nodding.—Native of Japan.

39. Artemisia Cærulescens; *Lavender-leaved Wormwood.* Stem-leaves lanceolate, entire; roots multifid; flowers ovate-cylindrical, small, woolly; female florets three.—Found in the southern parts of Europe upon the sea coast, and in Lincolnshire, near Boston. It flowers from August to October.

40. Artemisia Dracunculus; *Tarragon.* Leaves simple, lanceolate, smooth, quite entire; root perennial.—Native of Siberia and Tartary; it flowers in August. It is generally used in Persia, to excite an appetite at their meals; and the French employ it frequently in sallads to correct the coldness of other herbs. The leaves, which have a fragrant smell and an aromatic taste, make an excellent pickle.—This plant is very hardy, and propagates greatly by its creeping roots; or may be multiplied very fast by planting the young shoots in the same manner as Mint, and if well watered in dry weather, they will soon spread and meet.

41. Artemisia Chinensis; *Chinese Mugwort.* Leaves simple, tomentose, obtuse, lanceolate; the lower ones wedge-shaped, three-lobed.—Native of China and Siberia. This is the species from which the Moxa is prepared in China, where the natives term it the Physician's herb, and employ it in hemorrhages, dysenteries, pleurisies, and disorders of the stomach; girdles of the down are recommended in the sciatica; and those who are afflicted with the rheumatism in the legs, quilt their stockings with it. The Common Mugwort is more efficacious for making Moxa than this sort.—*Moxa* is celebrated in the East for preventing and curing many disorders, by being burnt on the skin; it produces a dark-coloured spot, the ex-ulceration of which is promoted by applying a little garlic, and the ulcer is either healed up when the eschar separates, or kept running, as circumstances require. A fungous substance found in the fissures of old Birch-trees, is used by the Laplanders for the same purpose, and cotton impregnated with a solution of nitre, and then dried, will answer the end as well as the Moxa. All these applications are only means of producing an exulceration of the skin, and its consequence, a drain of humours.

42. Artemisia Maderaspatana; *Madras Wormwood.* Leaves simple, lyrate-sinuate; stems procumbent; flowers pedunculate, solitary, globose, opposite to the leaves, large, yellow. —Native of the East Indies, flowering in July and August.

43. Artemisia Minima; *Least Wormwood.* Leaves simple, wedge-shaped, repand; stem procumbent: flowers axillary, sessile.—Native of China: a minute, annual plant.

44. Artemisia Littoralis. Procumbent, strigose: leaves spatulate, serrate-toothed, simple; calices naked, pedicelled. —Found in the East Indies.

Artichoke. See *Cynara.*

Artichoke of Jerusalem. See *Helianthus.*

Artocarpus; a genus of the class Monœcia, order Monandria.—Generic Character. *Male flowers. Calix:* none; ament cylindrical, all covered with florets. *Corolla:* two petals each, oblong, concave, blunt, villose. *Stamina:* filamenta single, within each corolla, filiform, the length of the corolla; anthera oblong. *Female flowers,* on the same tree. *Calix* and *Corolla:* none. *Pistil:* germina very many, connected into a globe, hexangular; style to each filiform; stigmas single, or two, capillary, revolute. *Pericarp:* fruit ovate-globular, compound, muricate. *Seed:* for each germen solitary, oblong, covered with pulpy arils, placed on an ovate receptacle. Essential Character. *Male,* ament. *Calix:* none. *Corolla:* two petalled. *Female. Calix* and *Corolla:* none; style one; berries one seeded, connected, and forming a roundish muricated fruit.—These are milky trees. Those varieties which bear seeds may be propagated by them, sown in a pot of rich earth, and plunged in the bark-bed. Those which have no seed in the fruit may be increased by suckers, in which they abound very much, or by layers.—— The species are,

1. Artocarpus Incisa; *Bread-fruit Tree.* Leaves gashed. Capt. Cook observes, that this tree is about the height of a middling Oak; its leaves are frequently a foot and a half long, deeply sinuated like those of the Fig-tree, which they resemble in consistence and colour, and in exuding a milky juice when broken. The fruit is of the size and shape of a child's head, and the surface is netted not much unlike a truffle; it is covered with a thin skin, and has a core about as big as the handle of a small knife; the eatable part lies between the skin and the core; it is white as snow, and somewhat of the consistence of new bread. It must be roasted before it is eaten, being first divided into three or four parts; its taste is insipid, with a slight sweetness resembling that of the crumb of Wheaten bread mixed with Jerusalem Artichoke. As it is not in season at all times of the year, by reducing it to a sour paste, called *mahie,* they supply that defect. The tree is not only useful for food, (three trees yielding sufficient nourishment for one person,) but also for clothing; for the bark is stripped off the suckers, and formed into a kind of cloth. This plant is distributed very extensively over the East Indian continent and Islands, as well as in the innumerable islands of the South Sea. It was imported into the West India islands about the year 1793, where it has been most successfully established. The principal varieties are, that producing fruit with seeds, and that without; the former may be considered to be the tree in its wild state, as the want of seed is probably occasioned by cultivation.

2. Artocarpus Integrifolia; *Indian Jacca Tree.* Leaves entire.—This is about the same size or rather larger than the

Bread-fruit tree; it is a native of Malabar, and other parts of the East Indies. The fruit, which ripens in December, is eaten, but esteemed difficult of digestion: the unripe fruit is also pickled, or cut in slices and boiled, or fried in palm-oil. The nuts are eaten roasted, and the skin next them is used instead of the Areca-nut in chewing Betel. The wood of the tree is employed in building. Thirty varieties of this fruit are enumerated in Malabar.

Arum; a genus of the class Gynandria, order Polyandria. —Generic Character. *Male flowers*, on the same spadix as the females, closely placed between a double row of threads. *Calix:* spathe one-leafed, very large, oblong, convolute at the base, converging at the top; the belly compressed, coloured within; spadix club-shaped, quite simple, a little shorter than the spathe, coloured, fenced at bottom with germina, and shrivelling above them; perianth proper none. *Corolla:* none. Nectaries thick at the base, ending in threads or tendrils, in two rows, issuing from the middle of the spadix. *Stamina:* filamenta none; each anthera sessile, four-cornered. *Female flowers*, on the lower part of the spadix, close to each other. *Calix:* spathe and spadix common to them with the males; perianth proper none. *Corolla:* none. *Pistil:* germen each obovate; style none; stigma bearded with villose hairs. *Pericarp:* berry globular, one-celled. *Seeds:* several, roundish. Essential Character. Spathe one-leafed, cowled; spadix naked above, female below, stamineous in the middle.—The Arums are all perennial herbaceous plants, mostly natives of hot climates: their roots are fleshy, hot, and acrid, but many species eatable.——The species are,

* *Without Stems; Leaves compound.*

1. Arum Crinitum; *Hairy-sheathed Arum.* Leaves pedate, with the lateral segments involute; spathe hairy within; spadix ramentaceous above.—The flower of this plant smells very strong of carrion, by which flies are enticed to enter, but when they attempt to retreat, the reversed hairs prevent them, and they are there starved to death. In England it flowers in March, and is a native of Minorca.

2. Arum Dracunculus; *Long-sheathed Arum*, or *Common Dragon.* Leaves pedate, compound; leaflets lanceolate, quite entire; lamina ovate, longer than the spadix.—The flower is shaped like the Common Arum, having a very long spathe of a dark purple colour, standing erect, with a large spadix of the same colour; so that when it is in flower, it makes no unpleasing appearance, but has so strong a scent of carrion that it cannot be endured.—It grows naturally in most of the southern parts of Europe, and is preserved in gardens to supply the markets. It appears to be similar in medicinal virtues, as in botanical characters to Common Arum, but rather more pungent, and therefore might be used in the same cases in which the latter only is generally employed. It is very hardy, growing in any soil or situation. The offsets from the roots propagate very fast; the time to transplant it is in autumn, when the leaves decay.

3. Arum Dracontium; *Short-sheathed Arum*, or *Green Dragon.* Leaves pedate, compound; leaflets lanceolate, quite entire, longer than the spathe, which is shorter than the spadix.—It grows about eight or nine inches high; flowers with us in June; and grows in most places in Virginia and New England. The root of this, as well as that of the Common Dragon, is acrimonious and purgative. The whole plant, when fresh, is of an almost insupportably acrid taste, but loses the greatest part of that quality in drying. It was formerly much esteemed for its supposed efficacy in malignant fevers, the small-pox, and other disorders; and was also supposed to be a noble sudorific and resister of poison, but is at present very little regarded. It is difficult to preserve this plant in gardens; they must have a moist shady situation, or they will not thrive.

4. Arum Venosum; *Purple-flowered Arum.* Leaves pedate, compound; leaflets suboval, quite entire: lamina lanceolate, longer than the spadix.—Native country unknown; it flowers in March.

5. Arum Pentaphyllum; *Five-leaved Arum.* Leaves quinate, compound.—Native of the East Indies and China. The root is accounted warm, attenuant, and deobstruent, and is given in the epilepsy, convulsions, obstructions of the uterus, bites of venomous animals, and other disorders, in the East.

6. Arum Tryphyllum; *Three-leaved Green-stalked Arum.* Leaves ternate; lamina lanceolate, acuminate, the length of the spadix, without stems; leaves compound.—Grows ten inches high, in Cochin China This and the two following species are propagated by offsets. They will live in a sheltered situation in the open air, or if the surface of the ground be covered with tan, to keep out the frost in winter; and they will thrive better in the full ground than in pots.

7. Arum Atrorubens; *Three-leaved Purple-stalked Arum.* Leaves ternate, compound; lamina ovate, shorter by half than the spadix.—Native of Virginia; flowering with us in June and July: see the sixth species.

8. Arum Ternatum. Leaves compound, ternate; receptacle longer than the spathe.—Found in Japan, flowering in May and June: see the sixth species.

** *Without Stems; leaves simple.*

9. Arum Colocasia; *Egyptian Arum.* Leaves simple, peltate, ovate, repand, semibifid at the base.—Native of the Levant, Egypt, Sicily, and Italy, near Salerno, where it is esteemed a wholesome food; and though not very delicate, is frequently eaten in the East. The roots when young are sometimes eaten raw, the roots and petioles are boiled.—This, and the tenth, eleventh, twelfth, thirteenth, fourteenth, and sixteenth species, are easily propagated by the offsets which they put out plentifully from their roots; these must be planted in pots filled with light earth, and plunged into a hot-bed, to promote their taking root: and if they be afterward continued in the bark-stove, they will make greater progress, and produce larger leaves.

10. Arum Bicolorum; *Two-coloured Arum.* Leaves peltate, sagittate, coloured on the disk; simple spathe contracted in the middle, subglobular at the base; lamina roundish, acuminate, upright, somewhat convolute.—Cultivated in Madeira, and flowers in June and July: see the ninth species.

11. Arum Esculentum; *Esculent Arum*, or *Indian Kale.* Leaves peltate, ovate, quite entire, emarginate at the base; root large, tuberous.—It is very frequent in China and Cochin China, in shallow waters by the sides of rivers and marshes, and is a common food there, the root and tender petioles being eaten boiled. The bruised leaves are applied to tumors, and imagined to be an antidote for poisonous bites. It is also a native of, and frequently cultivated in, Japan, where the sliced roots and stalks are put into soups and broths. It is found in the islands of the Southern Ocean; and is cultivated every where within the tropics, and even in the northern extremity of New Zealand. The natives of the South Sea islands bestow great pains on the culture of this root; for in the first months of its growth it succeeds best when the ground is inundated; but afterwards it should be laid dry, which they do by means of ditches dug round the fields. The root, which is the common food in many of the islands, is extremely acrid, and when eaten raw will excoriate the mouth, but baked in hot ashes, loses its acrimonious quality, and becomes mild and well tasted; it is, however, heavy upon a weak

stomach, and tends to produce costiveness. The leaves are extremely soft, glaucous, and covered with a very fine silky nap, and are used by the natives instead of dishes: see the ninth species.

12. Arum Macrorhizon; *Long-rooted Arum.* Leaves peltate, cordate, repand, two-parted at the base. This species is distinguished by its great size. It is a native of China and Cochin-china, the East Indies, Ceylon, and the islands of the Southern Ocean; and, as well as the foregoing species, is eaten by the natives, after the roots are deprived of their acrimony by dressing: see the ninth species.

13. Arum Peregrinum. Leaves cordate, obtuse, mucronate; angles rounded.--Native of America: see the 9th species.

14. Arum Divaricatum. Leaves cordate, hastate, divaricate.—Native of Malabar and Ceylon: see the 9th species.

15. Arum Trilobatum; *Three-lobed Arum.* Leaves sagittate-trilobate; flower sessile, fetid like carrion.—Native of Ceylon, Amboyna, Japan, and Cochin-china. It flowers here in May and June, and is propagated by offsets, which come out in abundance when the plants are in health. They are very impatient of cold, and must be placed in the tan-bed of the bark-stove.

16. Arum Sagittæfolium; *Arrow-leaved Arum.* Leaves sagittate, triangular; the angles divaricate, acute.—Native of the Spanish West Indies, China, and Cochin-china; where it is esteemed a wholesome green when boiled; and where the Common European vegetables are with difficulty procured, this proves a good succedaneum. See the ninth species. In Jamaica it is called Smaller Indian Kale.

17. Arum Maculatum; *Common Arum.* Leaves hastate, quite entire; spadix club-shaped; root whitish, tuberous, about the size of a large nutmeg; berries scarlet, in a naked cluster.—Native of all except the most northern parts of Europe, growing in shady places, on the banks of ditches, and flowering in May. The berries ripen at the close of summer. The fresh roots and leaves are extremely acrid; on first tasting them, they seem to be merely mucilaginous and insipid, but they soon affect the tongue for several hours with a pungency, as if it had been pricked with needles, which sensation may be allayed by milk, butter, or oil. When dried, they become farinaceous and insipid, in which case they might be used for food in case of necessity; and by boiling or baking would probably afford a mild and wholesome nourishment as well as those sorts which are natives of hot climates. The berries are devoured by birds; and it has been supposed that they, particularly pheasants, eat the roots. These, when dried and powdered, are used by the French as a wash for the skin, and sell under the name of cypress powder, at a high price, being an excellent and innocent cosmetic. Starch may also be made from them, but the hands are liable to be blistered in using it. They have occasionally been substituted for soap. When newly dried and powdered, the root has been given as a stimulant, in doses of a scruple and upwards; but in being reduced to powder, it loses much of its acrimony; and there is reason to suppose, that the compound powder, which takes its name from this plant, owes its virtues chiefly to the other ingredients. The *pulvis ari compositus*, or powder composed of Arum, is therefore discarded from the London dispensatory, and instead of it a conserve is inserted, made by beating half a pound of fresh root with a pound and half of fine sugar. In the medicine recommended by Sydenham against rheumatisms, the acrid antiscorbutic herbs are largely joined with it. Dr. Lewis orders the fresh root to be beaten with a little testaceous powder, and mixed with an equal quantity of gum-arabic, and three or four times as much conserve, and thus to be made up into an electuary; or else to be rubbed with a thick mucilage of gum-arabic and spermaceti, adding any watery liquor, and a little syrup, to form an emulsion; two parts of the root, two of gum, and one of spermaceti. In these forms he has given the fresh root from ten grains to upwards of a scruple, three or four times a day: it generally occasioned a sensation of slight warmth, first about the stomach, and afterwards in the remoter parts; manifestly promoted perspiration, and frequently produced a plentiful sweat: several obstinate rheumatic pains were removed by this medicine, which he therefore recommends to further trial. Chewed in the mouth, it has been known to restore the speech in paralytic cases; and made into a conserve, it is efficacious in the scurvy and rheumatism; it likewises increases the urinary secretion, and is good in the gravel. But in whatever form it is used, the roots should be fresh, for it loses the greatest part of its efficacy in drying, and becomes insipid.—Both this and the large Italian variety propagate very fast by offsets from the root, and will thrive in any soil or situation. The best time to transplant these, is soon after the seeds are ripe, for by the end of October they will be putting out new fibres. There are also two other varieties.

18. Arum Virginicum; *Virginian Arum.* Leaves hastate, cordate, acute; angles obtuse.—Grows wild in wet places in Virginia, Carolina, Pennsylvania, &c. The savages boil the spadix with the berries, and devour it as a great dainty. The berries, when raw, have a harsh pungent taste, which they lose in a great measure by boiling.

19. Arum Probocideum; *Apennine Arum.* Leaves hastate; spathe declinate, filiform-subulate.—Native of the Apennines. This and the two following species flower in April, and multiply fast by offsets in a shady situation, but seldom produce seeds in England.

20. Arum Arisarum; *Broad-leaved Hooded Arum,* or *Friar's-cowl.* Leaves cordate, oblong; aperture of the spathe ovate.—Native of woods in the south of France, Italy, Spain, Portugal, and Cochin-china: see the nineteenth species.

21. Arum Pictum; *Painted Arum.* Leaves cordate, painted with coloured veins.—See the nineteenth species.

22. Arum Ovatum. Leaves ovate-oblong; spathe scabrous.—Native of the East Indies.

23. Arum Tenuifolium; *Grass-leaved Arum,* or *Narrow-leaved Friar's-cowl.* Leaves lanceolate; spadix bristle-shaped, declinate.—It grows naturally about Rome, Montpellier, and in Dalmatia and the Levant.

24. Arum Cannæfolium. Leaves simple, lanceolate, veinless; parasitical upon trees.—Native of Surinam.

**** Caulescent.*

25. Arum Arborescens; *Tree Arum.* Straight: leaves sagittate.—Native of South America. This, and the four following species of this genus, are propagated by cutting off the stalks into lengths of three or four joints, which must be laid to dry for six weeks or two months; for if the wounded part be not perfectly healed over before the cuttings are planted, they will rot and decay. Plant them in small pots of light sandy earth, plunged into a moderate hot-bed of tan, taking care that they have little wet, until well rooted, and then some of them may be placed in a dry-stove, and others plunged into the tan-bed in the bark-stove, where they will grow fastest and flower most.

26. Arum Seguinum; *Dumb-cane Arum.* Nearly upright; leaves lanceolate, ovate.—This species grows naturally in the sugar islands and other warm parts of America, chiefly in the low grounds. The whole plant abounds in an acrid juice, so that if a leaf or a part of the stalk be broken, and applied to the tip of the tongue, it occasions a very painful sensation, and such an irritation of the salivary ducts,

P. 128

ARUM. *Common Arum.*

P. 130

ASARUM. *Common Asarabacca.*

P. 128

ARUM. *Dumb Cane Arum?*

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

that they presently swell so that the person cannot speak: from this quality, and its being jointed, they call it *Dumb-cane* in Jamaica, where it is said they sometimes cruelly rub the mouths of their negroes with it by way of punishment. The stalks are used for a better purpose, to bring sugar to a good grain, when the juice is too viscid, and cannot be brought to granulate rightly with the lime alone.—A decoction of this plant is recommended by way of fomentation in dropsies; it certainly must be a strong resolutive, which cannot fail to strengthen and stimulate the relaxed fibres in such cases. See the twenty-fifth species.

27. Arum Hederaceum; *Ivy-leaved Arum.* Radicant: leaves cordate, oblong, acuminate; petioles round.—Native of the West Indies. See the twenty-fifth species.

28. Arum Lingulatum; *Tongue-leaved Arum.* Creeping; leaves cordate, lanceolate; petioles edged with membranes.—Native of the West Indies, where it climbs the trees with great ease, and grows more succulent and luxuriant towards the top. See the twenty-fifth species.

29. Arum Auritum; *Ear-leaved Arum.* Radicant: leaves ternate, those on the side three-lobed. A climbing plant.—Native of the West Indies. See the twenty-fifth species.

30. Arum Indicum; *Indian Arum.* Nearly upright; leaves ovate, bifid at the base, rounded; spadices axillary; stem thick, five feet high.—Native of the East Indies, and cultivated in Cochin-china, where the stalk is boiled and eaten.

31. Arum Cucullatum; *Cowled Arum.* Upright: leaves peltate, cordate, with the ears cowled; spadix short, nearly covered with florets.—Native of the suburbs of Canton.

32. Arum Spirale; *Spiral Arum.* Stemless: leaves lanceolate; spathe spiral, sessile.—Native of Tranquebar in the East Indies.

Aruncus. See *Spiræa.*

Arundo; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume one or many-flowered, two-valved, erect: valves oblong, acuminate, awnless, one shorter. *Corolla:* two-valved; valves the length of the calix, oblong, acuminate; from their base arises a lanugo almost the length of the flower; nectary two-leaved, very small. *Stamina:* filamenta three, capillary; antheræ forked at both ends. *Pistil:* germen oblong; styles two, capillary, reflex, villose; stigmas simple. *Pericarp:* none. *Corolla:* adheres to the seed without gaping. *Seed:* single, oblong, acuminate at both ends, furnished with a long down (pappus) at the base. Essential Character. *Calix:* two-valved; florets heaped, surrounded with wool.——The species are,

1. Arundo Bambos; *Bambu* or *Bamboo Cane.* Calices many-flowered; spikes in threes, sessile. The highest and the largest of all the Bamboos, covered very thick with spines.—The Bamboo Cane grows naturally almost every where within the tropical regions, and there is perhaps scarcely any plant which serves such a variety of domestic purposes. The houses of the meaner people in the East Indies are almost entirely composed of it, and it is said to be strong and perfect after lasting a hundred years; bridges also, masts for boats, boxes, cups, baskets, mats, and a great variety of other utensils and furniture, both domestic and rural. Paper is also made from it by bruising it, and steeping it in water, and thus forming it into a paste. It is the common fence for gardens and fields, and is frequently used as pipes for conveying water. The leaves are generally put round the chests of tea which are sent to Europe from China, as package, fastened together so as to form a kind of mat. The tops of the tender shoots are frequently pickled in the West Indies. In the cavities or tubular parts of the Bamboo, is found, at certain seasons, a concrete white substance, called tabasher, or tabashir, an article which the Arabian physicians hold in great estimation: it is commonly found in what are called the female or large Bamboos, which, on shaking, are found to contain a fluid, which after some time gradually lessens, and then they are opened, in order to extract the tabasner. The nature of this substance is very different from what might have been expected in the product of a vegetable. Its indestructibility by fire, its total resistance to acids, its uniting by fusion with alkalies, in certain proportions, into a white opaque mass, or a transparent permanent glass; and its being again separable from these compounds, entirely unchanged by acids, &c. seem to afford the strongest reasons for considering it as very nearly identical with common silicious earth. As to the medicinal virtues of this part of the plant, though in great esteem as a drug among the Orientalists, it is not regarded in modern Europe. Loureiro informs us, that the bark, buds, and root, are used. The leaves, he says, are cooling, emollient, and resolvent; their decoction is good in fevers; coughs, pains of the throat, &c. the thin bark is cooling and agglutinant, and a gentle astringent: it is good in feverish heats, hæmorrhages, nauseas, and vomitings: the roots and buds are attenuating, and promote urine, and purify the blood, and are used for disorders of the kidneys, bladder, and urethra, wandering pains, obstructions, and in venereal cases: from the fresh roots, mixed with Tobacco leaves and Betel, in equal portions, and infused and macerated for some days in oil, is prepared an ointment of great efficacy in discussing hard and schirrous swellings. In England, it must be preserved in a warm stove; and, as the roots spread very wide, it should be planted in a large tub, filled with rich earth: this must be plunged into a hot-bed in the bark-stove, and be well supplied with water. It may be propagated by slips from the roots, which should be taken off in the spring, that they may be well established before winter. There are many varieties of this species, with one of which the Turks make their writing pens.

2. Arundo Donax; *Cultivated* or *Evergreen Reed.* Calices five-flowered; panicle diffused; culm shrubby.—Native of the south of Europe, Siberia, Egypt, and Cochin-china. It will bear the cold of our winters in the open ground, provided it be planted in a soil not too wet, and laying in severe winters a little mulch to the roots. It is propagated by parting the roots early in the spring, before they begin to shoot, and will in a year or two, if the ground be good, make very large stools, from each of which eight or ten canes are produced. It never flowers in England.

3. Arundo Phragmites; *Common Reed.* Calices five-flowered; panicle loose.—It flowers from July till September, and ripens its seeds in October and November. It is very common by the sides of rivers, in ditches, and large standing waters. In autumn, when the leaves begin to fall, and the stems are changed brown, it is cut for making screens in kitchen-gardens, and for many other uses, as thatching, for which it is more durable than straw; for ceilings, and to lay across the frame of wood-work, as the foundation for plaister-floors. The panicles are used by the country people in Sweden, to dye wool green, and the root has been recommended as answering the same purposes as *Dog's Grass*, or Triticum Caninum.—According to Hill, the juice of the fresh root excites the menstrual discharge powerfully, but not violently: it likewise increases the urinary evacuation, and is serviceable in stranguaries and the gravel.

4. Arundo Epigejos; *Wood Reedgrass.* Calices one-flowered; panicle erect; leaves smooth underneath.—Native of many parts of Europe, in shaded ditches, flowering in July.

5. Arundo Calamagrostis; *Small Reedgrass.* Calices

one-flowered, smooth; corollas woolly; culm erect, 3 or 4 feet high; root perennial, creeping.—Native of most parts of Europe, in moist woods and hedges; flowering in June and July.

6. Arundo Arenaria; *Sea Reedgrass.* Calices one-flowered; leaves rolled inwards, dagger-pointed, and pungent.—A native of sandy coasts in Europe and America; flowering in June and July. By means of its creeping roots it helps very much to consolidate driving sands, which gather about it in hills or banks, and are thus prevented from dispersing over and impoverishing the adjoining fields. The Dutch have profited by their knowledge of this fact; and Mr. Woodward informs us, that it is planted about Wells in Norfolk, to aid in repelling the sea. The country people know it by the name of *Sea Matweed, Maram,* and *Helme.* They cut and bleach it for making mats; and where it is plentiful, houses are thatched with it.

7. Arundo Colorata; *Canary Reedgrass.* Calices one-flowered, keeled; corollas smooth with two lanuginose pencils at the base; leaves flat.—This is a native of Europe, on the banks of rivers and ditches; flowering in July and August. It is used to thatch ricks and cottages, for which purpose it is more durable than straw. In the province of Scania, they mow it twice a year, and their cattle eat it. The texture is so hard that it must be cut young, if cattle be expected to touch it. There is a cultivated variety of this Grass in our gardens, with beautifully striped leaves. The stripes are generally green and white; but sometimes they have a purplish cast. This is called *Ladies' Laces, Painted Grass,* or *Riband Grass.*

8. Arundo Conspicua. Calices one-flowered; panicle loose, form erect spreading; awn of the outer petal reflex, and very long.—Native of New Zealand.

9. Arundo Agrestis. Flowers six stamined; panicle spiked; spikelets heaped; lower branches of the culm very spiky; calices one-flowered, thirty feet high.—Native of mountains and dry desert places in Cochin-china.

10. Arundo Mitis. Flowers six-stamined; panicle erect, contracted; spikes long, imbricate; culm very even, unarmed; calices one-flowered. Higher and thicker than the *Agrestis.*—It is cultivated in the fields and hedges of Cochin-china; and being divided into long thin pieces, is used for weaving into hats, coffers, baskets, and a variety of very elegant utensils.

11. Arundo Multiplex. Flowers six-stamined; spikes interrupted; spikelets in whorls; culm divided; calices one-flowered. Twelve feet high.—Used in the cultivated parts of the northern provinces of Cochin-china, where it is used as fence-work or hedges to separate gardens.

12. Arundo Bengalensis. Calices two-flowered; panicle erect, with three-flowered pedicles.—Native of Bengal.

13. Arundo Piscatoria. Calices one-flowered; spike terminating; culm branched; leaves minute.—Native of Cochin-china: being very tough, and tapering towards the end, it is very fit for fishing-rods.

14. Arundo Dioica. Calices one-flowered; spikes in bundles, compound; spikelets linear.—Native of woods in Cochin-china.

Asarabacca. See *Asarum.*

Asarina; a genus of the class Dicœcia, order Monandria, —Generic Character. *Male flowers. Calix:* ament filiform; floscules scattered, sessile; perianth a very short scale. *Corolla:* none. *Stamina:* filamenta single, very short; anthera oblong, from spreading recurve, four-furrowed, large. *Female flowers,* in a different plant. *Calix:* as in the male. *Corolla:* none. *Pistil:* germen globose; style none; stigma flat, three-lobed, growing to the germen. *Pericarp:* drupe. *Seeds;* single. Essential Character. *Calix:* ament, filiform. *Corolla:* none. *Male,* anthera worm-shaped. *Female,* style none; stigma three-lobed.——One species only has been hitherto discovered, viz.

1. Asarina Polystachya.—A native of the Society Isles, in the South Sea.

Asarum; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, three or four cleft, coriaceous, coloured, permanent; clefts erect, bent in at the top. *Corolla:* none. *Stamina:* filamenta twelve, subulate, half the length of the calix; antheræ oblong, fastened to the middle partition of the filamenta. *Pistil:* germen inferior, or concealed within the substance of the calix; style cylindric, the length of the stamina; stigma stellate, six-parted; parts reflex. *Pericarp:* capsule coriaceous, within the substance of the calix, mostly six-celled. *Seeds:* several, ovate. Essential Character. *Calix:* three or four cleft, placed on the germen. *Corolla:* none. *Capsule:* coriaceous, crowned. *Stigma:* six-cleft.—These plants delight in a moist shady situation, and may be increased by parting the roots in autumn.——The species are,

1. Asarum Europæum; *Common Asarabacca.* Leaves kidney-shaped, blunt, in pairs; root perennial, creeping; stems short, simple, round, pubescent, one-flowered; flowers terminal, pitcher-shaped, of a dark purple colour, villose.—A native of many parts of Europe, in woods and shady places; flowering in April and May. With us it has been found only in Lancashire. The root powdered, and taken to the amount of thirty or forty grains, excites vomiting; and when coarsely powdered, it generally purges. The powder of the leaves is the basis of most cephalic snuffs. An infusion of one or two drachms of the leaves vomits. Allioni gives a particular account of the qualities of Asarabacca, and seems to have a high opinion of it, especially in obstinate intermittents, and above all in the quartan ague. Others entirely reject it, as too acrid when fresh, and too insipid when dry. The *Pulvis Asari Compositus,* or Powder of Asarabacca, is composed of equal quantities of the dried leaves of Asarum Marjorum, and Marum, and of the dried flowers of Lavender. The powdered root, taken to the amount of thirty or forty grains, is a rough emetic; and the leaves powdered, and snuffed up the nose, occasion a considerable discharge of mucus from the head without exciting much sneezing. The salutary discharge occasioned by snuffing a grain or two of this powder up the nose, will sometimes continue for two or three days together; by which head-ache, tooth-ache, ophthalmia, and some paralytic and soporific complaints, have been effectually relieved; a single dose has been known to remove a palsy of the mouth and tongue. It is an excellent medicine in soporific distempers, and those disorders of the head which proceed from a redundancy of viscid matter; but the patient should carefully avoid cold during the operation, as it might subject him to inflammations of the face, and other alarming consequences. The dried roots or leaves, according to Meyrick, taken in large doses, vomit and purge violently, but in smaller doses they operate safely and effectually by urine, and are of great efficacy in obstructions of the menses, the jaundice, and the dropsy.

2. Asarum Canadense; *Canadian Asarabacca.* Leaves kidney-shaped, mucronate.—Native of Canada; flowering from April to July. Too much wet in winter will cause this species to rot.

3. Asarum Virginicum; *Sweet-scented Asarabacca.* Leaves heart-shaped, blunt, smooth, petioled.—This seldom thrives well if it be too much exposed to the sun in summer, and should be planted so as to have only the morning sun.—Native of North America.

Ascium; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets roundish, concave, coriaceous, coloured on the margin. *Corolla:* petals five, ovate, acute, larger than the calix, inserted into the receptacle. *Stamina:* filamenta very many, short, three-sided, inserted into the receptacle; antheræ oblong. *Pistil:* germen ovate; style very short; stigma headed. *Pericarp:* berry? one-celled. *Seeds:* very many. Essential Character. *Calix:* five-leaved, coriaceous. *Corolla:* five-petalled. *Berry?* one-celled, with very many seeds.——Only one species is yet known.

1. Ascium Norantea.—This tree is a native of Guiana.

Asclepias; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-cleft, sharp, very small, permanent. *Corolla:* monopetalous, flat or reflex, five-parted; divisions ovate, acuminate, slightly bending with the sun; nectaries five, growing to the tube of the filamenta below the anthera, fleshy or cowled, a sharp horn protruding from the bottom, bending inwards. *Stamina:* filamenta five, collected into a tube, swelling at the base; antheræ oblong, upright, two-celled, terminated by an inflex membrane lying on the stigma, having a reversed wing on each side, growing broader downwards, with its edge contiguous to the next. The pollen is collected into ten corpuscles, inversely lanceolate, flat, hanging down into the cells of the anthera by short threads, frequently flexuose; which are annexed by pairs to five cartilaginous twin tubercles, each placed on the tip of the wings of the anthera, adhering to the angles of the stigma between them. *Pistil:* germina two, oblong, acuminate; styles two, subulate; stigma common to both, large, thick, five-cornered, covered at the top by the apices of the antheræ, umbilicate in the middle. *Pericarp:* follicles two, large, oblong, acuminate, swelling, one-celled, one-valved. *Seeds:* numerous, imbricate, crowned with down; receptacle membranaceous, free. Essential Character. Contorted; nectaries five, ovate, concave, putting out a little horn.—The North American and European species of this genus are hardy enough to bear the open air; and therefore are proper for large borders in pleasure-grounds, and to mix with shrubs. The other species require the protection of the green-house or stove; all of them are tall perennials, flowering from June to August or September, mostly dying down to the root in autumn. They should have little water, especially in winter, for as they abound with a milky juice, much wet will rot them. They may be propagated by seeds, where these can be obtained, or by cuttings: the hardy sorts may be increased by parting the roots.——The species are,

* *Leaves opposite, flat.*

1. Asclepias Undulata; *Waved-leaved Swallowwort.* Leaves sessile, oblong, lanceolate, waved, smooth; petals ciliate.—Native of the Cape; and flowers here in July.

2. Asclepias Crispa; *Curled-leaved Swallowwort.* Leaves cordate, lanceolate, waved, scabrous, opposite; umbel terminal.—Native of the Cape of Good Hope.

3. Asclepias Pubescens; *Pubescent Swallowwort.* Leaves ovate, veined, naked; stem shrubby; peduncles villose; flowers purple.—Native of the Cape of Good Hope.

4. Asclepias Volubilis; *Twining Swallowwort.* Leaves ovate, quite entire, acuminate; stem arboreous, twining; umbels erect; flowers greenish.—Native of Malabar and Ceylon.

5. Asclepias Asthmatica; *Asthmatic Swallowwort.* Leaves petiolate, cordate-ovate, above smooth, quite entire; stem shrubby, twining, hirsute; umbels few-flowered.—Found in Ceylon; where the root is esteemed a good medicine in asthmatic disorders.

6. Asclepias Gigantea; *Curled-flowered Gigantic Swallowwort.* Leaves obovate-oblong; petioles very short; segments of the corolla reflex, involute; flowers white.—Native of the East and West Indies.

7. Asclepias Syriaca; *Syrian Swallowwort.* Leaves oval, tomentose underneath; stem quite simple; umbels nodding, flowers of a dingy purple.—It flowers in July, and is a native of North America.

8. Asclepias Amœna; *Oval-leaved Swallowwort.* Leaves ovate, rather hairy underneath; stem simple; umbels and nectaries erect. The flowers, which appear in July, are of a bright purple colour, but are not succeeded by pods in England.—It is a native of North America.

9. Asclepias Purpurascens; *Purple Virginian Swallowwort.* Leaves ovate, villose underneath; stems simple; umbels erect; nectaries resupinate.—Native of North America.

10. Asclepias Variegata; *Variegated Swallowwort,* or *Wisank.* Leaves ovate, wrinkled, naked; stem simple; umbels subsessile; pedicles tomentose.—Flowers in July; native of North America.

11. Asclepias Curassavica; *Curassoa Swallowwort, Bastard Ipecacuanha.* Leaves lanceolate, smooth, shining; stem simple; umbels erect, solitary, lateral.—Mr. Miller says, that the roots of this plant have been sent to England for ipecacuanha. The juice, made into syrup with sugar, has been observed to kill and bring away worms wonderfully, even when most other vermifuges have failed; it is given to children in the West Indies, from a tea-spoonful to a table-spoonful. The juice and pounded plant are applied to stop the blood in fresh wounds, and is said to be a powerful astringent in such cases. The root, dried and reduced to powder, is frequently used by the negroes as a vomit; and hence its name of *Wild or Bastard Ipecacuanha.*

12. Asclepias Nivea; *White* or *Almond-leaved Swallowwort.* Leaves ovate-lanceolate, smoothish; stem simple; umbels erect, lateral, solitary.—Native of North America.

13. Asclepias Incarnata; *Flesh-coloured Swallowwort.* Leaves lanceolate; stem divided at top; umbels erect, twin; flowers purple. Native of North America.

14. Asclepias Decumbens; *Decumbent Swallowwort.* Leaves villose; stem decumbent.—Native of North America.

15. Asclepias Lactifera; *Milky Swallowwort.* Leaves ovate; stem erect; umbels proliferous, very short.—Native of Ceylon.

16. Asclepias Vincetoxicum; *Officinal Swallowwort,* or *Tame-poison.* Leaves ovate, bearded at the base; stem erect; umbels proliferous; corolla white.—Native of most parts of the continent of Europe. It was formerly imagined to be an alexipharmic, and hence its name of Vincetoxicum, *Tame-poison,* absurdly composed of a Latin and a Greek word. It has been also recommended in dropsical cases, and disorders peculiar to women, but is disused in the present practice, and is too suspicious a plant to be internally taken, except with great caution. The external application for foul ulcers, abscesses of the breast, and scrofulous tumors, is more plausible. The root is the part to be used; an infusion of it, fresh gathered, removes obstructions, increases the urinary discharge, and is good in the jaundice; dried, and given in powder, it promotes perspiration, and is good against fevers, the small-pox, measles, and other eruptive complaints. No animal, except the goat, is said to eat it; though Linnæus affirms that the horse will crop it after it is frost-bitten. The down or cotton may be used for stuffing cushions, pillows, &c. There are several varieties of this species.

17. Asclepias Nigra; *Black Swallowwort.* Leaves ovate, bearded at the base; stem twining a little at top; flowers

black.—It is rather rare, being only found in the south of France, the mountains about Nice, and in Spain.

** *Leaves revolute at the sides.*

18. Asclepias Arborescens; *Arborescent Swallowwort.* Leaves ovate; stem shrubby, subvillose; corolla white.—Native of the Cape of Good Hope.

19. Asclepias Fruticosa; *Shrubby,* or *Willow-leaved Swallowwort.* Leaves linear-lanceolate; stem shrubby. It flowers from June to September.—Native of the Cape.

20. Asclepias Repanda; *Repand Swallowwort.* Leaves revolute, repand, hairy.—Native country unknown.

21. Asclepias Sibirica; *Siberian Swallowwort.* Leaves linear-lanceolate, opposite, or in threes; stem decumbent.—Native of Siberia, where it flowers in July and August.

22. Asclepias Verticillata; *Verticillate Swallowwort.* Leaves linear, verticillate; stem erect; flowers in umbels, small, white.—Native of North America.

*** *Leaves alternate.*

23. Asclepias Rubra; *Red Swallowwort.* Leaves ovate; umbels many, from the same common peduncle.—Native of Virginia.

24. Asclepias Tuberosa; *Tuberous Swallowwort.* Leaves lanceolate; stem divaricate, hairy.—The flowers are of a bright orange colour. It flowers from the end of July until September, sometimes ripening seeds in England; and is a native of North America.

25. Asclepias Filiformis; *Narrow-leaved Swallowwort.* Leaves filiform; stem erect; umbels lateral, elongate-peduncled.—Found at the Cape of Good Hope.

26. Asclepias Grandiflora; *Great-flowering Swallowwort.* Leaves petiolate, oblong, hairy; stem simple, rough, erect; flowers axillary, peduncled.—Found at the Cape.

27. Asclepias Carnosa, *Fleshy-leaved Swallowwort.* Leaves ovate, fleshy, very smooth.—It is a native of China.

28. Asclepias Scandens; *Climbing Swallowwort.* Leaves oblong-lanceolate, subhirsute; stem shrubby, climbing; umbels lateral, compact; flowers sulphur-coloured.—Native of Carthagena in South America

29. Asclepias Procera; *Bell-flowered Gigantic Swallowwort.* Leaves obovate-oblong; petioles very short; corollas subcampanulate.—Native of Persia.

30. Asclepias Parviflora; *Small-flowered Swallowwort.* Leaves lanceolate, acuminate, smooth, opposite, drawn to a point at the base; stem suffruticose, upright; umbels lateral, solitary.—Native of Carolina and East Florida.

31. Asclepias Linaria; *Toadflax-leaved Swallowwort.* Leaves scattered, subulate, channelled; umbels lateral, many-flowered; corolla white.—Native country unknown; flowers from August to October.

32. Asclepias Mexicana; *Mexican Swallowwort.* Leaves six together in whorls, lanceolate; flowers umbelled.—Native of Mexico: also flowering from August until October.

33. Asclepias Fusca. Stems creeping; leaves cordate, lanceolate; umbels axillary, in pairs.—Native of Cochinchina, growing in waste places and upon old walls.

34. Asclepias Viminalis. Stem suffruticose, twining, filiform; leaves opposite, lanceolate, smooth; umbels lateral, many-flowered. The whole plant is of a dark green colour, full of milk.—Common in the larger inland woods of Jamaica.

Ascyrum; a genus of the class Polyadelphia, order Polyandria.—Generic Character. *Calix:* perianth four-leaved; the outer leaflets opposite, very minute, linear; the inner heart-shaped, large, flat erect, all permanent. *Corolla:* petals four, ovate; the outer opposite, very large; the inner less. *Stamina:* filamenta numerous, bristle-shaped, slightly united at the base in four parts; antheræ roundish. *Pistil:* germen oblong; style scarcely any; stigma simple. *Pericarp:* capsule oblong, acuminate, one-celled, two-valved, enclosed by the larger leaves of the calix. *Seeds:* numerous, small, roundish, fixed to the edge of the valves. Essential Character. *Calix:* four-leaved. *Petals:* four; filamenta many, in four divisions.——The species are,

1. Ascyrum Crux Andreæ; *Common Ascyrum,* or *Saint Andrew's Cross.* Leaves ovate; stem round; panicle dichotomous.—Native of N. America; flowering in July and August.

2. Ascyrum Hypericoides. Leaves oblong; branches ancipital; flowers terminating, yellow. An elegant little shrub, seldom above three feet in height.—Native of South Carolina, Maryland, and the cooler mountains of Jamaica.

3. Ascyrum Villosum. Leaves hirsute; stem stiff, and straight. Reaches three feet in height; and grows naturally in Virginia.—They are all perennial plants.

Ash, Common, Flowering, and *Manna.* See *Fraxinus.*

Ash, Mountain. See *Sorbus.*

Ashweed. See *Ægopodium.*

Asp or *Aspen Tree.* See *Populus.*

Aspalathus; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, five-cleft; divisions acuminate, equal, except that the upper is larger *Corolla:* papilionaceous; banner compressed, ascending, obovate, generally hirsute on the outside, obtuse, with a point; wings lunate, obtuse, spreading, shorter than the banner; keel bifid, conformable with the wings. *Stamina:* filamenta ten, uniting into a sheath, gaping longitudinally at top, ascending; anthera oblong. *Pistil:* germen ovate; style simple, ascending; stigma sharp. *Pericarp:* legume ovate, awnless. *Seeds:* generally two, kidney-shaped. Essential Character. *Calix:* five-cleft, the upper divisions largest; legume ovate, awnless, with about two seeds.—With few exceptions, the plants of this genus are natives of the Cape of Good Hope; few of them have been cultivated in Europe, but they may be propagated by seeds obtained from the country where they spontaneously grow, and sown in light earth as soon as they arrive. When they come up, transplant them into separate pots of light earth, and plunge them into a moderate hot-bed, till they have again taken root; after which they may be gradually inured to the open air in summer, but in autumn and winter they must be carried into the green-house.——The species are,

1. Aspalathus Spinosa; *Thorny Aspalathus.* Leaves fascicled, linear, naked, surrounding a gemmaceous spine.

2. Aspalathus Verrucosa; *Warted Aspalathus.* Leaves fascicled, filiform; buds warted; tomentose, naked.

3. Aspalathus Capitata; *Headed Aspalathus:* Leaves fascicled, linear, sharp; flowers headed; bractes naked.

4. Aspalathus Glomerata; *Glomerate Aspalathus.* Leaves fascicled, linear, sharp, villose, bent inward; flowers headed; divisions of the calix ovate; corollas smooth.

5. Aspalathus Astroites; *Starry Aspalathus.* Leaves fascicled, subulate, mucronate, smooth; stem villose; flowers scattered.—This has the appearance of Juniper.

6. Aspalathus Chenopodia. Leaves fascicled, subulate, mucronate, rough with hairs; flowers headed, very hirsute.

7. Aspalathus Albens; *White Aspalathus.* Leaves fascicled, subulate, silky, spreading at top; bunches of flowers scattered, of a silky white.

8. Aspalathus Thymifolia; *Tyme-leaved Aspalathus.* Leaves fascicled, subulate, unarmed, smooth, very short; flowers alternate.—The leaves resemble those of Thyme.

9. Aspalathus Ericifolia; *Heath-leaved Aspalathus.* Leaves fascicled, linear, unarmed, hirsute; flowers alternate; banner villose; calices linear.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 130.

ARGEMONE, *Mexican Prickly Poppy.*

P. 130.

ASPARAGUS – *The Common Asparagus.*

P. 141.

ASTER – *Virginian Starwort.*

P. 142.

ASTRAGALUS – *Taller Fox-tail Milk-Vetch.*

J. Cheeley sculp.

Published by Henry Fisher, Caxton, London, 1823.

10. Aspalathus Nigra; *Black Aspalathus.* Leaves fascicled, linear, rather obtuse; flowers headed, spiked, pubescent; bractes in pairs, narrow.

11. Aspalathus Carnosa; *Fleshy Aspalathus.* Leaves fascicled, almost columnar, obtuse; calices subpubescent, sharp; corollas smooth; flowers yellow, terminal, umbelled.

12. Aspalathus Ciliaris; *Ciliate-leaved Aspalathus.* Leaves fascicled, filiform, scabrous; flowers terminal, sessile; banners pubescent; corolla yellow, with an ash-coloured banner.

13. Aspalathus Genistoides; *Broom-like Aspalathus.* Leaves fascicled, filiform, polished; calices subracemed, pendulous; they and the corollas smooth, and yellow.

14. Aspalathus Hystrix; *Porcupine Aspalathus.* Leaves fascicled, filiform, rigid, spiny, silky; flowers lateral, sessile, solitary; corollas villose.

15. Aspalathus Galioides. Leaves fascicled, linear, polished; peduncles two-flowered, elongate, leafy at the end.

16. Aspalathus Retroflexa. Leaves fascicled, subulate, smooth, very small; branches filiform, very spreading; flowers solitary, terminal; keel of the corolla tomentose.

17. Aspalathus Uniflora; *One-flowered Aspalathus.* Leaves fascicled, linear, unarmed, smooth; stipules sharp, permanent; flowers solitary; divisions of the calices boat-shaped.

18. Aspalathus Araneosa. Leaves fascicled, bristle-shaped, unarmed, hispid; flowers headed; banner hairy on the outside.

19. Aspalathus Asparagoides. Leaves fascicled, setaceous, rather hairy; calices leaf-shaped, the length of the corolla, solitary; banner scarcely pubescent.

20. Aspalathus Sericea; *Silky Aspalathus.* Leaves fascicled, lanceolate, silky; peduncles terminal, two-flowered; banner almost naked; flowers large, smooth.

21. Aspalathus Canescens; *Hoary Aspalathus.* Leaves fascicled, subulate, tomentose, silky; flowers lateral; banners pubescent; corolla yellow, with a hoary pubescent banner.

22. Aspalathus Heterophylla; *Various-leaved Aspalathus.* Leaves of the branches fascicled, of the branchlets ternate, linear, hairy; spikes terminal; calix and corollas villose; flowers yellow.—All natives of the Cape.

23. Aspalathus Indica; *Small-flowered Aspalathus.* Leaves quinate, sessile; peduncles one-flowered; flowers pale red.—Native of the East Indies.

24. Aspalathus Cretica; *Evergreen Aspalathus.* Leaves trinate, wedge-shaped, smooth, the lateral ones shorter; stipules obsolete; flowers headed, very small, yellow.

25. Aspalathus Quinquefolia; *Five-leaved Aspalathus.* Leaves in fives, sessile; leaflets lanceolate; peduncles spiked; corollas tomentose.

26. Aspalathus Tridentata; *Three-toothed Aspalathus.* Leaves trine, lanceolate, smooth; stipules three-toothed, mucronate; flowers headed.

27. Aspalathus Pilosa; *Hairy Aspalathus.* Leaves tern, linear, villose; heads terminal, very hairy; corollas pubescent.

28. Aspalathus Anthylloides. Leaves trine, lanceolate, equal, subpubescent; stipules none; heads terminal.

29. Aspalathus Laxata; *Loose-leaved Aspalathus.* Leaves tern, linear, villose; flowers in bunches of five; calices woolly; stems prostrate, round; corolla smooth and yellow.

30. Aspalathus Argentea; *Silvery Aspalathus.* Leaves trine, linear, silky; stipules simple, mucronate; flowers scattered, tomentose, purple.

31. Aspalathus Callosa; *Callous Aspalathus.* Leaves trine, subulate, equal; stipules roundish; callous; flowers spiked, smooth, yellow.—The eight last species are natives of the Cape of Good Hope.

32. Aspalathus Orientalis; *Levant Aspalathus.* Leaves ternate, lanceolate, pubescent; flowers in bunches of five; corollas yellow; calices pubescent; stems erect, angular.—Found in the Levant.

33. Aspalathus Mucronata. Leaves tern, polished; branches acuminate; flowers in racemes; stem smooth.

34. Aspalathus Pinnata; *Pinnate-leaved Aspalathus.* Leaves pinnate-quinate, obcordate; peduncles headed.

35. Aspalathus Pedunculata; *Small-leaved Aspalathus.* Leaves fascicled, subulate, smooth; peduncles filiform, twice the length of the leaf.—It flowers in August.

36. Aspalathus Candicans; *Fair Aspalathus.* Leaves trine and fascicled, filiform, silky; flowers sublateral; banners naked.

37. Aspalathus Arborea; *Tree Aspalathus.* Leaves pinnate-quinate; racemes terminating. It is a middling-sized tree.—The five last, natives of the Cape.

Asparagus; a genus of the class Hexandria, order Monogynia. — Generic Character. *Calix:* none. *Corolla:* petals six, cohering by the claws, oblong, erected into a tube; three alternately interior, reflex at the end, permanent. *Stamina:* filamenta six, filiform, inserted into the petals, erect, shorter than the corolla; antheræ roundish. *Pistil:* germen turbinate, three cornered; style very short; stigma a prominent point. *Pericarp:* berry globular, umbilicated with a point, three celled. *Seeds:* two, round, angular on the inside, smooth. Essential Character. *Corolla:* six parted, erect, equal. *Calix:* none; style very short; stigmas three; berry superior, three celled, two seeded.—The species are,

1. Asparagus Officinalis; *Common Asparagus*, or *Sperage.* Stem herbaceous, round, erect; leaves setaceous; stipules uniform, subsolitary.—It is propagated by seeds, sown broadcast, but not too thick, on a level bed of good rich earth, in the beginning of March: the bed must be afterwards trodden all over, to bury the seed. Keep it clear of weeds during the following summer, and towards the latter end of October, when the haulm is quite withered, you may spread a little rotten dung, about two inches deep, over the surface of the ground, which will preserve the young buds from being injured by the frost. In the following spring the young plants will be fit to remove. Prepare the ground by trenching, and burying therein a good quantity of rotten dung at the bottom of each trench, that it may lie at least six inches above the ground, and level the whole, after taking out all the large stones. In the beginning of April, with a narrow-pronged dung-fork, carefully fork up the roots, shaking them out of the earth, and separating them from each other, observing to lay their heads even, then range a very tight line across the plot of ground, throwing out by it a trench six inches deep, into which trench you may lay your roots, spreading them with your fingers, and placing them upright against the back of the trench, that the buds may stand forward, and be about two inches below the surface of the ground, and at twelve inches distance from each other; then with a rake draw the earth into the trench again, laying it very level, which will preserve the roots in their right position. Then remove your line a foot farther back, and proceed as before. A small crop of Onions may be sown at the same time, treading in the seeds, and raking the ground level. Six weeks after planting, you must cut up the weeds with a small hoe, and thin the Onions wherever they rise in bunches, cutting up those Onions which grow near to the Asparagus shoots. This must be three times repeated, until the Onions are fit to be pulled up, which is commonly in August, and is known by the falling down and withering of their greens. Some persons cut their Asparagus for use, in the second spring after planting, but it is better to defer it till the third year.

In the summer of the second year keep them free from weeds, digging the alleys between them in October, and forking the beds towards the end of the following March; observing every other year to lay some rotten dung from a Melon or Cucumber bed, all over the beds, burying some in the alleys; also at the time for digging them up. When they appear about four inches above ground, you may then cut them sparingly, only taking the larger buds, and suffering the small to run up to strengthen the roots; for the more you cut, the greater will be the increase of buds, but they will be smaller, and the roots sooner decay. A very prevalent error is, that which has long prevailed with those people who will not dung their Asparagus beds, because they think that the dung communicates a strong rank taste to the Asparagus. This is a great mistake, for the sweetest Asparagus grows upon the richest ground, and it is the poor land that occasions that rank taste so often complained of; the sweetness of Asparagus being also proved by experiment to arise from the quickness of its growth, which is always proportionable to the goodness of the ground, and the warmth of the seasons. Eight rods of ground will be sufficient to supply a small family, and double that quantity for a large one.—*Forcing Asparagus.* Some persons, who delight in having early Asparagus, force it in the following manner. They provide a quantity of good roots, either of their own raising, or purchased from such gardeners as plant for sale, such as has been two or even three years out from the seed-bed; and having fixed upon the time at which they would wish to have their Asparagus fit to cut, they prepare a quantity of new horse-dung about six weeks before, which is thrown into a heap for ten days or more in order to ferment, and having some sea-coal ashes mixed with it, they turn it over into a heap, where it must lie another week, when it will be fit for use. They then dig out a trench in the ground where they intend to make the bed, a foot and a half deep, of the width of the frames which are designed to cover it, and the length proportioned to the quantity which they design to raise: if it be only to supply a small family, three or four lights at a time will be sufficient, but for a larger family, six or eight lights will not be too much: they then lay down the dung into the trench, working it very regularly, and beating it down very tightly with a fork, laying it at least three feet in thickness, or more, when the beds are made in December; upon this they put the earth, taking great care to break the clods and lay it level, beginning at one end to lay the roots against a little ridge of earth, raised about four inches high, and as close as possible to each other, in rows, with their buds standing upright, with a small quantity of fine mould between every row, observing to keep the crown of the roots exactly level. When you have finished laying your beds with roots, you must lay some stiff earth up to the roots, on the outsides of the bed, which are bare, to keep them from drying; and thrust two or three sharp-pointed sticks about two feet long, down between the roots in the middle of the bed at a distance from each other. The use of these sticks is to inform you what temper of heat the bed is in, which you may find by drawing up the sticks, and feeling the lower part: and if after the bed has been made a week, you find it does not heat, you may lay a little straw or litter round the sides, and also upon the top, which will greatly help it; or if you find it very hot, so as to endanger scorching the roots, it will be advisable to let it remain wholly uncovered, and to thrust a large stick into the dung on each side of the bed in two or three places, to make holes for the great steam of the bed to pass off, which in a short time will reduce the bed to a moderate heat. After the bed has been made a fortnight, you must cover the crowns of the roots with fine earth about two inches thick, and when the buds begin to appear above ground through that earth, you must again lay on a fresh quantity, about three inches thick; so that in the whole it may be five inches above the crowns of the root, which will be sufficient. Then you must make a band of straw, or long litter, about four inches thick, which must be fastened round the sides of the bed, that the upper part may be level with the surface of the ground; this must be fastened with straight sticks about two feet long, sharpened at the points to run into the bed; and upon this band you must set your frames, and put your glasses thereon; but if, after your bed has been made three weeks, you find the heat decline, you must lay a good lining of fresh hot dung round the sides of the bed, which will add a fresh heat thereto; and in bad weather, as also every night, keep the glasses covered with mats and straw; but in the day-time let it be all taken off, especially whenever the sun appears, which, shining through the glasses, will give a good colour to the Asparagus. A bed thus made, if it work kindly, will begin to produce buds for cutting in about five or six weeks, and will hold about three weeks in cutting; if rightly planted with good roots, it will produce in that time about three hundred buds in each light; so that where it is proposed to be continued until the season of natural Asparagus, a fresh bed should be made every three weeks, until the beginning of March, from the time of the first bed being made; but if the last bed be made about a week in March, it will last till the season of natural Asparagus; for the last beds will come a fortnight sooner to cut after making, than those made about Christmas; and the buds will be larger, and better coloured, as they will then enjoy a greater share of the sun. The best ground for planting Asparagus, to have large roots for hot-beds, is a moist rich soil; but for those intended for a natural produce, a middling soil, neither too wet nor too dry; yet a fresh sandy loam, when well dunged, is preferable to any other.

2. Asparagus Declinates; *Long-leaved Asparagus.* Stem unarmed, round; branches declined; leaves setaceous. This species is higher than the common sort; the leaves also are twice as long, and more abundant; the stem is annual.—Native of the Cape of Good Hope.

3. Asparagus Falcatus; *Sickle-leaved Asparagus.* Prickles solitary, reversed; branches round; leaves ensiform, falcated; stem round and branching.—A native of Ceylon.

4. Asparagus Retrofractus; *Larch-leaved Asparagus.* Prickles solitary; branches round, reflected, and retrofracted; leaves setaceous, fascicled. It has very crooked irregular stalks, shrubby, and rising eight or ten feet high, putting out several weak side-branches, having long narrow leaves, in clusters like those of the Larch-tree; under each of these clusters is placed a single sharp thorn. The stalks continue several years, and the leaves retain their greenness through the winter.—It flowers in August and September; and is a native of the Cape of Good Hope.

5. Asparagus Æthiopicus. Prickles solitary, reversed; branches angulate; leaves lanceolate, linear. This resembles the third species; but the leaves are smaller, and about seven in a bunch.—Native of the Cape of Good Hope.

6. Asparagus Asiaticus; *Slender-stalked Asparagus.* Prickles solitary; stem erect; branches filiform; leaves fascicled, setaceous.—It is a native of Asia.

7. Asparagus Albus; *White Asparagus.* Prickles solitary; branches angular, flexuose; leaves fascicled, triquetrous, awnless, deciduous. The spines are straight, spreading, or reflex.—It is a native of the south of Europe, especially of Spain and Portugal.

8. Asparagus Acutifolius; *Acute-leaved Asparagus.* Stem

unarmed, angular, shrubby; leaves needle-shaped, rather rigid, perennial, mucronate, equal. This has white crooked shrubby stalks, which rise four or five feet high, but have no spines on them, the leaves come out in clusters like those of the Larch-tree, but are very short, and end in sharp prickles so that they are troublesome to handle.—It is a native of Spain, Portugal, and the Levant.

9. Asparagus Horridus; *Thorny Asparagus.* Leafless, shrubby, five-cornered; prickles four-cornered, compressed, striated. The spines are about the length of a finger.—It is a native of Spain.

10. Asparagus Aphyllus; *Prickly Asparagus.* Stem unarmed, angular, shrubby; leaves subulate, striated, unequal, diverging. The flowers are small, and of an herbaceous colour; the berries are larger than those of the common sort, and are black when ripe.—Native of the southern parts of Europe.

11. Asparagus Capensis; *Cape Asparagus.* Spines in fours; branches aggregate, round; leaves setaceous; root tuberous; stems shrubby, filiform, flexuose; spines spreading, a little recurved, very acute.—Native of the Cape of Good Hope.

12. Asparagus Sarmentosus: *Linear-leaved Asparagus.* Leaves solitary, linear-lanceolate; stem flexuose; prickles recurved. It sends out many weak climbing branches, which rise about five or six feet high from the root; the shoots are armed with short crooked spines, which are so closely set on that it is difficult to touch the branches.—The roots, which are long, fusiform, whitish, and fleshy, of a sweetish pleasant flavour, are eaten in Ceylon, (where it grows naturally,) with broth or milk, and the inhabitants appear to be very fond of them.

13. Asparagus Verticillaris; *Whorl-leaved Asparagus.* Leaves verticillate.—It was found by the French botanist Tournefort in the Levant, about Derbent, and in other parts of the East.

Asperugo; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, erect, with unequal toothlets, permanent. *Corolla:* one-petalled, funnel-shaped; tube cylindrical, very short: border semiquinquefid, obtuse, small; throat closed, with five convex, prominent, converging little scales. *Stamina:* filamenta five, in the throat, very short; antheræ oblongish, covered. *Pistil:* germen four, compressed; style filiform, short; stigma obtuse. *Pericarp:* none. *Calix:* very large, erect, compressed; lamellas flat-parallel, sinuate. *Seeds:* four, oblong, compressed, distant, by pairs. Essential Character. *Calix:* of the fruit compressed; lamellas flat-parallel, sinuated.——The species are,

1. Asperugo Procumbens; *Procumbent Asperugo.* Calices of the fruit compressed; root annual; corolla scarcely exceeding the calix, deep blue, often white.—It is found in roads and among rubbish at Newmarket, Boxley in Sussex, Holy Island, and near Purfleet, flowering in April and May. Horses, goats, sheep, and swine, eat it, but cows are not partial to it. Small Wild Bugloss, or Borrage, Great Goose-grass, are also names under which it has been known.—It may be easily propagated by seeds sown in autumn; or, if they be permitted to scatter, the plants will come up of themselves.

2. Asperugo Ægyptiaca; *Egyptian Asperugo.* Calices of the fruit swelling; root annual, columnar, the thickness of a quill, red; stem half a foot high or more; flowers void of scent; petals pale yellow, and the scales of the throat yellow.—It flowers from June to August, and is a native of Egypt. It may be raised by seeds, but they must be sown in a moderate hot-bed. The plants will flower in the open air in summer, but they must be housed in winter.

Asperula; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth small, four-toothed, superior. *Corolla:* one-petalled, funnel-shaped; tube cylindric, long; border four-parted; divisions oblong, obtuse, reflex. *Stamina:* filamenta four, at the top of the tube; antheræ simple. *Pistil:* germen twin, roundish, inferior; style filiform, bifid at top; stigmas headed. *Pericarp:* two dry globular united berries. *Seed:* solitary, roundish, large. Essential Character. *Corolla:* one-petalled, funnel-shaped; seeds two, globular.—All these plants, except the second species, being perennial, may be increased by the roots as well as by seeds. The first sort will prosper under the shade of shrubs in wilderness quarters. The fifth must have the protection of a green-house, and does not continue many years; but it may be increased both by seeds and cuttings. The eighth growing naturally in chalk, and most of the others being natives of rocky places, require a dry open situation.——The species are,

1. Asperula Odorata; *Sweet-scented Woodroof.* Leaves eight in a whorl, lanceolate; flowers in bunches, peduncled; root perennial, slender, jointed, yellowish, creeping a little below the surface, and sending out many small fibres.—Native of many parts of Europe, in woods, and shady places, flowering in May, and sometimes in April. The scent is pleasant; and when dried, this plant diffuses an odour like that of *Vernal Grass,* or Anthox Anthrum Odoratum. It is said to give a grateful flavour to wine; and when kept among clothes, not only to impart an agreeable perfume to them, but to preserve them from insects: cows, horses, sheep, and goats, are reported to eat it. Since it is known to contain an acrid principle, with much fixed alkaline salt, it is thought by some that it may be useful in obstructions of the liver and biliary ducts, although modern practitioners generally reject it. A strong decoction of the green herb opens obstructions of the viscera, and is good in the jaundice; it likewise strengthens the stomach, and is often taken as a cordial.

2. Asperula Arvensis; *Blue* or *Field Woodroof.* Leaves six in a whorl; flowers sessile, terminal, aggregate; root annual, slender, with a yellow bark; corollas blue, with streaks of darker blue; germs smooth.—The roots dye a fine red colour. It flowers in July, and is a native of France, Germany, and various parts of Italy.

3. Asperula Taurina; *Broad-leaved Woodroof.* Leaves four in a whorl, ovate, lanceolate, revolute, bluntish, pubescent; flowers in terminal bunches; roots perennial, red, branching, intertwined.—Flowering from April till June, and a native of Switzerland and Italy.

4. Asperula Crassifolia; *Thick-leaved Woodroof.* Leaves four in a whorl, oblong-lateral, revolute, bluntish, pubescent; the flowers are few, in terminal branches, pubescent on the outside.—Native of Crete, and the Levant; flowering in June.

5. Asperula Calabrica; *Calabrian Woodroof.* Leaves four in a whorl, oblong, lateral, revolute, bluntish, pubescent.—This is an undershrub, about a cubit high, prostrate, and extremely fetid in all its parts; which, with its shrubby stalks and leaves in pairs, sufficiently distinguishes this species. It flowers during most of the summer, and some part of the autumn; and is a native of Syria, between Aleppo and Antioch, and also of Calabria and Sicily.

6. Asperula Tinctoria; *Narrow-leaved Woodroof.* Leaves linear, the lower six, the middle four, in a whorl; stem flaccid; flowers generally trifid, white: the whole plant is green and smooth.—In Gothland the roots are used instead of Madder

for dyeing wool of a red colour.—It is a native of Sweden, Germany, Switzerland, France, Carniola, and Siberia.

7. Asperula Pyrenaica; *Pyrenean Woodroof.* Leaves four in a whorl, lanceolate-linear; stem erect; flowers generally trifid, red; roots perennial.—Native of the Pyrenees, and about Basil.

8. Asperula Cynanchica; *Squinancywort,* or *Small Woodroof.* Leaves four in a whorl, linear, the upper ones opposite; stem erect; flowers quadrifid; roots perennial; stems from four inches to a foot and half in length, prostrate, hard, numerous, branching dichotomously. The corollas are blush-coloured, elegantly marked with red lines; sometimes they are white. The flowers have a sweet smell.—It is found in France, Germany, Switzerland, Carniola, Italy, and the Levant: it abounds in many parts of England, on chalk-downs, as, about Dartford in Kent; in Epsom downs, Hertfordshire, Gog-magog hills, Newmarket heath, Swaffham in Norfolk, Armingale wood near Norwich, and on the Sussex downs. It flowers from June till August. This plant had formerly a great reputation for curing the quinsy, for which it was both internally and externally applied: it is now entirely obsolete.

9. Asperula Aristida; *Awn-flowered Woodroof.* Leaves linear, rather fleshy; the lower ones four in a whorl; stem upright; flowers subtern-awned, pale yellowish, placed parallel with the divisions, bluntly awned.—Native of the south of Europe.

10. Asperula Lævigata; *Shining Woodroof.* Leaves four in a whorl, elliptic, nerveless, smoothish; peduncles divaricate, trichotomous; seeds scabrous; stems simple, smooth, spreading; leaves subpetioled, obtuse, spreading, scarcely ciliate; flowering branches horizontal, bifid; two small lanceolate bractes; flowers usually in threes, peduncled, white.—It flowers in June and July; and is a native of the south of Europe

11. Asperula Hexaphylia; *Six-leaved-Woodroof.* Leaves six in whorl, linear; flowers umbelled, terminal, subsessile; root perennial; stems sometimes branching at the base, but generally simple; corollas purple, white within, the segments a little revolute; seeds oblong, compressed; the whole plant is smooth. It grows in the fissures of the rocks near Tende.

Asphodelus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* one-petalled, six-parted; divisions lanceolate, flat, spreading; nectary six very small valves, converging into a globe, inserted into the base of the corolla. *Stamina:* filamenta six, subulate, inserted into the valves of the nectary, bowed, alternately shorter; antheræ oblong, incumbent, rising. *Pistil:* germen roundish, within the nectary; style subulate, in the same situation with the stamina; stigma truncate. *Pericarp:* capsule globular, fleshy, three-lobed, three-celled. *Seeds:* several, triangular, gibbous on one side. *Observe:* the filamenta decline in some, and are bowed outwardly in others. Essential Character. *Corolla:* six-parted. *Nectary:* six valves covering the germen.—The Asphodels are pretty ornaments in a garden; and requiring but little trouble to cultivate, are the more acceptable.——The species are,

1. Asphodelus Luteus; *Yellow Asphodel,* or *King's Spear.* Stem leafy; leaves three-sided, striated.—The roots are composed of many thick, yellow fleshy tubers, joined into a head at the top, whence arise strong round single stalks, nearly three feet high, covering their whole length with long, three-cornered boat-shaped leaves, of a sea-green colour; the upper part of the stalk is adorned half way with yellow star-shaped flowers, which begin to open at bottom, so that on the same spike there is often a succession of flowers during a full month from the time of its beginning to flower, which is in June or towards the end of May.—It is a native of Sicily, multiplying very fast by roots, which will soon overspread a large border if permitted to remain, or if the side shoots are not taken off.

2. Asphodelus Ramosus; *Branched Asphodel,* or *King's Spear.* Stem naked; leaves ensiform, keeled, smooth. The flowers are star-shaped, white, with a purple line running longitudinally along the outside of each segment; they grow in long spikes, flowering successively, from the bottom upwards, appearing in the first part of June, and producing seed in autumn.—It is a native of the south of Europe: immense tracts of land in Apulia are covered with it, and it affords excellent food for sheep. It does not increase very fast by roots, nor should it be often transplanted, for that will weaken it, so that the flower-stems will not rise so tall, or produce so many flowers, as when left undisturbed for some years; the best way therefore is to propagate it by seeds, which should be sown soon after they are ripe, on a warm border of light fresh earth: in the spring the plants will appear, when you should carefully clear them from weeds, and in dry weather they must be frequently watered: if this be done, at the following Michaelmas, the plants will be strong enough to bear transplanting, at which time you must prepare a bed of fresh earth in the flower nursery, into which you should plant the roots, at about six inches' distance every way; observing to plant them so low as that the top of the roots may be three or four inches under the surface of the bed; and some old tan or dung should be spread over the ground, to keep out the frost: in this bed they may remain one year, during which time they should be kept clear from weeds; by which time, the roots having acquired strength enough to produce flowers the following year, in autumn, when their leaves are decayed, they should be carefully taken up, and transplanted into the flower-garden, observing to place them in the middle of the borders, amongst other hardy kinds of flowers, where, being properly intermixed, they will create an agreeable variety, and continue a long time in flower.—Motherby recommends the bruised root to be applied to scrophulous swellings, which, he says, it will speedily dissolve and disperse. This plant is of an acrid, heating, diuretic quality; and, taken internally, is said to be particularly useful in removing obstructions of the menstrual discharge: it has likewise gained the credit of being an excellent antispasmodic.

3. Asphodelus Fistulosus; *Onion-leaved Asphodel.* Stem naked; leaves stiff, subulate, striated, subfistulose. The roots are composed of many fleshy yellow fibres. The leaves spread out from the crown of the root close to the ground, in a large cluster; they are convex on their under side, but flat above, and hollow. The flower-stalks rise immediately from the root, and grow about two feet high, dividing upwards into three or four branches, which are adorned with white starry flowers, having purple lines on the outside, which appear in July and August, and ripen seed in October, soon after which the plants decay.—It grows naturally in the south of France, and the island of Crete. It is an annual plant and can be propagated by seeds only, which should be sown in the autumn, when they will be more certain to grow than if sown in the spring: when the plants are up, they will require no other trouble but to keep them clean from weeds, until they have put out four or five leaves, when they should be carefully removed to the place where they are designed to remain. If the seeds are permitted to scatter, the plants will come up without care, and those which are not removed will be the strongest plants, and produce a great number of flowers.

Asplenium; a genus of the class Cryptogamia, order Filices.—Generic Character. Fructifications disposed in right lines along the under disk of the frond.—Whoever desires to

cultivate any of these Ferns, must have walls, rocks, or heaps of stones, to set the hardy species in; or pots may be filled with loamy undunged earth, or sand, gravel, and lime rubbish for that purpose, placing them in the shade. Hart's-tongue has been raised from seed; but every species of the genus may be increased by parting the roots. Some of the foreign sorts must be placed under a common frame in winter; and it is evident, that such as are natives of the West Indies, and other hot climates, require the protection of a stove.——The species are,

**Frond simple.*

1. Asplenium Rhizophyllum; *Root-leaved Spleenwort.* Fronds cordate, ensiform, undivided, top filiform, rooting; root fibrose; fructifications irregularly dispersed over the whole disk of the leaf in oblong spots. The ends of the fronds bend down to the ground, and there throw out roots, by which means this species of Fern propagates itself.—Native of North America.

2. Asplenium Hemionitis; *Mule's tongue* or *Mule's-Fern Spleenwort.* Fronds cordate-hastate, five-lobed, quite entire; stipes smooth and even. It is a low Fern, nearly allied to Hart's-tongue, not above six inches in height, with a fibrous root.—Native of Madeira and the south of Europe.

3. Asplenium Scolopendrium; *Hart's-tongue Spleenwort.* Fronds cordate-ligulate, quite entire; stipes hirsute; root black, hard, covered with scales, and emitting numerous strong black fibres.—The fronds are greatly subject to variation, and hence several varieties have been noticed by authors, as the Curled, Curved, Clustered, and Branching Hart's-tongue. —It is a native of most parts of Europe, in shady lanes, on walls and rocks, in wells, and damp caverns. Common in the north of England, and is in full seed from September till November.—The leaves, which were recommended as aperients and corroborants, in obstructions of the viscera, have been principally used in apozems and infusions. Ray recommends the plant, from his own experience, as a good medicine against convulsive disorders; but it is discarded from the present practice, although the common people indeed still use an ointment made with the leaves of this plant, as also with those of Ophioglossum, or *Adder's-tongue,* in burns and scalds. According to Hill, the expressed juice of the plant taken in small quantities, for a considerable length of time, is an excellent medicine in obstructions of the viscera, and has been known to cure many of the most obstinate chronic disorders, when all other means have proved ineffectual.

4. Asplenium Nidus; *Bird's-nest Spleenwort.* Fronds lanceolate, quite entire, smooth. The leaves are two feet long, broad, firm, thick, smooth, and streaked. It roots into the tops of trees. The leaves come out in a circle, are erect, and form a kind of umbel, in the middle of which birds make their nests.—Native of Java and the Society Isles.

5. Asplenium Serratum; *Serrate-leaved Spleenwort.* Fronds lanceolate, serrate, subsessile. The root consists of brown fibres, sending up eight or nine fronds about three inches long. —Native of woods in the inland parts of Jamaica.

6. Asplenium Plantagineum; *Plantain-leaved Spleenwort.* Fronds ovate-lanceolate, subternate: stipe four-cornered. The margin of the fronds is even, and the stipe smooth.— Native of Jamaica.

7. Asplenium Lanceum; *Lance-leaved Spleenwort.* Frond elliptic, entire, smooth: stipe round, scaly. It differs from the third species, in having a lanceolate frond, not cordate. —Native of Japan.

8. Asplenium Bifolium; *Double-leaved Spleenwort.* Fronds pinnate; leaflets lanceolate, subsinuate, connate.—Native of South America.

*** Frond Pinnatifid.*

9. Asplenium Ceterach; *Common Spleenwort,* or *Miltwaste.* Lobes alternate, confluent, obtuse.—Native of most parts of Europe, on old walls, and on the clefts of moist rocks; as, about Bristol; Bury, in Suffolk; Heydon, in Norfolk, Asheridge, in Hertfordshire; near Malham, Tarn, and many other places, in the northern counties. It is in seed from May till October. It has been recommended as a pectoral, and as an aperient in obstructions of the viscera and an infusion of the leaves has been prescribed for the gravel. It was recommended by the ancients for the various disorders of the spleen: and, although rejected from modern practice, is prescribed by Meyrick to be administered in a strong decoction of the whole plant for all obstructions of the liver and spleen, which it will remove, if persevered in; and is also excellent in those disorders which arise from the same cause.

10. Asplenium Obtusifolium; *Blunt-leaved Spleenwort.* Fronds subpinnate; pinnas obtuse, sinuate, decurrent, alternate.—Native of South America.

**** Frond pinnate.*

11. Asplenium Nodosum; *Knotted-stalked Spleenwort.* pinnas opposite, lanceolate, quite entire.—Native of the West Indies, and Cochin-china.

12. Asplenium Salicifolium; *Willow-leaved Spleenwort.* Pinnas sickle-lanceolate, crenate from the base upwards, angular; height a foot and half.—Native of Jamaica and the Antilles.

13. Asplenium Trichomanes; *Common Maidenhair.* Pinnas roundish, crenate; roots small, consisting of brown capillary fibres.—Native of Europe, in the crevices of rocks and walls, and in shady places among stones. It is in seed from May to October. The country people sometimes give a tea or syrup of it, for coughs and other complaints of the thorax. A little of the syrup, mixed with water, makes a very pleasant draught. That which is brought from abroad has orange-flower water in it: but several different Ferns are used for Syrup of Capillaire.

14. Asplenium Viride; *Green Spleenwort.* Pinnas roundish, crenate, truncate at the base.—Native of moist rocks on the mountains of Yorkshire, Westmoreland, and North Wales.

15. Asplenium Ebeneum; *Ivory-stiped Spleenwort.* Pinnas lanceolate, subfalcate, serrate, eared at the base; stipe very glossy, simple.—Native of North America.

16. Asplenium Dentatum; *Tooth-leaved Spleenwort.* Pinnas wedge-shaped, obtuse, crenate, emarginate.—Native of South America and the West Indies.

17. Asplenium Marinum; *Sea Maidenhair,* or *Spleenwort,* or *Dwarf Sea-fern.* Pinnas obovate, serrate, gibbous, above obtuse, wedged at the base; fronds from three inches to a foot in length, but commonly about six inches.—Native of Sussex, Devonshire, Cornwall, Cumberland, Lancashire, Scotland, and Wales, on the rocks of the sea coast.

18. Asplenium Cultrifolium; *Sickle-leaved Spleenwort.* Pinnas sickle-lanceolate, gash-serrate, from the base downwards angular.—Native of the island of Martinico.

19. Asplenium Rhizophorum. Fronds rooting at top; pinnas ovate, repand, somewhat eared; very small ones, remote, quite entire. This seldom grows above ten or twelve inches in length, and is always found with the top bending towards the ground.—Native of Jamaica.

20. Asplenium Monanthemum; *One-flowered Spleenwort.* Pinnas trapezium shaped, obtuse, serrate, entire behind; one line of fructifications; fronds numerous, ascending, a foot high, frequently twisted, linear-lanceolate, acute, very smooth. —Native of the Cape of Good Hope.

21. Asplenium Ruta Muraria; *Wall-rue, Tentwort,* or *White*

Spleenwort. Fronds alternately decompound; leaflets wedge-shaped, crenulate.—It seeds from June till October, and is a native of Europe, in the fissures of walls and rocks. It was formerly employed as a medicine in coughs and obstructions but is now wholly out of repute.

22. Asplenium Alternifolium; *Alternate-leaved Spleenwort.* Fronds simply pinnate; leaflets alternate, wedge-shaped, gashed above. It differs from Wall-rue in having the stems more simple.—Native of Switzerland and Austria.

23. Asplenium Adiantum Nigrum; *Black Maidenhair.* Fronds subtripinnate; leaflets alternate; pinnas lanceolate, gash-serrate. In the leafing of this Fern there are varieties. —It seeds from April till October, and is a native of Europe; found in the fissures of rocks, and old walls, or among stones in shady places.

24. Asplenium Lanceolatum; *Lanceolate Spleenwort.* Fronds doubly pinnate, lanceolate; pinnas obovate, crenate; root crowned with tufts of long narrow dark scales.—Found on rocks near Tunbridge, and in Fayal.

25. Asplenium Marginatum; *Margined Spleenwort.* Pinnas opposite, cordate, lanceolate, submarginate, quite entire. —Native of South America.

26. Asplenium Squamosum; *Scaly-stiped Spleenwort.* Pinnas acuminate, gashed; stipe scaly.

27. Asplenium Striatum; *Striated Spleenwort.* Pinnas pinnatifid, obtuse, crenate; the terminal one acuminate.—This and the preceding are natives of South America.

28. Asplenium Erosum; *Lacerated Spleenwort.* Pinnas trapeze-oblong, striated, erose, eared at the base. Height from fourteen to eighteen inches. Stipe black and simple. —Native of Jamaica.

29. Asplenium Japonicum; *Japonese Spleenwort.* Pinnas acute, gash-pinnatifid, serrulate; stipe scaly at bottom, two feet high.—Native of Japan.

30. Asplenium Resectum; *Half-leaved Spleenwort.* Pinnas trapezium-shaped, acuminate, gash-crenate, entire behind; frond a foot high, lanceolate, acute, smooth.—Found in the Isle of Bourbon.

31. Asplenium Bulbosum; *Bulbous-rooted Spleenwort.* Pinnas lanceolate, slightly crenate; root bulbous; fructifications in oblique parallel lines.—Native of the mountains of Cochin-china, where the root is eaten.

32. Asplenium Proliferum. Fronds subsessile, broad-lanceolate, the first leaves obovate rooting at the end.—Native of Jamaica.

33. Asplenium Pumilum. Frond ternate; leaflets three-parted, gashed.—Native of Jamaica and Martinico.

34. Asplenium Dimidiatum. Pinnas trapeze-oblong, acuminate, angular upwards, entire, and flat downwards.—Native of Jamaica.

35. Asplenium Fragrans. Fronds subtripinnate; leaflets alternate; pinnas lanceolate, broadish, serrate at the tip.—Native of Jamaica.

36. Asplenium Grandiflorum. Pinnas alternate, lanceolate, subserrate, at the base rectangular, lower ones rounded.—Native of Jamaica.

37. Asplenium Dissectum. Pinnas lanceolate, gash-serrate, tailed at the tip.—Native of Jamaica.

38. Asplenium Præmorsum. Fronds tripinnatifid; pinnas somewhat wedge-shaped; pinnules erose, toothed at the tip.—Native of Jamaica.

39. Asplenium Cicutarium. Frond tripinnate, very smooth, the upper ones pinnatifid; leaflets lanceolate, entire.—It has a solid black root, covered with a hairy moss towards its top, whence rise nine or ten leaves, about three inches high.—Native of Jamaica.

40. Asplenium Flaccidum. Fronds pinnate; leaflets alternate, remote, pinnatifid, linear, stiff.—This, and the seven following, are natives of New Zealand.

41. Asplenium Lucidum. Fronds pinnate; leaflets opposite, oblong-ovate, acuminate, serrulate.

42. Asplenium Polyodon. Fronds pinnate; leaflets trapezoid, acuminate, acute, doubly serrate.

43. Asplenium Obliquum. Fronds pinnate; stipes scaly; leaflets oblong, opposite, acuminate, serrate, the outer margin shorter.

44. Asplenium Obtusatum. Fronds pinnate; leaflets opposite, oblong, obtuse, serrate.

45. Asplenium Tenerum. Fronds pinnate; leaflets rhomb-oblong, obtuse, gash-serrate.

46. Asplenium Caudatum. Fronds pinnate; leaflets pinnatifid, linear; bristle-shaped at the tip; segments blunt, gash-serrate at the tip; stipe rough with hairs.

47. Asplenium Bulbiferum. Fronds subbipinnate; leaflets decurrent, oblong, obtuse, pinnatifid; fructifications proliferous.

Assafœtida. See *Ferula.*

Assonia; a genus of the class Monadelphia, order Dodecandria—Generic Character. *Calix:* perianth double. *Outer,* three-leaved, unilateral, deciduous. *Inner,* one-leafed, five-parted; parts lanceolate, acute, reflex. *Corolla:* petals five, roundish, narrowed at the base, spreading, withering, affixed to the pitcher of the stamina. *Stamina:* filamenta fifteen, filiform, upright, shorter than the corolla, conjoined at the base into the form of a pitcher; antheræ oblong, subsagittate, erect; five, linear-lanceolate, somewhat erect, coloured, petal-formed straps between the stamina, proceeding from the pitcher. *Pistil:* germen roundish, five-furrowed; style simple, longer than the stamina, permanent; stigmas five, recurved. *Pericarp:* capsule subglobose or turbinate, five-celled; cells separable, bivalve. *Seeds:* solitary, or in pairs, subovate. Essential Character. *Calix:* double, outer one-leafed or three-leaved, inner one-leafed. *Corolla:* five-petalled, without any tube affixed to the pitcher of stamina. *Filamenta:* connected in the form of a pitcher, with petal-shaped straps between them. *Style:* one or five. *Capsule:* five-celled. *Seeds:* not winged.—For the propagation and culture of plants of this genus, see *Hibiscus* and *Pentapetes.*——The species are,

1. Assonia Populnea. Leaves cordate, ovate acuminate; flowers corymbed. This is a middle-sized tree, the wood of which is sweet-scented, and blue in the centre, and becomes very hard when it has arrived at a certain age.—It is a native of hilly woods in the Isle of Bourbon, where it flowers in May.

2. Assonia Palmata. Leaves cordate, palmate, smoothish lobes seven, acute, serrate-crenate; flowers corymbed; stem arboreous, branched.—Flowers in May and June; native of the Isle of Bourbon.

3. Assonia Acutangula. Leaves cordate, roundish, three-cusped, crenate, at first tomentose; flowers racemed; stem arboreous; fruit shaped like a pear.—Native of the Isle of Bourbon.

4. Assonia Angulata. Leaves cordate, roundish, angular at top, serrate-toothed, tomentose; umbels numerous; common peduncles shorter than the petiole; fruit globular. Native of the Isle of Bourbon.

5. Assonia Tiliæfolia. Leaves cordate, roundish, acute, crenate; flowers raceme-corymbed; corolla an inch in diameter.—Native of the Isle of Bourbon.

6. Assonia Tomentosa. Leaves cordate, roundish, crenate, tomentose, with almost circular veins; flowers umbelled.—Native of Madagascar.

7. Assonia Punctata. Leaves ovate-lanceolate, long, quite entire, tomentose underneath, rugged with dots on the upper surface.—Native of the Isle of Bourbon.

8. Assonia Decanthera. Leaves ovate-acuminate, repand-crenate, smooth; stamina five, two-anthered; flowers small, umbelled, scarcely three lines in diameter; stem arborescent with a brown furrowed bark; germen five-cornered, one seed in each cell of the fruit.—Native of Madagascar.

9. Assonia Umbellata. Leaves cordate, ovate-oblong, acuminate, repand, smooth; flowers umbelled, globular.—Native of the Isle of Bourbon, where ropes are made of the bark.

10. Assonia Ovata. Leaves ovate, toothed, five-nerved, tomentose; style very small.—Native of the Isle of Bourbon.

11. Assonia Ferruginea. Leaves ovate-oblong, seven-nerved, ferruginous beneath; petioles, peduncles, and calices, tomentose; stem arborescent, from eight to ten feet high; the branches, especially the younger ones, clothed with a rufous nap; fruit tomentose, roundish, five-cornered.—Native of the Isle of Mauritius.

Aster; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common imbricate, the inner scales prominent a little at the end, the lower ones spreading. *Corolla:* compound, radiate; corollules hermaphrodite, numerous in the disk; females ligulate, more than ten in the ray. Proper of the hermaphrodite, funnel-shaped, with a five-cleft spreading border; of the female ligulate, lanceolate, three-toothed, at length rolling back. *Stamina:* hermaphrodite; filamenta five, capillary, very short; antheræ cylindric, tubulous. *Pistil:* hermaphrodite; germen oblong; style filiform, the length of the stamina; stigma bifid, spreading:—females germen and style the same; stigmas two, oblong, revolute. *Pericarp:* none. *Calix:* scarcely changed. *Seeds:* solitary, oblong, ovate; down capillary. *Receptacle:* naked, flattish. Essential Character. *Receptacle:* naked. *Down:* simple. *Corolla:* rays more than ten. *Calix:* imbricate, lower scales spreading.—In the numerous species of this genus, the far greater part are hardy, herbaceous, fibrous-rooted, autumnal, flowering, showy, perennials, with annual stems, from one to five feet in stature. America has furnished a considerable number of them; and they are particularly adapted to adorn large borders and plantations of shrubs, in the latter season. Only two are annuals; five natives of Europe; and the first four species from the Cape, are shrubby plants of the green-house.—The species are,

**Shrubby.*

1. Aster Taxifolius; *Yew-leaved Starwort.* Undershrubby: leaves decurrent, subulate, channelled, ciliate; flowers terminal. Native of the Cape of Good Hope.—It produces no seeds in England, but may be propagated by cuttings any time during the summer. These should be planted in small pots filled with light earth, and plunged into an old hot-bed; where if they be shaded from the sun, and gently watered, they will put out roots in six weeks, when they may be placed in the open air, and in about a month after they should be separated, each into a small pot filled with light sandy earth. In October they must be removed into the green-house, and placed where they may enjoy as much free air as possible: but be secured from frost or damps, either of which will destroy them; so that they are much easier preserved in a glass-case, where they will enjoy more light and air than in a green-house; but they must not be placed in a stove, for artificial heat will soon destroy them.

2. Aster Reflexus; *Reflected-leaved Starwort.* Shrubby: leaves ovate, subimbricate, recurved, serrate-ciliate; flowers terminal; ray blood-red.—For the propagation and culture of this plant, see the preceding species. Native of the Cape of Good Hope.

3. Aster Crinitus. Somewhat shrubby: leaves ovate-oblong, acute, tomentose underneath; calices terminated with a hair; peduncles terminal, leafy, one-flowered; ray of the flower blue. For the propagation and culture of this plant, see the first species.—Native of the Cape.

4. Aster Fruticosus; *Shrubby Starwort.* Shrubby: leaves linear, dotted; peduncles one-flowered, naked; flowers solitary, upon long slender peduncles, of a pale blue colour.—For the propagation and culture of this plant, see the first species.—Native of the Cape.

***Herbaceous, entire-leaved Peduncles naked.*

5. Aster Tenellus; *Bristly-leaved Starwort.* Leaves filiform, prickle-ciliate; calices hemispheric, with equal leaflets; disk of the corolla yellow; ray blue, often, and especially in the night, rolled back.—Native of the Cape of Good Hope. For the propagation and culture of this plant, see the first species of this genus.

6. Aster Alpinus; *Alpine* or *Great Blue Mountain Starwort.* Leaves subspatulate, rough with hairs, quite entire; stems simple, one-flowered; calix equal; stem-leaves two, seldom three; sometimes the ray of the flower is white. It seldom rises above nine inches high on the Alps, and, when transplanted into a garden, not above sixteen, with a large blue flower at the top of each stalk. It flowers in June, and grows wild on the Alps and Pyrenees.—There are two varieties of this species; one also a native of the Alps, the other of Austria.

7. Aster Sibiricus; *Siberian Starwort.* Leaves lanceolate, almost stem-clasping, serrate, hairy, scabrous; calices lax; leaflets lanceolate, acuminate, leafy, hispid; peduncles one-flowered; ray of the corolla blue.—It flowers in August, and is a native of Siberia.

8. Aster Tripolium; *Sea Starwort.* Leaves linear-lanceolate, quite entire, fleshy, smooth, three-nerved; calicine leaflets submembranaceous, obtuse; root perennial.—It is found in the Isle of Wight; flowers sometimes occur without any ray, and sometimes the ray is white. It is a native of salt marshes on the sea-coast of Europe, and by inland salt lakes in Germany and Siberia. It is frequent about Bristol, and not only on the coast, but in the interior parts of the kingdom, where Dr. Hokes, with good reason, supposes that its presence indicates the existence of salt-springs. It flowers in July and August. Morison observes, that in the morning the flowers being expanded, appear blue; the blue florets quickly vanishing, and the disk remaining, they then appear yellow; in the evening, these go off, and the white down of the seeds shows itself: it thus undergoes a triple change in the course of the day, and hence derives its name of Tripolium.

9. Aster Amellus; *Italian Starwort.* Leaves oblong-lanceolate, entire, scabrous; branches corymbed; calices imbricate subsquarrose; leaflets obtuse, the inner membranaceous, coloured at the end. The stems grow in large clusters from the root, and each of them branch at the top into eight or ten peduncles, each terminated by a single large flower, having blue rays with a yellow disk. It flowers in August or September, and in mild seasons will often continue till the middle of November.—It grows naturally in the valleys of Italy, Sicily and Narbonne; also in Austria, Carniola, Germany, and Switzerland, and is very common about Bienne. The leaves and stalks being rough and bitter, the cattle seldom browse upon them, so that they remain in the pastures after the grass is eaten bare, and make a fine appearance when full of flowers.—This species is propagated by parting the roots, soon after the plant is out of flower; for those which are

removed in the spring, will not flower so strong in the succeeding autumn. The roots should not be removed oftener than every third year, if expected to produce many flowers.

10. Aster Divaricatus; *Divaricate Starwort.* Branches divaricate; leaves ovate, serrate; floral leaves quite entire, rather obtuse, stem clasping; stems rough, about two feet high, dividing towards the top into many forked branches, diverging from each other. The flowers grow almost in an umbel, and appear in the beginning of September.—Native of Virginia.

****Herbaceous, entire-leaved: Peduncles scaly.*

11. Aster Hyssopifolius; *Hyssop-leaved Starwort.* Leaves linear-lanceolate, drawn to a point at the base; quite entire, stiff; branchlets corymbed, fastigiate; leaflets frequently linear, imbricate; calices imbricate; stem a foot high; eight purple florets in the ray; pistil yellow.—Native of N. America.

12. Aster Dumosus; *Bushy Starwort.* Leaves linear, quite entire, smooth, those on the branchlets very short; branches panicled; calices cylindric, closely imbricate; stems upright, two feet high; flowers small, very white; disk yellow.—Native of North America.

13. Aster Ericoides; *Heath-leaved Starwort.* Leaves linear, quite entire, very smooth, those of the branchlets subulate, approximating, those of the stem elongated; calices subsquarrose; leaflets acute; stem smooth, three feet high.—Native of North America.

14. Aster Tenuifolius; *Fine-leaved Starwort.* Leave sublinear, quite entire; peduncles leafy; stem five feet high, slender, angular, smooth, not branching much; flowers terminal, small, white.—Native of North America.

15. Aster Linarifolius; *Savory-leaved Starwort.* Leaves linear, entire, mucronate, scabrous, stiff, upper ones lax, remote; calices imbricate; branches fastigiate; stem purplish; flowers terminal, solitary, few.—Native of North America.

16. Aster Linifolius; *Flax-leaved Starwort.* Leaves linear, entire, roughish; branches corymbed; fastigiate, with small leaflets; calices imbricate; rays about equal to the disk; stem two to three feet high, with many branches, terminated by a blue flower.—Native of North America.

17. Aster Acris. Leaves lanceolate, linear, stiff, quite entire, flat; flowers corymbed, fastigiate, of a pale bluish colour; peduncles leafy.—It grows naturally in the south of France, and in Italy, Spain, and Hungary.

18. Aster Concolor. Leaves ovate, sessile, quite entire; stem simple; raceme terminal; flowers of a pale blue colour. The whole plant tomentose.—Native of Virginia.

19. Aster Rigidus; *Stiff-leaved Starwort.* Leaves linear, alternate; flowers terminal, solitary; leaves small, stiff, many; stem woody, weak, not branching, terminated by one specious flower.—Native of Virginia.

20. Aster Novæ Angliæ; *New England Starwort.* Leaves lanceolate, quite entire, cordate, stem-clasping, hairy; calices longer than the disk, loose; leaflets linear lanceolate, nearly equal; stem hispid; stems many, five feet high, brown, terminated by large purple violet flowers, growing in a loose panicle, and expanding in August. The peduncles are so short, as scarcely to appear among the flowers.—Native of New England and Virginia.

21. Aster Undulatus; *Waved Starwort.* Leaves serrate, hairy, waved, lower cordate; petioles winged, dilated at the base; branchlets virgate; calices imbricate; stem hispid; flowers pale blue, inclining to white.—Native of N. America.

22. Aster Grandiflorus; *Catesby's Starwort.* Leaves stem-clasping, linear, quite entire, hispid, ciliate, those of the branches and calix reflex; each branch is terminated by a large blue flower.—Native of Virginia.

*****Herbaceous; Leaves serrate, Peduncles smooth.*

23. Aster Cordifolius; *Hart-leaved Starwort.* Leaves heart-shaped, acute, finely serrate, underneath hairy; petioles almost simple; branches panicled; stem rough with hairs.—Native of America, and of the northern parts of Asia.

24. Aster Puniceus; *Red-stalked Starwort.* Leaves stem-clasping, lanceolate-serrate, subscabrous; branches panicled; calices surpassing the disk; leaflets linear-lanceolate, nearly equal; stem hispid; flowers on single peduncles, forming a corymb at top, and of a pale blue colour; they appear in September.—Native of North America.

25. Aster Annuus; *Annual Starwort.* Leaves somewhat hairy, the lower ones subovate, serrate, the upper lanceolate; calices hemispherie; leaflets subequal, strigose.—The seeds of this plant will scatter, and come up without care: annual.—A native of North America.

26. Aster Vernus; *Vernal Starwort.* Root-leaves lanceolate, quite entire, obtuse; stem almost naked, filiform, a little branching; peduncles naked.—Native of Virginia.

******Herbaceous; Leave serrate, Peduncles scaly.*

27. Aster Indicus; *Indian Starwort.* Leaves ovate-oblong, serrate; floral leaves oval-lanceolate, quite entire; branchlets one-flowered; flowers terminal, solitary.—Native of Japan and China, flowering from August till October.

28. Aster Lævis; *Smooth Aster.* Leaves stem-clasping, oblong, quite entire, shining; root-leaves subserrate; branches simple, bearing about one flower; calices imbricate; peduncles leafy, subdivided; leaflets somewhat wedge-shaped, acute, thickened at the end; stem smooth; ray of the corolla blue.—Observed by Kalm in North America.

29. Aster Mutabilis; *Variable Starwort.* Leaves almost stem-clasping, lanceolate, serrate, glossy, drawn to a point below; branchlets virgate; calices somewhat leafy, lax; stem smooth; disk yellow to purple.—Flowers at the end of October.

30. Aster Tradescanti; *Tradescant's Starwort.* Leaves lanceolate, serrate, sessile, smooth; the middle branches virgate; calices closely imbricate; stem round, smooth. The ray of the corolla is first white, and afterwards becomes purplish.—Native of Virginia.

31. Aster Novi Belgii; *New Holland Starwort.* Leaves almost stem-clasping, lanceolate, smooth, but scabrous about the edge, the lower serrate; branches subdivided; calices loosely imbricate, leaflets linear-lanceolate; stem round, smooth; disk yellow; ray purple. The flowers appear at the latter end of August.—Native of Virginia and Pennsylvania.

32. Aster Tardiflorus; *Late-flowering Starwort.* Leaves sessile, lanceolate, drawn to a point at the base, serrate, smooth; calices lax; leaflets lanceolate-linear, subequal, smooth. Flowers in England, from July to September.—Native of North America.

33. Aster Miser; *Small White-flowered Starwort.* Leaves sessile, lanceolate, subserrate, smooth; calices imbricate; leaflets acute; disk equal to the rays.—Native of N. America.

34. Aster Macrophyllus; *Broad-leaved Blue Starwort.* Leaves serrate, oblong; the upper ovate, sessile, those on the stem cordate, petioled; upper petioles winged.—Native of North America.

35. Aster Chinensis; *Chinese Starwort, China Aster.* Leaves ovate, angular, toothed, petiolate; calices expanding, leafy, terminal.—The flowers of this species are the largest and handsomest of any belonging to the genus: the disk yellow, at first flat, then convex; the floscules of the ray broad and long, and scarcely notched at the end. It came originally from China to Europe, and is an annual plant, pro-

pagated by seeds, which must be sown in the spring on a warm border, or rather upon a gentle hot-bed, just to bring up the plants: for they should be inured to the open air as soon as possible, which will prevent them from being drawn up very weak; when they are three inches high they should be taken up, and planted in a bed of rich earth, at six inches distance every way, observing to shade them from the sun till they have taken root; and if the season proves dry, they must be often refreshed with water. In this bed they may remain a month or five weeks, by which time they will be strong enough to transplant into the borders of the flower-garden, where they are designed to remain; or into pots to adorn court-yards, &c. The plants should be taken up carefully, with large balls of earth to their roots, and the ground dug up and well broken with the spade, where the holes are made to receive the plants; and after they are planted with the earth closed about their roots, there should be some water given them to settle the earth. In August they will flower, by which time, if the ground be rich, they will be about two feet high, and furnished with many side branches, each terminated by a large radiated flower, forming one of the finest autumnal ornaments of the flower-garden. The seeds ripen in the beginning of October, and should be gathered when they are perfectly dry. In order to preserve the varieties with double flowers, those which grow upon the side branches, being commonly fuller of leaves than the flowers on the main stem, should always be preserved for seeds.—Besides the common varieties, white, blue, purple, and red, both single and double, there is now another in the gardens with variegated blue and white flowers.

36. Aster Tataricus; *Tartarian Starwort.* Root-leaves lanceolate-ovate, serrate, scabrous; stem few-flowered; ray of the corolla blue.—Native of Siberia.

37. Aster Hispidus; *Shaggy Starwort.* Lowest leaves oblong, crenate, scabrous; stem-leaves lanceolate, entire, ciliate; stem scabrous, erect, a foot high; flowers perennial, solitary; ray white.—Native of Japan.

38. Aster Scaber; *Rugged Starwort.* Leaves oblong, serrate, scabrous; peduncles panicled; stem herbaceous, a foot high.—Native of Japan.

Species from Miller, and from Aiton's Hort. Kew.

39. Aster Glaber; *Peach-leaved Starwort.* Leaves oblong-lanceolate, acute, serrate; stem branching; flowers terminal, pale blue; calices linear, erect.—Native of North America; flowering in October.

40. Aster Serotinus; *Late-flowering Blue Starwort,* or *Michaelmas Daisy.* Leaves oblong, acute, broader at the base, half stem-clasping; stem branching; flowers terminal, for the most part solitary; stems numerous, three feet and a half high, shooting out many lateral branches, terminated by pretty large flowers, very pale blue, tending to white.—Imported from Virginia.

41. Aster Præcox; *Early Starwort.* Leaves oblong, acute, scabrous, sharply-toothed, half stem-clasping; stem erect, hairy; flowers corymbed; calices hairy, erect; stems a foot and a half high; flowers large and blue, appearing in July.—Native of the Alps and Pyrenees.

42. Aster Altissimus; *Lofty Starwort.* See No. 24, Aster Puniceus; *Red stalked Starwort.*

43. Aster Ramosissimus; *Branching Starwort.* Leaves linear-lanceolate, stiff; stem very branching, spreading; flowers placed regularly one above another; peduncles leafy; flowers small, pale, and purple, appearing in November.—Native of North America.

44. Aster Umbellatus; *Umbelled Starwort.* Leaves lanceolate, drawn to a point at the base, quite entire, about the edge scabrous; branches corymbed, fastigiate; ray of the flowers, which appear in July and August, white.—Native of Nova Scotia.

45. Aster Nervosus; *Three-nerved Starwort.* Leaves linear-lanceolate, acute, nerved; stem simple; flowers terminal, in a kind of umbel.—Native of Pennsylvania.

46. Aster Paniculatus; *Panicled Starwort.* Lower leaves ovate, half stem-clasping at the base; upper leaves lanceolate, small; stem panicled; branches one-flowered; peduncles leafy, height four feet; branches erect, forming a loose spike of large blue flowers.—Native of North America.

47. Aster Latifolius. Leaves linear-lanceolate, smooth, three-nerved; flowers corymbed, terminal. The stems a foot and a half high, terminated by peduncles on every side, each sustaining a pale blue flower.—Native of Canada.

48. Aster Procumbens; *Procumbent Starwort.* Leaves ovate, toothed; stem procumbent; peduncles naked, axillary, one-flowered; the calix is scaly.—From Vera Cruz. This species cannot endure the open air of England. The seeds must be sown in a hot-bed; and the plants will require a stove to protect them during the winter.

49. Aster Holosericeus. Herbaceous: leaves oblong-lanceolate, serrate, underneath silver-silky; scapes one-flowered, leafy.—Native of New Zealand.

50. Aster Coriaceus. Herbaceous; leaves ovate, quite entire, furrowed above, woolly underneath; scapes one-flowered, leafy, woolly.—Native of Zealand.

51. Aster Cymbalariæ; *Cymbalaria-leaved Starwort.* Shrubby: leaves ovate, sinuate, rough with hairs; calices imbricate, rough with hairs.—It flowers most of the summer, and is a native of the Cape of Good Hope.

52. Aster Nemoralis; *Wood Starwort.* Leaves linear-lanceolate, drawn to a point at the base, somewhat scabrous; branches filiform, one-flowered; calices lax, imbricate; leaflets acute; stem a foot high; ray of the flower blue, disk white. It flowers in August.—Native of Nova Scotia.

53. Aster Paludosus; *Marsh Starwort.* Leaves linear, stem-clasping, quite entire, very smooth, scabrous at the edge; peduncles almost naked; calices squarrose; ray blue, large; disk yellow. Flowers appearing in September and October.—Native of the swamps of Carolina.

54. Aster Patens; *Spreading Hairy-stalked Starwort.* Leaves oblong, entire, acute, cordate, almost stem-clasping, scabrous; branches spreading, elongated, few-flowered; calices imbricate, sub-squarrose; stem rough with hairs; ray of the flower pale blue; disk tawny.—Native of Virginia, flowering in September and October.

55. Aster Foliolosus; *Leafy Starwort.* Leaves lanceolate-linear, quite entire, smooth, those on the branchlets spreading very much; calices imbricate; leaflets acute; stem pubescent.—It flowers in October, and is a native of North America.

56. Aster Multiflorus *Small-leaved Starwort.* Leaves linear, quite entire, smoothish; branches one-ranked; calices imbricate, squarrose; scales somewhat leafy, acute; stem pubescent; ray white, small.—It flowers in September and October, and is a native of North America.

57. Aster Salicifolius *Willow-leaved Starwort.* Leaves linear, lanceolate, quite entire, smooth; calices imbricate, lax; stem glossy, the height of a man; ray of the flower bluish flesh colour.—Native of North America.

58. Aster Æstivus; *Labrador Starwort.* Leaves lanceolate, almost stem-clasping, quite entire, smooth, scabrous about the edge; calices lax, with equal leaflets; ray blue. Native of North America; flowers in July and August.

59. Aster Junceus; *Slender-stalked Starwort.* Leaves

lanceolate-linear, sessile, smooth, the lowest subserrate, those of the branchlets lanceolate; branches virgate; calices imbricate; stem smoothish, four feet high; ray slightly flesh-coloured; disk elevated, pale yellow.—It flowers in October, and is a native of North America.

60 Aster Pendulous; *Pendulous Starwort.* Leaves elliptic-lanceolate, serrate, smooth, those of the branchlets rather remote; branches very much divaricated, pendulous; stem pubescent; ray of the flower white; disk yellow, changing to ferruginous. It flowers in October.—Native of North America.

61. Aster Diffusus; *Diffuse Starwort.* Leaves elliptic-lanceolate, serrate, smooth, proportioned; branches spreading; calices imbricate; stem pubescent; ray white.—Native of North America; flowering in September.

62. Aster Divergens; *Spreading Downy-stalked Starwort.* Leaves elliptic-lanceolate, serrate, smooth, those on the stem linear, lanceolate, elongated; branches spreading; calices imbricate; stem pubescent; ray white, shorter than the calix; disk reddish.—Native of North America.

63. Aster Corymbosus; *Corymbed Starwort.* Leaves cordate, smooth, acuminate, all finely serrate; petioles simple; branches fastigiate; stem smooth.—It flowers in September, and is a native of North America.

64. Aster Spectabilis; *Showy Starwort.* Leaves lanceolate, somewhat scabrous, the lower serrate; branches corymbed; calicine leaflets lax, nearly wedge-shaped, sharpish, squarrose; stem two feet high; ray blue.—It flowers in August and September, and is a native of North America.

65. Aster Radula; *Rough Starwort.* Leaves lanceolate, serrate, acuminate, wrinkled, very scabrous; calices imbricate; leaflets lanceolate, obtuse.—It flowers in September, and is a native of Nova Scotia.

Astragalus; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth-one-leafed, tubular, five-toothed, acute; lower toothlets gradually less. *Corolla:* papilionaceous; banner longer than the other petals, reflex on the sides, emarignate, obtuse straight; wings oblong, shorter than the banner; keel length of the wings, emarginate. *Stamina:* filamenta diadelphous, simple, and nine-cleft, almost straight; antheræ roundish. *Pistil:* germen nearly columnar; style subulate, ascending; stigma obtuse. *Pericarp:* legume two-celled, the cells bent to one side, with a longitudinal bifid septum parallel to the valves. *Seeds:* kidney-shaped. — Essential Character. *Legume:* two celled, gibbous.—Every species of this genus may be raised from seeds: these should be sown in April on an open border of light earth; the annual sorts where they are to remain; the perennials to be transplanted to the places for which they are destined. They are in general hardy, and require no other care but to draw the plants out where they come up too thick, leaving them a foot and half or two feet asunder, and to keep them clean from weeds.—The species are,

* *Stems leafy, erect; not prostrate.*

1. Astragalus Alopecuroides; *Fox-tail Milk Vetch.* Caulescent; spikes cylindric, subsessile; calices and legumes woolly.—The flowers, which are yellow, are produced in June or July, and ripen the seeds in September.—Native of the Alps, and Siberia.

2. Astragalus Christianus. Caulescent, erect; flowers glomerate, subsessile, from all the leafy axillas. The flowers are large, and of a bright yellow colour; they appear in July, and in very favourable seasons are succeeded by seeds in England, and will only succeed when planted in a warm border.—It is a native of the Levant.

3. Astragalus Capitatus. Caulescent: heads globular; peduncles very long; leaflets emarginate. From the axils come out long peduncles supporting a head of purple flowers, which appear in July, but are rarely succeeded by pods in England.—Discovered in the Levant by Tournefort. This species must be raised on a moderate hot-bed in the spring, and when the plants are fit to remove, they should be each put into a small pot filled with light earth, and plunged again into the hot-bed, shading them from the sun till they have taken root; after which they should have free air admitted to them daily, in proportion to the warmth of the season, and should be frequently and gently watered. In May they should be removed to a sheltered situation, where they may remain till October, when they should be placed under a common frame. In the spring they may be turned out of the pots, and planted in a warm border, where they will flower, and sometimes produce seeds. If the winter prove very severe, a little old tan should be laid over the roots.

4. Astragalus Pilosus; *Pale-flowered Milk Vetch.* Caulescent, erect, hairy: flowers in spikes; legumes subulate, hairy; root woody, perennial. It flowers from June till August; the corolla is of a light yellow colour.—Native of the Valais, Siberia, Thuringia, and Austria.

5. Astragalus Sulcatus; *Furrowed Milk Vetch.* Caulescent, erect, smooth, striated, stiff: leaflets linear-lanceolate, acute; legumes three-sided; root perennial, woody; corollas pale violet; seeds many, brown, shining, round, kidney-shaped. It flowers in the open air in June and July, and ripens seed in August. A native of Siberia.

6. Astragalus Galegiformis; *Goat's Rue-leaved Milk Vetch.* Caulescent, stiff, smooth; flowers in racemes, pendulous, small, yellow; legumes three-sided, mucronate at both ends; root perennial.—It flowers in June or July, ripens seeds in autumn, and is a native of Siberia. To cultivate this plant, you must place it in an open situation and dry soil.

7. Astragalus Chinensis. Caulescent, stiff, smooth; flowers in racemes, pendulous; legumes ovate, inflated, mucronate at both ends. The colour of the calix is greenish yellow; of the banner pale yellow, streaked with green at the base; of the wings and keel, white with yellow tips; the flower itself finally becomes white.—It is a native of China, as its name imports. For the propagation and culture of this species, see the third species of this genus.

8. Astragalus Onobrychis; *Purple-spiked Milk Vetch.* Caulescent, procumbent, diffused: spikes peduncled; banner twice as long as the wings; leaflets linear; corollas red: it flowers in June and July.—Native of Austria.

9. Astragalus Uliginosus; *Violet-coloured Milk Vetch.* Caulescent, almost upright: flowers in spikes; legumes almost upright, naked, tumid, round-flatted; point reflex.—It flowers from June till August.—Native of Siberia.

10. Astragalus Carolinianus; *Carolina Milk Vetch.* Caulescent, upright, even: peduncles in spikes; flowers greenish yellow; legumes ovate-cylindric, acuminated by the style; root perennial. It flowers in July and August; but unless the season be warm, seldom ripens seed in England.—Native of Carolina. For the culture and propagation of this plant, see the third species of this genus.

11. Astragalus Asper; *Rough Milk Vetch.* Caulescent, stiff, even, roughish; flowers pale, in spikes, on elongated peduncles; legumes oblong.—Native of Astracan.

** *Stems leafy, diffuse.*

12. Astragalus Canadensis; *Woolly Milk Vetch.* Caulescent, diffuse; legumes subcylindric, mucronate; leaflets almost naked; corollas all yellow; antheræ saffron-colour.—Native of Virginia and Canada. For the propagation and culture of this species, see the third species of this genus.

13. Astragalus Cicer: *Bladdered Milk Vetch.* Caulescent, prostrate: legumes subglobular, inflated, mucronate, hairy; root thick, sweet; corollas pale yellow. It flowers in July, and the seeds ripen in autumn. This species is recommended to be cultivated as the food for cattle.—It is a native of Italy, Austria, Switzerland, and Germany.

14. Astragalus Microphyllus; *Small Round Podded Milk Vetch.* Caulescent, erect, expanding: leaflets oval; calices rather tumid; legumes roundish; corollas yellow, twice as long as the calix.—Native of Siberia and Germany, flowering in June and July.

15. Astragalus Glycyphyllus; *Wild Liquorice,* or *Liquorice Vetch.* Caulescent, prostrate: legumes subtriquetrous, bowed; leaves oval, longer than the peduncle; corolla greenish yellow. It spreads much at the root in gardens. The leaves are sweet with a mixture of bitterness, and do not seem to be agreeable to cattle, at least the plant in its wild state is left untouched; otherwise this being the largest of the European species, it might have been desirable to cultivate it.—Native of most parts of Europe, in woods, hedges, and pastures, especially in a calcareous soil. Its flowers appear in June, its seeds in September.

16. Astragalus Hamosus; *Dwarf Yellow-flowered Milk Vetch.* Caulescent, procumbent: legumes subulate, recurved, smooth; leaflets obcordate, villose underneath; root annual; flowers of a pale yellow colour.—Native of Messina and Montpellier.

17. Astragalus Contortriplicatus; *Wave-podded-Milk Vetch.* Caulescent, procumbent: legumes writhed, channelled, villose. This is an annual plant, and varies wonderfully in size and height in different soils.—Native of Siberia.

18. Astragalus Bœticus; *Triangular-podded Milk Vetch.* Caulescent, procumbent: spikes peduncled; flowers yellow; legumes prismatic, straight, three-sided, hooked at top. Annual, flowering in July, and ripening seeds in autumn.—Native of Spain, Portugal, and Sicily.

19. Astragalus Laxmanni. Caulescent, procumbent: spikes elongated: legumes oblong, three-cornered, marked with a furrow, mucronate, villose; root perennial, branching; corolla pale blue; antheræ yellow.—It flowers in June and July, and is a native of Siberia.

20. Astragalus Stella. Caulescent, diffuse: heads peduncled, lateral; legumes straight, subulate, mucronate; corollas bluish purple.—Native of Montpellier.

21. Astragalus Sesameus; *Starry Milk Vetch.* Caulescent, diffuse: heads subsessile, lateral; legumes subulate, reflected at the point. It is an annual plant; flowering in June and July, and a native of France and Italy.

22. Astragalus Austriacus; *Austrian Milk Vetch.* Caulescent, prostrate, smooth, striated, weak: leaflets sublinear, emarginate; legumes round; root perennial, woody; flowers bluish, small, and without smell: they appear in May and June.

23. Astragalus Leontinus. Caulescent, prostrate: legumes ovate, villose; flowers spiked, erect, whitish or pale blue. This plant has no smell.—Native country unknown.

24. Astragalus Pentaglottis. Caulescent, procumbent: legumes headed, folded back, compressed, converging, crested, with a reflected point. It flowers in the beginning of August, and bears seed at the end of the same month.—Native of Spain.

25. Astragalus Epiglottis; *Heart-podded Milk Vetch.* Caulescent, procumbent: legumes headed, sessile, nodding, cordate, mucronate, folded back, naked. The plant is an annual, with largish flowers of a deep purple colour. It flowers in July, and ripens seed in autumn.—Native of Provence, Spain, Portugal, and of mountainous woods in the Levant.

26. Astragalus Hypoglottis; *Purple Mountain Milk Vetch.* Caulescent, prostrate: legumes headed, ovate, folded back, compressed, hairy, with a reflex point; root perennial; corolla bluish, purple, large, and handsome.—Native of sandy and chalky pastures, flowering from May till July. It varies with naked leaves and white flowers. It requires a shady situation and a strong soil.

27. Astragalus Syriacus; *Syrian Milk Vetch.* Caulescent, procumbent: heads peduncled; flowers reflected; legumes tomentose, ovate-oblong.—Native of Siberia.

28. Astragalus Arenarius. Subcaulescent, procumbent: flowers subracemed, erect; leaves tomentose; root perennial, filiform; corolla blue, without blue streaks.—Native of Scania, in loose sand.

29. Astragalus Glaux; *Small Milk Vetch.* Caulescent, diffuse; heads peduncled, imbricate, ovate; flowers erect; legumes ovate, callous, inflated.—Native of Spain.

30. Astragalus Sinicus; *Chinese Astragalus.* Caulescent, prostrate; umbels peduncled; legumes prismatic, three-sided, erect, subulate at top; root annual.—The flowers appear in July and August, and the seeds ripen in autumn. It grows naturally in China. For the propagation and culture of this species, see the third species of this genus.

31. Astragalus Alpinus; *Alpine Milk Vetch.* Caulescent, procumbent; flowers pendulous, racemed; legumes acute at both ends, hairy; stems rather more than a foot high; flowers specious, white; banner the length of the keel, blue with deeper-coloured lines, white at the base; wings stiff, short, narrow, hooked, white; keel white, with a broad obtuse beak.—Native of the mountains of Switzerland and Lapland.

32. Astragalus Ammodytes. Caulescent, undershrubby: flowers twin; legumes ovate, twin, woolly. Annual.—Native of the sandy hills of southern Siberia.

33. Astragalus Trimestris; *Egyptian Milk Vetch.* Subcaulescent: scapes mostly two-flowered; legumes hooked, subulate, two-keeled; root annual.—Native of Egypt, flowering in June and July, and ripening its seeds in August. This requires to be planted in a warm border.

**** Scape naked, with a leafy Stem.*

34. Astragalus Verticiliaris. Leaflets aggregate, semiverticilled.—Native of eastern Siberia, beyond the lake Baikal.

35. Astragalus Montanus. Nearly stemless: scapes longer than the leaf; flowers loosely spiked; erect; legumes ovate, with an inflected point.—Native of the mountains of Spain. This plant requires a shady situation and a strong soil.

36. Astragalus Vesicarius. Scapes longer than the leaves; flowers loosely spiked; calices and legumes inflated, hirsute; root perennial; banner of the corolla purple; wings yellow, keel white.—Native of Dauphiny and Siberia.

37. Astragalus Physodes. Scapes equal to the leaves; legumes inflated, subglobular, naked; root perennial, creeping; flowers in a spike, yellow, appearing in June.—Native of Siberia. It requires a shady situation and a strong soil.

38. Astragalus Caprinus. Scape erect; leaflets ciliate; legumes ovate, tumid, villose; root perennial, creeping; flowers pale yellow, very fragrant.—Native of Barbary and Russia.

39. Astragalus Uralensis; *Silky Milk Vetch.* Stemless: scape erect, longer than the leaves; legumes subulate, inflated, villose, erect; root long, woody; flowers pale violet colour.—Native of Dauphiny, Carinthia, the Pyrenees, and Siberia; also of mountainous pastures in Scotland. It requires an open situation and dry soil.

40. Astragalus Monspessulanus; *Montpellier Milk Vetch.* Scapes declining, the length of the leaves; legumes subulate,

round, rather bowed, smooth; root very large, woody, sweet. The raceme contains nearly thirty purple flowers.—Native of the south of France, the lower Valais, and the Grisons.

41. Astragalus Incanus. Scapes declining; leaflets tomentose; legumes subulate, rather bowed, hoary, incurved at top; root perennial.—Native of the south of France.

42. Astragalus Campestris; *Field Milk Vetch.* Calices and legume villose; leaflets lanceolate, acute; scape decumbent, bearing ten or twelve flowers in a loose raceme; corollas pale yellow.—Native of Switzerland and Germany.

43. Astragalus Depressus; *Dwarf White-flowered Milk Vetch.* Scapes shorter than the leaf; legumes nodding; leaflets subemarginate, naked; corollas small, white; keel purple at the tip.—Native place unknown.

44. Astragalus Uncatus. Scapeless: legumes subulate, hooked, longer than the leaf; leaflets obcordate.—It flowers in July and August, and the seeds ripen in autumn, and is found growing naturally in the neighbourhood of Aleppo.

45. Astragalus Exscapus; *Hairy podded Milk Vetch.* Scapeless: legumes woolly; leaves villose; flowers numerous, radical, subsessile, first pale and afterwards full yellow.—Native of Hungary. This plant has been much celebrated as a remedy in syphilitic complaints; the root is employed in decoction, half an ounce to a pint of water, to be taken warm night and morning,

**** *Stem woody.*

46. Astragalus Tragoides. Nearly stemless; flowers radical, numerous, subsessile; corollas yellow.—Native of Switzerland, Siberia, and Armenia.

47. Astragalus Tragacantha; *Goat's Thorn.* Trunk arborescent; petioles becoming spinescent; root large, woody, and branching; corollas long, stiff, of a pale violet colour.—Native of Switzerland, Mount Ætna, Mount Olympas, and of the sea-shore near Marseilles. Mr. Miller decribes four varieties of this species.—From this plant is gathered the gum called gum-tragacanth, so much used in various preparations of the materia medica. It differs from all other known gums, in giving a thick consistence to a much larger quantity of water, and in being difficultly soluble, or dissolving only imperfectly. When put into water, it imbibes slowly a great quantity of the fluid, swells into a large volume, and forms a soft but not fluid mucilage. The demulcent qualities of this gum are to be considered as similar to those of gum-arabic. It is seldom given alone, but frequently in combination with more powerful medicines, especially in the form of troches, for which it is peculiarly well adapted.—It may be propagated by seeds, if they can be procured from abroad, in the same manner with the others. They should be carefully taken up when large enough to transplant, and some of them reset in small pots filled with fresh earth, placed in the shade till they have taken root; after which they may be removed into an open situation, where they may remain till the end of October, when they should be placed under a common frame, to shelter them from severe frosts, and allow them free air in mild weather. The remainder of the plants may be set on a warm dry border. The plants in pots may be preserved a year or two under frames in winter, and then being taken out of the pots, may be planted in a lean dry soil and warm situation. These plants may also be increased by slips; and as they rarely produce seeds in this country, the latter method is generally used here. The best time for this work is in April, just as the plants begin to shoot, at which time the tender branches should be slipped off, and their lower parts divested of the decayed leaves; then they should be placed on a very moderate hot-bed, which must be covered with mats, to screen them from the heat of the sun by day, and the cold by night. These slips should be frequently but gently watered, until they have taken root; after which they may be exposed to the open air, and in very dry weather they must be refreshed with water. On this bed they may remain until the following spring, being covered with mats in very severe weather. In April they may be transplanted, either into pots filled with light sandy earth, or into warm borders; where, if the soil be dry, gravelly, and poor, they will endure almost the severest cold of our climate; but if planted in a very rich soil, will often decay in winter.

48. Astragalus Fœtidus. Stemless: leaves prostrate, viscid, sharply linear; scapes erect, with few yellow flowers.—Native of Dauphiny and of Mount Cenis.

49. Astragalus Halleri. Scapes leafless; leaves ovate-lanceolate, smooth; legumes inflated, hirsute, erect.—Native of the mountains of the Valais, and of Piedmont.

50. Astragalus Vulneraroides. Stemless, hirsute: scapes longer than the leaves; legumes inflated, ovate, in heads.—Native of Mount Cenis.

51. Astragalus Tenuifolius; *Upright Milk Vetch.* Caulescent, erect: spikes peduncled; banner twice as long as the wings; leaflets linear.—Flowers in July and August; a native of Siberia.

52. Astragalus Virescens; *Green-flowered Milk Vetch.* Caulescent, erect; legumes bent back; peduncles many-flowered, longer than the leaf; leaflets lanceolate, acute.—It flowers in June, and is a native of Siberia.

53. Astragalus Garbancillo. Stem shrubby, upright; pinnules ovate-oblong, somewhat tomentose; peduncle naked, elongated; spikes of flowers pale violet-coloured. It is reported to be very hurtful to cattle.—Native of Peru.

54. Astragalus Hispidus. Caulescent, procumbent: leaflets and legumes ovate-oblong, hispid; flowers in spikes, yellow; corollas shorter than the calix; seeds very few, kidney-shaped.—Native of Mount Libanus.

55. Astragalus Emarginatus. Almost stemless; scapes very long; heads globose; legumes woolly; flowers in a globose head, purplish; seeds very few, nearly kidney-shaped.—Native of Mount Libanus.

56. Astragalus Lanatus. Stemless, with a naked scape, the length of the leaves: legumes in close spikes, woolly, half cordate, three-sided, subulate; leaves villose; flowers in a close spike, yellow; seeds few, kidney-shaped.—Native of Mount Libanus.

57. Astragalus Leucophæus. Caulescent, procumbent: legumes subcylindric, straight, smooth; leaflets obcordate, villose underneath.—Native country unknown.

58. Astragalus Deflexus. Subcaulescent, prostrate: scapes twice as long as the leaf; legumes gaping; leaves pectinate, right-angled.—Native of the loftiest mountains of Siberia.

59. Astragalus Unifultus. Suffruticose, procumbent: stipules solitary, stem-clasping, opposite to the leaves, bifid.—Native of Peru.

60. Astragalus Varius. Caulescent, fruticulose, upright: flowers in lose spikes; legumes linear; stipules fuliginose downwards. This is a hoary little shrub, about a cubit high, with flowers subsessile, purple, with linear, acute, villose bractes; stem upright, round, branched from the base.—Native of Siberia.

61. Astragalus Aristatus. Suffruticose, prostrate; leaves hairy; petioles spinescent; calices awned; flowers purple.—Native of Switzerland and Provence.

62. Astragalus Pugniformis. Shrubby, procumbent: heads stem-clasping, tomentose; petioles and leaves pun-

gent and smooth.—This species is remarkable for the largeness of the heads or balls of flowers, which are almost as large as those of the first species.—Native of the Levant.

63. Astragalus Echinoides. The leaves are minute; the flowers small, white, with a purple line on the banner; peduncles axillary, short, two-flowered.—Native of Crete or Candia.

Astrantia; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal with very few rays (often three); partial with very numerous ones. Involucre universal, with leaflets double to the ray; partial with leaflets (about twenty) lanceolate, spreading, equal, coloured, longer than the umbellule. Perianth proper, five-toothed, acute, erect, permanent. *Corolla:* universal uniform; floscules of the ray abortive; proper with petals five, erect, inflex, bifid. *Stamina:* filamenta five, simple, the length of the corollule; anthera simple. *Pistil:* germen oblong, inferior; styles two, erect, filiform; stigmas simple, spreading. *Pericarp:* fruit ovate, obtuse, crowned, striated, bipartite. *Seeds:* two, ovate-oblong, covered with the crust of the pericarp, wrinkled. Essential Character. *Partial Involucres,* lanceolate, spreading, equal, longer, coloured. *Flowers,* very many, abortive. All the plants of this genus, except the fourth species, are very hardy, and may be propagated either by sowing their seeds, or by parting their roots. If from seeds, they should be sown in autumn soon after they are ripe, on a shady border; and when the plants are come up, they should be carefully weeded, drawing out some wherever they are found to be too close, in order that the others may have room to grow, until Michaelmas, when they should be transplanted where they are to remain, which should always be in a moist soil and a shady situation. They should be planted three feet asunder, as their roots will spread to a considerable width, if they be permitted to remain long in the same place. They require no other culture but to keep them clear from weeds, and every third or fourth year to be taken up at Michaelmas, and their roots parted, and planted again. They are seldom preserved except in botanic gardens, as there is no great beauty in the flowers.——The species are,

1. Astrantia Major; *Great Masterwort.* Leaves five-lobed, lobes trifid; stem eighteen inches high, branched a little.—It is a native of the mountains of Switzerland, where it was found abundantly, flowering in August. Its singularity has long obtained for it a place in our gardens, where it flowers in June and the succeeding months of summer. The whole plant has a warm aromatic taste, but little is known respecting its virtues, except that it is a violent purgative.

2. Astrantia Carniolica. Leaves five or seven lobed, simple or bifid; root nearly the thickness of the little finger, about an inch long, præmorse, dark brown, having an aromatic balsamic smell, with a taste at first slightly aromatic but nauseous, and afterwards acrid. The whole plant is smooth.—Native of Carniola; flowering there in July and August.

3. Astrantia Minor; *Little,* or *Alpine Masterwort.* Leaves digitate-serrate. This seldom rises a foot high.—Native of the Alps, and Alpine valleys of Switzerland, but not of the lower mountains, flowering there in August.

4. Astrantia Ciliaris. Leaves lanceolate, serrate-ciliate; stem simple, a foot high; rushes erect.—Native of the Cape of Good Hope. This species always requires to be protected by a dry-stove in winter.

5. Astrantia Epipactis. Leaves five-parted, obtuse-serrate; flowers in a head, yellow.—Native of Idria, Gorizia, and also of Hungary, flowering in March.

Astronium; a genus of the class Dicœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth five-leaved, coloured, small; leaflets ovate, concave, obtuse, spreading. *Corolla:* petals five, ovate, very obtuse, flat, spreading very much. Nectary, five roundish, very small glands in the disk of the flower. *Stamina:* filamenta five, subulate, spreading, the length of the corolla; antheræ oblong, incumbent. *Female. Calix:* perianth five-leaved, coloured; leaflets oblong, concave, obtuse, converging. *Corolla:* petals five, subovate, obtuse, concave, erect, less than the calix, permanent. *Pistil:* germen ovate, obtuse; styles three, short, reflex; stigmas subcapitate. *Pericarp:* none. Calix increased, coloured; its leaflets at first expanded into a pendulous star, at length dropping the seed. *Seed:* one, oval, the length of the calix, lactescent. Essential Character. *Male. Calix:* five-leaved. *Corolla:* five-petalled. *Female. Calix:* five-leaved. *Corolla:* five-petalled. *Styles:* three. *Seed:* one.——The following is the only species:

1. Astronium Graveolens. An upright tree, from twelve to thirty feet in height, abounding every where in a slightly glutinous terebinthine juice, which has a disagreeable smell. After the fruits of the female, and the flower in the male plants, have fallen off, new branches are put forth, having unequally pinnate leaves on them, with three pairs of leaflets, which are oblong, ovate, acuminate, quite entire or serrulate, smooth, veined, three inches in length. Panicles lax, half a foot long in the males, but a foot and a half long in the females, scattered on the outmost twigs; flowers small, red. The calices are expanded into stars, nine lines in diameter.—Native of the woods about Carthagena in New Spain; flowering in May and June, and fruiting in July.

Athamanta; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel, universal, manifold; spreading; partial, has few rays. Involucre universal, many-leaved, linear, a little shorter than the rays; partial linear, equal with the rays. Perianth proper, obscure. *Corolla:* universal, uniform; floscules all fertile; proper, with five petals, inflex-emarginate, a little unequal. *Stamina:* filamenta five, capillary, the length of the corolla; antheræ roundish. *Pistil:* germen inferior; styles two, distant; stigmas obtuse. *Pericarp:* none; fruit ovate-oblong, striated, bipartite. *Seeds:* two, ovate, convex on one side, striated; on the other flat. Essential Character. *Fruit:* ovate-oblong, striated. *Petals:* inflex, emarginate.—These plants are propagated by seeds, which should be sown in autumn, on an open bed of dry light ground; and, when the plants come up in the spring, they should be kept clean from weeds, and thinned where they are too close, so that they may have room to grow till the following autumn, when they should be carefully taken up, and planted at about a foot distance, in a bed of light sandy earth, where the roots will continue several years; except the eighth species, which is annual; and the ninth, which probably requires some shelter, but has not been cultivated with us.——The species are,

1. Athamanta Libanotis; *Mountain Spignel,* or *Stone Parsley.* Leaves bipinnate, flat; umbel hemispherical; seeds hirsute; root perennial; stem from one to two feet high, erect, not much branched, leafy.—Native of Denmark, Sweden, Germany, Switzerland, Austria, Carniola, the south of France, and on Gog-magog hills near Cambridge.

2. Athamanta Cervaria; *Broad-leaved Spignel,* or *Black-Hart Root.* Leaves pinnate, decussated, gash-angled; seeds naked; root perennial, thick, very long, annulated, full of resinous juice, sweet-smelling, with a bristle-shaped crown.—This plant is recommended in the gout, and in Stiria they use it in intermittent fevers.—Native of the mountains of France,

Switzerland, Germany, Austria, and Carniola. It flowers in July and August.

3. Athamanta Sibirica; *Siberian Spignel.* Leaves pinnate, gash-angled; stem four feet high, much grooved, angular; corollas red underneath.

4. Athamanta Condensata; *Close-headed Spignel.* Leaves subbipinnate; leaflets imbricate downwards: umbel lens-form; root perennial; stem simple, a foot high; antheræ and receptacles of the florets, purple.—Native of Siberia.

5. Athamanta Oreoselinum; *Divaricated Spignel*, or *Mountain Parsley.* Leaflets divaricate; root perennial, thick, aromatic, resinous, crowned with bristles. Petals white, with a blush of rose-colour. It is gratefully aromatic, and deserves to be better known.—Native of the continent of Europe, but not of Great Britain.

6. Athamanta Sicula; *Flixweed-leaved Spignel.* Lower leaves shining, primordial; umbels subsessile; seeds hairy. This is a perennial plant, sending up from the root several upright stems, nearly three feet high. The flowers are white, and are succeeded by oblong woolly fruit.—Native of Sicily.

7. Athamanta Cretensis; *Cretan Spignel*, or *Candy Carrot.* Leaflets linear, flat, hirsute; petals two-parted: seeds oblong, hirsute. The whole plant is villose in a wild state; when cultivated in a garden, the leaves become succulent, brittle, and very shining. Petals white. It flowers in June. Was found by the celebrated English botanist, Mr. Ray, upon the highest parts of Mount Jura.—It is a native of the southern parts of Europe. The seeds have been occasionally employed as carminatives, and were supposed likewise to be diuretic and emmenagogue: lately they been little used, except as ingredients in theriaca and mithridate. Haller, however, judges it to be much superior to the common *Daucus*, or Wild Carrot, in medicinal efficacy. It was celebrated anciently as a specific in the stone: and it will scarcely be credited, that Van Helmont seriously affirms, that it has even cured the water in a well of this disorder.

8. Athamanta Annua; *Annual Spignel.* Leaves many-parted; divisions linear, roundish, acuminate.—Annual; a native of Candia or Crete.

9. Athamanta Chinensis. Seeds membranaceous, striated; leaves super-decompound, polished, multifid; stem angular, erect; umbel not much expanded, white.—Native of China.

10. Athamanta Rupestris. Leaflets bristle-shaped, recurved, smooth; all the flowers fertile; stem eighteen inches high, branching, subvillose, finely streaked; petals white, equal.—Native of Carniola and Dauphiny.

Athanasia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common imbricate, ovate; scales lanceolate, pressed close. *Corolla:* compound uniform, longer than the calix; corollules hermaphrodite, equal, numerous; proper, funnel-form; border five-cleft, acute, erectish. *Stamina:* filamenta five, capillary, short; antheræ cylindric, tubular. *Pistil:* germen oblongish; style filiform, a little longer than the stamen; stigma bifid, obtuse. *Pericarp:* none. *Calix:* unchanged. *Seeds:* solitary, oblong; down chaffy, of very short bristles. *Receptacle:* chaffy; chaffs lanceolate, longer than the seed. Essential Character. *Calix:* imbricate; down chaffy, very short. *Receptacle:* chaffy.—The perennial Cape sorts of Athanasia are easily propagated by cuttings during the summer months. If these are planted either in pots or upon an old hot-bed, and closely covered with glasses, shading them in the heat of the day, and refreshing them with water when they require it, they will put out roots in five or six weeks; and in two months they may be taken up and planted in pots filled with light earth, and placed in a shady situation, until they have taken new root; after which they should be removed to a sheltered situation, mixing them with other exotic plants, where they may remain till the middle or end of October, according as the season proves favourable; then they should be removed into a dry-stove or glass-case, where they may enjoy as much free air as possible, but secured from frost, with which management they will thrive, and produce plenty of flowers; but where they are drawn weak in winter, they will not appear sightly. The annual Cape sort is propagated by seeds when they can be obtained good: they should be sown on a moderate hot-bed the latter end of March; when the plants are come up, they should have air, in proportion to the warmth of the season, admitted to them, to prevent their drawing up weak; and so soon as they are big enough to remove, they should be transplanted on another gentle hot-bed, at three inches distance, observing to shade them until they have got fresh root; after which they must have air and water, and, by the end of May, the plants will have acquired strength enough to be transplanted into the open air; when some may be planted in pots, to place among other exotic plants in summer, and the others into warm borders, where they will flower all the autumn; but unless the season is very warm, they will not ripen seeds. The European species may be propagated by planting slips or cuttings during the summer months, in the same way as the African sorts: some of the plants should be put into pots to be placed under a hot-bed frame in winter; the others may be planted in a warm border, where, if the winter proves favourable, they will live; but they rarely survive cold winters.——The species are,

1. Athanasia Squarrosa; *Cross-leaved Athanasia.* Peduncles one-flowered, lateral; leaves ovate recurved.—Native country unknown; supposed to be the Cape of Good Hope.

2. Athanasia Sessiliflora; *Sessile-flowered Athanasia.* Peduncles one-flowered, shorter than the leaf; leaves linear, hairy.

3. Athanasia Pumila; *Dwarf Athanasia.* Peduncles one-flowered, longer than the leaf; leaves linear, hairy.—A very small plant; found by Thunberg at the Cape.

4. Athanasia Crenata; *Notch-leaved Athanasia.* Flowers solitary, terminal; leaves linear, alternate; stem shrubby; one terminal flower.—Native country unknown.

5. Athanasia Uniflora; *One-flowered Athanasia.* Flowers solitary, terminal, sessile: leaves obovate, imbricate, smooth.

6. Athanasia Capitata; *Hairy Athanasia.* Flowers terminal, subsessile; leaves lanceolate, hirsute; flowers discoid and flosculose.

7. Athanasia Maritima; *Sea Athanasia Cudweed*, or *Cottonweed.* Peduncles two-flowered; leaves lanceolate, crenate, obtuse, tomentose; root perennial, woody, putting out many fibres, which spread near the surface. The flowers are produced towards the end of the branches, upon short peduncles, and are of a bright yellow colour. The whiteness of the leaves and branches, makes a pretty appearance.—Native of the south of Europe, on the sea-coast; found also in the isle of Anglesea, Cornwall, isle of Sheppey, near Pool in Dorsetshire, and Landguard fort in Essex.

8. Athanasia Genistifolia; *Broom-leaved Athanasia.* Corymbs simple; leaves lanceolate, undivided, naked, crowded; corymbs small, with three or four subsessile flowers.

9. Athanasia Pubescens; *Villose-leaved Athanasia.* Corymbs simple; leaves lanceolate, undivided, villose. It rises six or seven feet high, with a shrubby stem; the flowers are yellow. The seeds do not ripen in England.

10. Athanasia Annua; *Annual Athanasia.* Corymbs simple, contracted; leaves pinnatifid, toothed; root annual; stem

nine inches high, branched at top; flowers large, bright yellow, appearing in July and August, but rarely producing seed in this country. There is a variety of this species, which is a tender plant, with a single-grooved stem.

11. Athanasia Trifurcata; *Trifid-leaved Athanasia.* Corymbs simple: leaves three-lobed, cuneiform, flat, glaucous; stem shrubby, five or six feet high. The flowers are of a bright yellow colour, and appear in August, but are seldom succeeded by ripe seeds in England.

12. Athanasia Crithmifolia; *Samphire-leaved Athanasia.* Corymbs simple, leaves semitrifid, linear, divided into three or five narrow segments; stem shrubby; flowers yellow.

13. Athanasia Linifolia; *Flax-leaved Athanasia.* Corymbs simple; leaves linear, alternate; stem simple; round, smooth, like that of Flax.

14. Athanasia Dentata; *Tooth-leaved Athanasia.* Corymbs compound; leaves recurved, the lower linear, toothed, the upper ovate-serrate; stem low, shrubby, branching, seldom rising three feet high. Flowers pale yellow; they appear early in summer, and, if the season prove favourable, will be succeeded by ripe seeds in autumn.

15. Athanasia Parviflora; *Small-flowered Athanasia.* Corymbs compound; leaves pinnate, linear. It has roundish bunches of bright yellow flowers; some of the peduncles sustain but one, others two, three, or four flowers upon each; they appear in the beginning of July, and continue in succession till late in autumn; those which come early in the season will ripen their seeds in winter.

16. Athanasia Pinnata. Corymbs dense, compound; leaves pinnate, linear, tomentose; stem proliferous, shrubby, tomentose; calices villose.

17. Athanasia Pectinata. Corymb compound; leaves pinnate, smooth.—Found at the Cape by Thunberg.

18. Athanasia Dentata. Corymb compound; leaves lanceolate, toothed, serrate. This differs from the fourteenth species, though it has the same name.

19. Athanasia Filiformis; *Fine-leaved Athanasia.* Corymb compound; leaves linear, smooth, spreading.—Found at the Cape of Good Hope by Thunberg.

20. Athanasia Cinerea; *Lavender-leaved Athanasia.* Corymb compound; leaves linear, tomentose, entire.—All the above are natives of the Cape of Good Hope, except the 7th; and they are all perennial, except the 10th species.

Athenæa; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, coloured, five-parted; parts oblong, acute, erect, spreading at top. *Corolla:* none. *Stamina:* filamenta eight, filiform, erect, of which five are of the length of the calix, the three alternate ones a little shorter; antheræ sagittate; eight plumose *bristles*, shorter than the filamenta, growing together with them to a gland surrounding the germ. *Pistil:* germen superior, ovate, surrounded at the base by an annular gland; style setaceous, longer than the stamina; stigma depressed, five-parted. *Pericarp:* capsule globose, one-celled, three-valved; valves somewhat fleshy. *Seed:* three to five, rounded, covered with a pulpy-coloured membrane, affixed to the receptacle in the bottom of the capsule. Essential Character: *Calix:* coloured, five-parted; corolla none. *Bristles*, eight, feathered, between the filamenta; stigma five-parted; capsule globose, one-celled, three-valved. Seeds three to five.——The only species known is,

1. Athenæa Guianensis. A branching shrub; stem four or five inches in diameter, covered with a wrinkled gray bark. The flowers come out in bundles from the axils, and upon the tubercles of the stem and branches, each on a small peduncle; their calix is white, and there is no corolla: capsule green, with a tinge of violet. The seeds are covered with a pulpy viscid membrane of a scarlet colour. The bark, leaves, and fruit, are sharp, and aromatic. The last are called *caffe-diable*, or devil's coffee, by the creoles.—It is a native of Cayenne, and the neighbouring continent of Guiana, in a sandy soil, a quarter of a league from the seashore, flowering and bearing fruit in September.

Atractylis; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* outer many-leaved, linear, larger, roughened, permanent, imprisoning the common one; common, ovate, imbricate; the scales oblong, very many, lanceolate, converging, unarmed. *Corolla:* compound, radiate; corollules hermaphrodite, numerous, tubular in the disk: hermaphrodite ligulate in the ray; proper of the disk funnel-form, five-cleft; of the ray ligulate, flat, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil* of the disk: germen very short; style filiform, the length of the stamina; stigma bifid; of the ray, very like that of the disk, but obscure and withered. Pericarp none; calix converging. *Seeds:* turbinate, compressed. Down plumose. *Receptacle:* villose, flat. Essen. Char. *Corolla:* radiated: corollules of the ray five-toothed.—All the species of this genus, except the first, second, and third, are strangers to the European gardens; and whenever they are introduced, will require the protection of a greenhouse or stove.——The species are,

1. Atractylis Gummifera; *Gummy-rooted Atractylis.* Flower stemless: root perennial, sending out many narrow leaves, which are deeply sinuated, and armed with pines on their edges. These lie close to the ground, and between them the flower is situated. The florets on the border are white, but those which compose the disk are of a yellowish colour.—It is a native of Italy, and the islands of the Archipelago; it flowers in July, but never perfects seeds in England. The roots, if wounded when fresh, yield a viscous milky juice, which concretes into tenacious masses, whitish, and resembling wax. It was formerly chewed for the same purpose as Mastich.—It is propagated by seeds, which must be obtained from the countries where they grow naturally: these should be sown upon a border of light earth, in a warm situation, early in April; and when the plants come up, and are fit to transplant, they should be thinned, and those which are drawn out may be transplanted, leaving the others two feet asunder; after which, the only culture they require is, to keep them clean from weeds in summer, and in winter to cover the roots with some old tanner's bark, to prevent the frost from penetrating the ground.

2. Atractylis Humilis; *Dwarf Atractylis.* Leaves toothsinuated; flower radiated, fenced with an expanding involucre; stem herbaceous, near a foot high; flowers purple. The roots will live two or three years; it flowers in June, but, unless the summer be warm and dry, it will not perfect seeds in England.—It is a native of France and Spain; propagated in the same manner as the first species.

3. Atractylis Cancellata; *Netted Atractylis.* Involucres latticed, bellying, linear, toothed; calices ovate; flowers flosculous. It is an annual, seldom rising more than eight or nine inches high, with a slender stem, at the top of which are two or three slender branches, each terminated by a head of flowers, with an involucre of several narrow leaves, curiously netted over, and, by a surprising artifice of nature, keeping off the flies.—Native of Spain, Sicily, and other warm parts of Europe; flowers with us in July, and, if the season be dry and warm, will ripen its seeds in September.

4. Atractylis Lancea; *Lance-leaved Atractylis.* Involucres pinnate; leaves lanceolate, ciliate, smooth; stem a foot high, leafy; flowers terminal, solitary, subsessile.—Native of Japan.

5. Atractylis Ovata; *Ovate-leaved Atractylis.* Involucres pinnate; leaves ovate, ciliate, smooth, pale underneath; flower terminating, solitary.—Native of Japan.

6. Atractylis Oppositifolia; *Opposite-leaved Atractylis.* Leaves opposite; the leaves, and even the calix, tomentose underneath.—Native of the Cape of Good Hope.

7. Atractylis Purpurata; *Purple-flowered Atractylis.* Leaves hastate, rucinate; flowers large, purple; receptacle naked.—Found by Mutis in New Granada.

8. Atractylis Mexicana; *Mexican Atractylis.* Leaves oblong, quite entire; stem shrubby; stipules none; corolla purple.—Found in Mexico.

Atragene; a genus of the class Polyandria, order Polygynia.—Gen. Char. *Calix:* perianth four-leaved; leaflets oval, spreading, obtuse, deciduous. *Corolla:* petals twelve, linear, very narrow at the base, obtuse, spreading. *Stamina:* filamenta very many, very short; antheræ oblong, acuminate, shorter than the calix. *Pistil:* germina very many, oblong. Styles villose, permanent. Stigma simple, the length of the antheræ. *Pericarp:* none. *Seeds:* very many, ending in a hairy tail. Essen. Char. *Calix:* four leaved. *Petals:* twelve. *Seeds;* tailed.——The species are,

1. Atragene Japonica; *Japonese Atragene.* Erect: leaves opposite, triternate; leaflets ovate, gashed; stem angular and streaked, two feet high. It has all the appearance of Anemone; but it is referred to this genus on account of the number of petals.—Native of Japan.

2. Atragene Alpina; *Alpine Atragene.* Leaves doubly-ternate, serrate; other petals fourfold; stems many, branching, diffused, long, angular, smooth, brown, prostrate on the rocks, or scandent; petals dirty white, usually twelve.—This may be increased by cuttings or layers. In a strong soil, and trained against a wall, it will rise to the height of five or six feet. The flowers appear early, and, if the season prove favourable, make a handsome figure; but as this plant is apt to put out leaves very early in the spring, it is frequently nipped by the frosts.—Native of the high Alps in Switzerland.

3. Atragene Capensis; *Cape Atragene.* Leaves ternate; leaflets gashed, toothed, outer petals fivefold; scape simple, six or seven inches long.—Native of the Cape of Good Hope.

4. Atragene Tenuifolia; *Fine-leaved Atragene.* Leaves doubly pinnate; pinnules linear, entire.—Found at the Cape of Good Hope by Thunberg.

5. Atragene Zeylanica; *Ceylonese Atragene.* Tendrils two-leaved; this is caulescent, and scandent; panicle terminal, composed of a twice trifid peduncle, bearing commonly nine peduncled distinct purplish flowers.—Native of the island of Ceylon.

Atraphaxis; a genus of the class Hexandria, order Digynia.—Generic Character. *Calix:* perianth two-leaved; leaflets opposite, lanceolate, coloured, permanent. *Corolla:* petals two, roundish, sinuate, larger than the calix, permanent. *Stamina:* filamenta six, capillary, the length of the calix. Antheræ roundish. *Pistil:* germen compressed. Style none. Stigmas two, capitate. *Pericarp:* none. Calix closed, including the seed. *Seed:* one, roundish, compressed. Essential Character. *Calix:* two-leaved. *Petals:* two, sinuate. *Stigmas:* capitate. *Seed:* one.—The seeds of these plants not ripening seeds in England, they are propagated by cuttings, during any of the summer months. In winter they must be screened from hard frost, which commonly destroys such as are planted in the air.——The species are,

1. Atraphaxis Spinosa; *Prickly-branched Atraphaxis.* Branches spiny.—This shrub rises four or five feet high, sending out many weak lateral branches, armed with spines, and garnished with small spear-shaped smooth leaves, of an ash colour. The flowers come out at the ends of the shoots in clusters, each consisting of two white petals, tinged with purple, included in a two-leaved calix, of a white herbaceous colour. They appear in August.—Native of Armenia, Siberia, and Persia.

2. Atraphaxis Undulata; *Wave-leaved Atraphaxis.* Without spines. This species sends out many slender branches, trailing on the ground; leaves small, oval, about the size of those of Knot-grass, waved and curled on their edges, embracing their stalk half round at their base, and placed alternate; flowers in oblong spikes, at the ends of the stem and branches.—Native of the Cape of Good Hope.

Atriplex; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite flower. Calix:* perianth five-leaved, concave, permanent; *divisions* ovate, concave, membranaceous at the edge. *Corolla:* none. *Stamina:* filamenta five, subulate, opposite to the leaves of the calix, and longer than them. Antheræ roundish, twin. *Pistil:* germen obiculate. Styles two-parted, short. Stigmas reflex. *Pericarp:* none. *Calix:* closed, pentagonal, with the angles compressed; deciduous. *Seed:* one, orbicular, depressed. *Female flower on the same plant. Calix:* perianth two-leaved; leaflets flat, erect, ovate, acute, large, compressed. *Corolla:* none. *Pistil:* germen compressed. Style two-parted. Stigmas reflex, acute. *Pericarp:* none. Valves of the calix very large, cordate, including the seed between them. *Seed:* one, orbiculate, compressed. Essential Character. *Hermaphrodite. Calix:* five-leaved. *Corolla:* none. *Stamina:* five. *Style:* two-parted. *Seed:* one, depressed. *Female. Calix:* two-leaved. Corolla none. Stamina none. Style, two-parted. Seed one, compressed.——The species are,

1. Atriplex Halimus; *Tall Shrubby Orache,* or *Spanish Sea Purslane.* Stem shrubby; leaves deltoid, entire; root perennial, woody, dividing into many branches. The whole shrub is white; flowers small, purplish, at the ends of the branches; seeds small, brown.—It grows in hedges near the sea, about Nice; also in Spain, Portugal, and Sicily. Ray says, that he found it in great plenty about Messina. Although this shrub is not proper for hedges, for which it was introduced, it may have a place in wilderness-quarters, where it will serve to thicken; and the silver-coloured leaves will add to the variety, among other shrubs of the same growth. It will grow eight or ten feet high, and, if suffered to grow wild without pruning, will spread several feet in compass, and sometimes produce flowers.—This, the second, and third species, may be increased by cuttings, planted in any of the summer months on a shady border; where, if they be duly watered, they will soon take root, and be fit to transplant the Michaelmas following, when they should be planted where they are to remain; for they do not succeed well in transplanting, especially when they are grown large and woody.

2. Atriplex Portulacoides; *Dwarf Shrubby Orache,* or *Common Sea Purslane.* Stem shrubby; leaves obovate. This is a low undershrub, seldom rising above two feet and a half, or at most three feet high, but becoming very bushy. The leaves are narrow, and of a whitish colour; they are glaucous, opposite, petioled, generally elliptic, some obtuse, others lanceolate. The branches generally recline, are angular, and of a whitish green. The flowers are yellow, and

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 150.

P. 149.

T. Dixon sculp.

ATROPA BELLADONNA — *Deadly Nightshade.*

ATROPA MANDRAGORA — *Mandrake.*

Published by Henry Baker, Caxton, London, 1823

terminate the branches in clustered spikes.—It is found wild on the shores of the European ocean, and in salt marshes, flowering in July and August. It may be introduced into plantations among other low shrubs, and if planted on a poor gravelly soil, will abide several years, and make a pretty diversity. For the culture and propagation of it, see the first species.

3. Atriplex Glauca. Stem undershrubby, procumbent; leaves ovate, sessile, quite entire; the lower ones subdentate. Stem the thickness of a finger, covered with an ash-coloured bark, and divided into declining branches, three or four feet long, subdividing into other shorter ones. The leaves are thickish, from silver inclining to glaucous. At each axil of the upper branchlets come out three or four hermaphrodite flowers, with a few females among them, of a yellowish colour.—A native of France and Spain.

4. Atriplex Rosea. Stem herbaceous; leaves hoary, serrated; fruit quadrangular, toothed. The stem is erect, a foot and half or two feet high, somewhat angular, white, smooth, very branching; the branches alternate, subdividing, all diffused. Flowers in close sessile balls at the axils.—It is an annual plant, native of the southern countries of Europe. For the culture and propagation of it, see the first species.

5. Atriplex Sibirica; *Siberian Orache.* Stem herbaceous; leaves deltoid, angular; the calices of the fruit muricated on the outside. The leaves are silvery beneath, and the flowers white.—An annual plant, and a native of Siberia.

6. Atriplex Tatarica; *Tartarian Orache.* Stem herbaceous; leaves deltoid, sinuate-toothed, waved alternate; stem about six feet high.

7. Atriplex Hortensis; *Garden Orache.* Stem erect, herbaceous, three feet high and more, thick, shining; leaves triangular; root annual.—It is a native of Tartary. There are three or four varieties of this, differing only in the colour of the plants; one is of a deep green, another of a dark purple, and a third with green leaves and purple borders.—It is used of many, says Parkinson, boiled and buttered, to make the stomach and belly soluble, and is put among other herbs into the pot, to make pottage. There are many dishes of meat made with it while it is young; for being almost without savour, it is the more convertible into what relish any one will make it, with sugar, spice, &c. It was formerly cultivated in the kitchen-gardens, as a culinary herb, being used as Spinage, and is now by some persons preferred to it, though in general it is not esteemed among the English; but the French cultivate this plant for use. The Red Orache is formed to dye wool of a good olive colour.—This must be sown for use early in the spring, or at Michaelmas, soon after the seeds are ripe, at which time it generally succeeds better than when it is sown in the spring, and will be fit for use at least a month earlier. These plants require no other culture, but to hoe them when they are about an inch high, to cut them down when they are too thick, leaving them about four inches asunder, and also to cut down all the weeds. This must be done in dry weather, otherwise the weeds will take root again, and render the work of little or no use. When the plants are grown about four inches high, it will be proper to hoe them a second time, in order to clear them from weeds; and if you observe the plants are left too close in any part, they should then be cut out. If this be well performed, and in dry weather, the ground will remain clean until the plant is fit for use. Where it is sown on a rich soil, and the plants are allowed a proper distance the leaves will be very large, and in that the excellence of the herb consists. It must be eaten when young, for when the stalks become tough, it is good for nothing. The seed will ripen in August, when the plants may be cut or pulled up, and laid on a cloth to dry; after which the seeds may be beaten out, and laid up in bags for use.

8. Atriplex Laciniata; *Jagged Sea Orache.* Stem herbaceous; leaves deltoid, toothed, silvered underneath. The whole plant is covered with a skin that peels off, and is of a gray hoary colour.—It is an annual, flowering in July and August, and is a native of the sea-shores of Europe.

9. Atriplex Hastata; *Broad-leaved Wild Orache,* vulgarly called *Fat-hen.* Stem herbaceous; valves of the calix in the female flowers large, deltoid, sinuated; root annual; stem generally upright, one to three feet high, four-cornered, of a purplish colour; flowers on the tops of the stalks in narrow reddish spikes. It varies much, according to age and situation; on dunghills it is very strong and luxuriant; by roadsides, it is weaker, and its branches are long and procumbent; in wet places, it becomes more upright, and the leaves are very mealy on the under side, particularly when it grows on the sea-shore; at other times they are altogether smooth. In its young state, this plant is frequently eaten instead of Spinach. Birds are very fond of the seeds, but cattle do not seem much to like the plant.—In gardens, and other cultivated grounds, it is a very troublesome weed, flowering from June till August: it should not be suffered to grow and seed on dunghills.

10. Atriplex Patula; *Narrow-leaved Wild* or *Spreading Orache.* Stem herbaceous, expanding; leaves subdeltoid, lanceolate; calices of the seeds toothed in the disk; root fibrous, annual.—Native of Europe, in waste places, on ditch-banks, and in cultivated grounds, flowering in August.

11. Atriplex Littoralis; *Grass-leaved Sea Orache.* Stem herbaceous, erect; all the leaves linear, quite entire; root annual.—Native of the sea-coasts of Europe, flowering in August: found at Ramsgate in Kent; Yarmouth, Blakeney, and Wells, in Norfolk.

12. Atriplex Pedunculata; *Peduncled Sea Orache.* Stem herbaceous, much branched; branches divaricated; leaves lanceolate, obtuse, entire; calices of the female flowers peduncled.—Native of the sea-shores of Denmark and England; as, near Boston, in the isle of Thanet; near Yarmouth, Lynn, &c. Annual; flowering from July till September.

13. Atriplex Marina; *Serrated Sea Orache.* Stem herbaceous, erect; leaves linear, serrate.—It is an annual plant, native of Sweden and England; on sea-shores and in waste places, flowering in August.

14. Atriplex Albicans; *White Orache.* Stem shrubby, erect; leaves hastate, quite entire, acute, spikes terminating.—Native of the Cape; flowering in June and July.

Atropa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, gibbous; divisions acute, permanent. *Corolla:* one-petalled, bell-shaped; tube very short; border ventricose, ovate, longer than the calix; mouth small, five-cleft, spreading; divisions subequal. *Stamina:* filamenta five, subulate from the base of the corolla, and of the same length with it, converging at the base, above diverging outwards, bowed. Antheræ thickish, rising. *Pistil:* germen semi-ovate. Style filiform, the length of the stamina, included. Stigma headed, rising transversely, oblong. *Pericarp:* berry globular, sitting on a large calix, two-celled. *Receptacle:* fleshy, convex on both sides, reniform. *Seeds:* very many, reniform. Essential Character. Corolla bell-shaped. Stamina distant. Berry globular, two-celled.

1. Atropa Mandragora; *Mandrake.* Stemless; scapes one-flowered. It has a taper root, like a Parsnep, which runs three or four feet deep in the ground; it is sometimes

single, and at others divided into two or three branches, almost of the colour of the Parsnep, but a little darker; immediately from the crown of the root arises a circle of leaves, which at first stand erect, but when grown to their full size, spread open, and lie upon the ground; they are more than a foot in length, and are four or five inches broad in the middle, growing narrow towards both ends, of a dark green colour, and a fetid scent; among these come out the flowers, each on a scape about three inches long; they are five-cornered, of an herbaceous white colour, spreading open at top like a Primrose, having five hairy stamina, and a globular germen, supporting an awl-shaped style, which becomes a globular soft berry, when full grown as large as a nutmeg, of a yellowish green colour when ripe, full of pulp. Haller adds, that the leaves are ovate-lanceolate, and waved about the edges; that the flowers have a tinge of violet, and that a circular gland surrounds the germen, produced into two horns. The roots have been supposed to bear a resemblance to the human form, and in the old Herbals are figured as a male, with a long beard, and female with a prolix head of hair. Mountebanks carry about fictitious images, shaped from roots of Briony, and other plants cut into form, or forced to grow through moulds of earthenware, as Mandrake roots. It was fabled to grow under the gallows, where the matter falling from the dead body, gave it the shape of a man; to utter a great shriek, or terrible groans at the digging up; and it was asserted, that he who would take up a plant of Mandrake, should in common prudence tie a dog to it for that purpose, for if a man should do it himself, he would surely die soon after. The bare mention of such fables, is a sufficient confutation of them, nor would they have been mentioned here, had it not been for the allusions to them which occur in ancient authors.—The whole plant is fetid, and reputed to be poisonous, though in small doses it was used medicinally, and particularly as an opiate.—Native of Spain, Portugal, Italy, and the Levant. It flowers with us in March, and the seeds ripen in July. Mandrake is propagated by seeds, which should be sown upon a bed of light earth, soon after they are ripe, for if they are kept until the spring, they seldom succeed well; but those which are sown in autumn, will come up in the spring, when they should be carefully cleared from weeds; and in very dry weather, they must be refreshed with water, which will greatly promote their growth. In this bed they should remain till the end of August, when they must be taken up very carefully, and transplanted into the places where they are to remain: the soil should be light and deep, for their roots run far down; but if the soil be wet, they are often rotted in winter, and if it be too near gravel or chalk, they will make little progress; but where the soil is good, and they are not disturbed, the plants will grow to a large size in a few years, and will produce great quantities of flowers and fruit. These plants should have a warm situation, otherwise in severe winters they will be destroyed.

2. Atropa Belladonna; *Deadly Nightshade*, or *Dwale*. Stem herbaceous; leaves ovate, entire; peduncles one-flowered. Deadly Nightshade has a perennial, thick, long, branching root, sending out strong, herbaceous, upright, round, trichotomous, branching stems, from three to five feet, and sometimes six feet in height, frequently tinged with purple: the branches are dichotomous. The root-leaves are often a foot long, and five inches broad; the stem-leaves are petioled, acute, soft, dusky green above, and paler green beneath, a little hairy on both sides, and fattish to the touch, changing to a purple colour in the autumn: there are generally two leaves at each branch, one smaller than the other, running down along the short petiole. Peduncles axillary, one-flowered: flowers large, nodding, void of scent; calix dirty green; corolla lurid; within dusky, purple, and streaked, with a yellow variegated base, without greenish red, or dusky brown; berry large, at first green, but when ripe of a beautiful shining black colour, full of purple juice, with roundish dotted channelled seeds immersed in the pulp; and a glandular ring surrounding it. Scopoli observes, that there are two tubercles between the cells of the antheræ; that the stigma is two-lobed; that the berry sits on the stellate calix, is very succulent, obtuse, marked with small dots, and has two heart-shaped receptacles, to which the seeds adhere. When this plant was found to differ from Solanums or Nightshades, it received the Italian name of Belladonna, which was given it, according to some, because it was used as a wash among the ladies, to take off pimples and other excrescences from the skin; or, according to others, from its quality of representing phantasms of beautiful women to the disturbed imagination. The qualities of this plant are malignant, and it is extremely deleterious in all its parts. Numerous instances have occurred of the berries proving fatal, after causing convulsions, delirium, &c. Buchanan relates the destruction of the army of Sweno the Dane, when he invaded Scotland, by the berries of this plant, which were mixed with the drink which the Scots, according to truce, were to supply the Danes with. The Danes were so inebriated therewith, that the Scottish army fell on them in their sleep, and slew such numbers, that there were scarcely men enough left to carry off their king. A remarkable case is related by Mr. Ray, of the dilatation of the pupil of the eye, caused by a part of a leaf of this plant applied outwardly, and which took place successively on the repetition of the experiment. With respect to the berries, they have frequently been fatal to children; and, if a considerable number are eaten, to grown persons likewise. The symptoms are said to occur in less than half an hour after taking them, and consist of vertigo, great thirst, delirium, swelling and redness of the face, &c. The general sensibility of the system is said to be weakened to a great degree, so that the stomach will bear a far larger dose of emetic medicines than it would otherwise have done. Vinegar, liberally drank, has been found efficacious in obviating the effects of the poison. Dr. Hill relates a very remarkable case, which occurred under his own observation. A labourer found some of the plant in the park of a nobleman, where he was repairing the pales; he eat heartily of the berries, and gave some to two of his children. After two hours he grew giddy, and unable to stand; was extremely thirsty, complained of dreadful pain in his breast, and difficulty of breathing. He afterwards fell into violent ravings, which continued, with slight intervals, during great part of the night. All this time he was also afflicted with a very painful stranguary. He recovered, however, some time afterwards, without the assistance of medicine; but both the children died in the course of the night. The leaves are said to have been sometimes successfully applied in cancerous tumors. The ingenious Dr. Milne, in his *Indigenous Botany*, has very properly remarked, that nature has been more parsimonious in her warnings with respect to this plant, than to others of the same natural family. Neither the smell nor the taste is offensive; and if the colour of the flowers proves in some degree a repellant, that of the fruit, on the other hand, is in an equal degree, at least, attractive and inviting. Accordingly, Belladonna, notwithstanding its deleterious nature, is not totally excluded from the precincts of physic: nay, some diseases, and those of the most malignant kind, have been known to yield to the anodyne and antispasmodic virtues of this plant, when administered with caution, after

resisting the force of medicines, more innocent indeed, but of less powerful efficacy. Bergius relates, that he has often given relief in epilepsy and convulsion by the internal use of the powder of the leaves, taken in doses of from one to four grains, twice a day; and Gesner, in his *Medical Epistles*, recommends the expressed juice of the berries, boiled with sugar into a syrup, and given a tea-spoonful at a time, as excellent in every case requiring an opiate, and as peculiarly efficacious in the cure of the dysentery. It was some time ago supposed to be a specific in cancerous complaints, and in the *Philosophical Transactions*, there is a well-attested case, of a woman that was cured of a cancer in her breast, by taking a tea-cupful of an infusion of the dried leaves every morning. The malady at first grew worse, but after persevering some time in the use of the medicine, the symptoms abated, and in about half a year she was perfectly well. The infusion was made by pouring ten tea-cupsful of boiling water on twenty grains of the dried leaves, and letting it stand to infuse all night in a warm place. In consequence of this it was tried in many of our hospitals, and frequently mitigated the symptoms, but without effecting the cure. The leaves externally applied are cooling and softening; they are good against the ringworm and tetters, and against hard swellings.—This plant is a native of Europe, particularly of Austria and England, in churchyards and on dunghills, skulking in gloomy lanes and uncultivated places: in other countries it is said to be common in woods and hedges. With us, it is not so common in a wild state, but that the places where it has been found may be set down. About Fulborn, in Cambridgeshire; near Wisbeach, in the isle of Ely; Holland, in Lincolnshire; between Temsford-mills and Welwyn, in Herts; Charley forest and Grace Dieu, in Leicestershire; north Luffenham, in Rutland; Sutton Colefield, in Warwickshire; Clifton Hill, near Nottingham and Mansfield, in the same county; and in Westmoreland. Mr. Miller observed it in Woodstock-park in Oxfordshire, and in Uppark in Hampshire. In the counties round London it is not very common; it has, however, been remarked about Rochester, between that and Maidstone, and near Feversham, in Kent; about Harefield and More-park near Rickmansworth; at Dorking, in Surry; and, by old Gerarde, near Highgate.—This may be propagated both by its roots and by seeds. It loves a shady situation, but, on account of its deadly poison, is rarely admitted into gardens. It should by no means be suffered to grow where children or common people resort, because they are likely to be attracted by the splendid black colour of the berries.

3. Atropa Physaloides; *Peruvian Deadly Nightshade*, or *Blue-flowered Atropa*. Leaves sinuate-angular; calices closed, acute-angular; root fibrous, annual; stem herbaceous, two feet high, spreading, erect; branches angular. The stem, though herbaceous, is very strong, in our gardens four or five feet high, and of a purplish colour, dividing into several branches, spreading out wide on every side; leaves oblong, deeply sinuate, deep green; peduncles short; calix large, bell-shaped; corolla large, of the open bell-shape, of a light blue-colour; berries about the size of common cherries, enclosed in a large swelling bladder, having five sharp angles.—Native of Peru. It flowers in July, and the seeds ripen in autumn; and if permitted to scatter, the plants will come up in the following spring; or if the seeds be sown on a bed of rich earth in the spring, the plants will rise easily, and may be afterwards readily transplanted to the borders of the pleasure garden, where they must be allowed room, for if the ground be good, the plants will grow very large.

4. Atropa Solanacea. Stem shrubby; peduncles solitary; corollas bell-shaped; leaves subovate; stem six feet high; shrubby, somewhat branching, and angular; calix bell-shaped, five-cleft; corolla three times larger than the calix.—Native of the Cape of Good Hope. It may be propagated by seeds, which should be sown in the spring, on a hot-bed; when they are fit to remove, they should be each put into a separate small pot, filled with loamy earth, and shaded until they take root; and then placed in a sheltered situation.

5. Atropa Arborescens; *Tree Atropa*. Stem shrubby; peduncles crowded; corollas revolute; leaves oblong, in tufts towards the ends of the branches; flowers peduncled, white, and fragrant.—A small tree, or shrub; native of South America, and Jamaica, on the temperate mountains. It must be kept in the bark-stove, or it will not thrive well in England.

6. Atropa Frutescens; *Shrubby Atropa*. Stem shrubby; peduncles crowded; leaves cordate-ovate, obtuse. This rises with a shrubby stem to the height of six or eight feet, and divides into many branches: the leaves are alternate, roundish, in shape like those of the Storax tree. The flowers come out between the leaves upon short peduncles, and are shaped like those of Deadly Nightshade, but much smaller, of a dirty yellowish colour, with a few brown stripes; they are never succeeded by berries in England.—It is a native of Spain; and may be planted with other hardy exotic plants, in a sheltered situation, from whence it must be removed in October into the green-house. See the fourth species.

7. Atropa Herbacea; *Herbaceous Atropa*. Stem herbaceous, channelled, about two feet high; leaves ovate, nerved, with waved edges; root perennial. The flowers come out from between the leaves, on short peduncles; they are white, and bell-shaped. It flowers in July and August, but seldom ripens its fruit in England. It must be kept in a bark-stove, or it will not thrive in this country.

8. Atropa Procumbens; *Wheel-flowered Atropa*. Stem procumbent, herbaceous; leaves twin, unequal, ovate, smooth; flowers in umbels; root annual; corolla herbaceous, yellow, wheel-shaped, spreading very much, the border five-cornered, rolled back a little with sharp angles.—Native of Mexico: cultivated in the royal garden at Madrid, where it flowers and fruits in October. It must be kept in the bark-stove, or it will not thrive well in this country.

Aubletia; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five leaved, rigid, spreading, coloured within, pubescent without, deciduous, five-parted; parts linear-lanceolate, acute, with thick margins, which before flowering are contiguous. *Corolla:* petals five, roundish-oblong, smaller than the calix, with very short claws. *Stamina:* filamenta very many, very short. Antheræ ovate-oblong, outwardly gibbous, gaping on the inner side, foliaceous at the tip, acute; the exterior ones sterile, lanceolate, ending in a foliaceous point, shorter than the corolla. *Pistil:* germen roundish, depressed. Style long, striated, gradually thickening, slightly incurved. Stigma spreading, perforated, ten-toothed. *Pericarp:* capsule large, orbiculate, depressed, coriaceous, echinate; ten-celled, gaping at the base. *Seeds:* very many, small, roundish, somewhat compressed. *Receptacle of the seeds*, fleshy. Essential Character. Calix, five-leaved. Corolla, five-petalled. Capsule, many-celled, echinate, with many seeds in each cell.——The species are,

1. Aubletia Tibourbou. Leaves acutely-serrate, hirsute. This is a middling-sized tree, with a trunk seven or eight feet high, about a foot in diameter, with an irregular chopped soft bark, fibrous, and fit for making ropes. *Apeiba* is the Brasilian name, though it is called Tibourbou by the Caribbees. Aublet found it in flower and fruit from August till

October.—It is a native of Brazil, Guiaaa, the islands of Cayenne and Tobago.

2. Aubletia Petoumo. Leaves elliptic-acute, serrulate, hoary beneath. This is a large tree, being often forty feet high, and a foot and a half or more in diameter, with a brown thick filamentose bark, fit for making cordage. The wood is light, and of a white colour; the corolla yellow.—It bears flowers and fruit in October; and is a native of Guiana, in the vast forests of Sinemari.

3. Aubletia Aspera. Leaves quite entire, pubescent beneath; fruit compressed. Also a large tree, from thirty to forty feet high, and a foot and half or more in diameter, with a grayish, irregular, thick, filamentose bark, proper for making cordage: the wood is light and white; corolla yellow, four or five petalled.—Native of Guiana, and the isle of Cayenne; flowering and bearing fruit in the month of May.

4. Aubletia Lævis. Leaves quite entire, smooth on both sides; fruit rough, depressed. This is a middling-sized tree, its trunk being from ten to twelve feet in height, and eight or ten inches in diameter; with a smooth, thin, greenish bark; the wood is white, tender, and so light that the trunk may be easily carried in one hand; corolla greenish.—Native of Guiana; flowering and bearing fruit in the month of May.

Aucuba; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male flowers. Calix:* perianth one-leafed, truncate, obscurely four-toothed, villose, very short, permanent. *Corolla:* four-petalled. Petals ovate, acute, spreading; underneath concave, hairy; above convex, deciduous. *Stamina:* filamenta four, inserted into the receptacle among the petals, thick, erect, very short. Antheræ ovate, twin, with four furrows. Receptacle plano-convex, smooth, with a square hole impressed upon the middle. *Female flowers on the same Tree. Calix* and *Corolla* as in the male. *Pistil:* germen inferior. Style thick, short. Stigma simple, capitate. *Pericarp:* nut ovate, one-celled. Essential Character. *Male. Calix:* four-toothed. *Corolla:* four-petalled. *Berry:* one-seeded. *Female. Nut:* one-celled.——The following species alone is known:

1. Aucuba Japonica. A large tree; branches and subdivisions dichotomous, smooth, rather fleshy, divaricate, erect, angular, scarred from the falling of the leaves; leaves aggregate, at the tops of the branches, petiolate, opposite, oblong, sharp, remotely serrate, smooth, pale underneath, a hand-breadth long, nerved; flowers terminal, panicled; panicle trichotomous, superdecompound; peduncles and pedicles villose; bractes lanceolate.—Native of Japan.

Avena; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume generally many-flowered, two-valved, loosely collecting the flowers; valves lanceolate, acute, ventricose, loose, large, awnless. *Corolla:* two-valved; lower valve harder than the calix, the size of the calix, roundish, ventricose, acuminate at both ends, emitting from the back an awn spirally twisted, reflex. Nectary two-leaved; leaflets lanceolate, gibbous at the base. *Stamina:* filamenta three, capillary. Antheræ oblong, forked. *Pistil:* germen obtuse. Styles two, reflex, hairy. Stigmas simple. *Pericarp:* none. *Corolla:* most firmly closed, grows to the seed, and does not gape. *Seed:* one, slender, oblong, acuminate at both ends, marked with a longitudinal furrow. Essential Character. Calix two-valved, many-flowered; awn from the back of the corolla, jointed, twisted.—For the propagation and culture of the grasses belonging to this genus, see *Grass.*——The species are,

1. Avena Siberica; *Siberian Oat-grass.* Panicled; calices one-flowered; seeds hirsute; awns thrice the length of the calix; culms from two to three feet in height, very slender. It flowers in July and August.—Native of Siberia.

2. Avena Elatior; *Tall Oat-grass.* Panicled: calices two-flowered; hermaphrodite, floscule almost awnless, male awned; root perennial; germen villose.—It is common on banks, in hedges, on the borders of fields, and sometimes in meadows, especially wet ones; flowering in June and July. It is an early grass, very productive, and yields a plentiful aftermath. The stem and leaves are by no means coarse, but soft, tender, and of a pleasant taste; and it may be propagated with facility. It is cultivated in some places abroad, and may perhaps be no bad substitute for Meadow Fox-tail Grass.

3. Avena Stipiformis. Panicled: calices two-flowered; awns twice the length of the seed; culm branching, a foot high, often reclining, smooth, with brown joints.—Native of the Cape of Good Hope.

4. Avena Pennsylvanica; *Pennsylvanian Oat-grass.* Panicle attenuated; calices two-flowered; seeds villose; awns twice the length of the calix.—Observed in Pennsylvania by Kalm.

5. Avena Lœflingiana; *Spanish Oat-grass.* Panicle contracted; floscules in pairs, hirsute; one-peduncled, with two awns at the top, the middle awn largest; root annual, capilary.—Found in a dry soil near Madrid, and at the Cape of Good Hope.

6. Avena Sativa; *Cultivated Oat.* Panicled; calices two-seeded; seeds very smooth, one-awned; root annual, fibrous—No botanist has been able to ascertain satisfactorily the native place of growth of this, or any other sort of grain now commonly cultivated in Europe. There are three sorts of Oats cultivated in England, viz. the White, the Black, and the Brown or Red Oat; to which we may add the Blue, the Poland, the Friesland or Dutch, and the Siberian or Tartarian Oat. The White sort is the most common about London, makes the whitish meal, and is chiefly cultivated where the inhabitants live much upon oat-cakes. The Black is more cultivated in the northern parts of England, and is esteemed a hearty food for horses. The Red Oat is much cultivated in Derbyshire, Staffordshire, and Cheshire, but is rarely seen in any of the counties near London; though, as it is a very hardy sort, and gives a good increase, it would be well worth propagating, especially in strong land; the straw is of a brownish red colour, as is also the grain, which is very full and heavy, and esteemed better food for horses than either of the former sorts. The Blue Oat is said, in Merrett's *Pinax*, and Ray's *Synopsis*, to have been sown about Keighley, in Yorkshire. It is probably the same with what is cultivated in Lincolnshire, under the name of Scotch Grays. The Poland Oat has a short plump grain, but the thickness of the skin seems to have brought it into disrepute among farmers: the grains are mostly single, it has no awn, and the straw is short. Friesland or Dutch Oats affords more straw, and is thinner skinned: the grains are mostly double, the larger one sometimes awned, with the awn placed high. Siberian or Tartarian Oat, is, according to Mr. Marshall, a distinct species, unnoticed by Linneus. Each flower frequently contains three perfect florets, never less than two, with a pedicelled rudiment of a third.—The Oat is a very profitable grain, and esteemed the most wholesome food for horses, being sweet, and of an opening nature; other sorts of grain are apt to bind, which is injurious to labouring horses; but if they be fed with this grain soon after it is housed, before it has had a sweat in the mow, or has been otherwise dried, it is as bad on the other hand, for it is then too laxative. This grain is a great improvement to many estates in the north of England, Scotland, and Wales; for it will thrive on cold barren

soils, which will produce no other sort of grain; it will also thrive on the hottest land; in short, there is no soil too rich or too poor, too hot or too cold for it; and in wet harvests, when other grain is spoiled, this will receive little or no damage; the straw and husks being of so dry a nature, that if they be housed wet, they will not heat in the mow, or become mouldy, as other grain usually do; it is therefore of great advantage in the northern parts of England, and in Scotland, where the harvest is generally late, and their autumns wet. The meal of this grain makes tolerably good bread, and is the common food of the country people in the north. In the south it is esteemed for pottage and other messes, and in some places they make beer with it. *Culture.* The best time for sowing Oats is in February or March, according as the season is early or late; and sometimes I have known them sown in April, upon cold land, and they have been early ripe. The Black and Red Oats may be sown a month earlier than the White, because they are hardier. In the papers of the Bath Agricultural Society, there is an experiment made, in order to ascertain the effect of early sowing. Black Oats were sown on the 27th and 28th of February, which is a month sooner than the common practice. The quantity sown was four Winchester bushels to the acre. The land was a mellow, deep, sandy loam, on which potatoes had grown. The produce was ninety-eight bushels and a quarter to the acre. The success, however, is not wholly imputed to early sowing, but partly to good deep tillage. White Oats, sown the last week in May, have produced seven quarters to the acre. In Hertfordshire, they do not put them in till they have done sowing Barley: in Suffolk, on the contrary, they are sown before Barley. The former practice is seemingly the best, this Oat being more tender. Mr. Marshall gives the blowing of the Sallow as a direction for the time of sowing this grain. Oats are often sown on land which has in the preceding year produced Wheat, Rye, or Barley. The common method is to plough in the stubble about the beginning of February, and sow the Oats, and harrow them in; but they must be harrowed the same way as the furrows lie; for, if it be done crosswise, the stubble will be raised on the surface: but this is not a good method of husbandry, for when there is time to plough the stubble in autumn, it will rot in winter, and then, giving the land another ploughing, and a good harrowing just before the Oats are sown, it will make the ground finer, and better to receive the grain. Oats are also sown upon land when it is first broken up, before the ground is brought to a tilth for other grain, and are frequently put in upon the sward with one ploughing; but it is much better to give the sward time to rot before the seed is sown, for the roots of the grass will prevent those of the corn from striking downwards. Most people allow four bushels of Oats to an acre, but I am convinced that three bushels are more than enough; the usual produce is about twenty-five bushels to an acre, though I have sometimes known more than thirty bushels. This indeed is no very great crop, forty bushels and upwards being no very unusual produce; but not from sowing thin. With respect to the proper quantity of seed to be sown, practical men differ widely in opinion. Mr. Young is decidedly of opinion, that the quantity of the seed should be proportioned to the poverty of the ground; yet there are not wanting others, who say, that poor soils ought not to be loaded with too much seed, and that six or seven bushels an acre would utterly destroy cold clay lands. On a rich soil, Oats are very apt to run to straw, if sown thin; and one capital advantage which arises from sowing thick, is, that the weeds are thereby effectually smothered.

7. Avena Nuda; *Naked Oat, Pilcorn,* or *Pillis.* Panicled; calices three-flowered; receptacle exceeding the calix; petals awned at the back; the third floscule awnless.—This is nearly allied to the cultivated Oat, differing in little else except that the grains quit the husks, and fall naked when they are ripe. Mr. Ray informs us, that in his time it was cultivated abundantly in the farther part of Cornwall, where it fetched no less a price than Wheat. It is still sown there in the poorest croft-land, that has been tilled two or three seasons before with Potatoes, and, for the uses of the poor, answers all the purposes of oatmeal. It is a small yellow grain, and accounted superior to any other nourishment for fattening calves. Mr. Miller says, that the Naked Oat is less common than the others, especially in the southern parts of England; but in the north of England, Scotland, and Wales, it is cultivated in plenty. This sort, according to Worlidge, is esteemed, because the grain thrashes clean out of the husk, and need not be carried to the mill to be made into oatmeal or grist. An acre of ground does not yield so many bushels of these, as of the common Oats, because the grain is small and naked, and goes near in measure; but what is wanting in the measure, is supplied in value. Naked Oat is called *pillis,* or *pilez,* according to the orthography in Borlase; or *pill-corn,* from its quality of depositing the husk or chaff: *pill,* which we now write *peel,* being formerly put for the outer coat of any sort of fruit.

8. Avena Fatua; *Bearded Wild Oat,* or *Haver.* Panicled; calices three-flowered; all the floscules awned, and hairy at the base; root annual.—It is taller than the cultivated Oat, the culm of straw being commonly three, and frequently four feet in height; it is erect, firm, leafy, smooth, with four joints or knots; sheaths streaked, smooth; the seed has a hairy covering. This is one of the most destructive annual weeds, and is too frequently so prevalent among Barley, as almost to choke it. The seed ripens, and falls before harvest, thus filling the ground, in which it will lie several years without vegetating. It cannot easily be extirpated without repeated fallowing, or by laying down the land to grass. The awns of this species are sometimes used for hygrometers; and the seeds, instead of artificial flies, in fishing for trout.

9. Avena Sesquitertia. Panicled: calices subtriflorous; all the floscules awned; receptacles bearded; panicle oblong.—Native of Germany, Switzerland, Austria, and Piedmont.

10. Avena Pubescens; *Soft Oat Grass.* Subspiked: calices subtriflorous, upper florets hairy at the base; leaves flat, pubescent; root perennial. This grass is hardy, early, and productive.—Native of Portugal, France, Germany, Siberia, and England, where it grows in dry and chalky soils.

11. Avena Sterilis; *Great Wild Oat,* or *Bearded Oat-grass.* Panicled: calices five-flowered; the outer floscules and awns hairy at the base, the inner ones awnless; root annual; culms three or four feet high, round, upright, smooth; flowers pendulous; antheræ oblong, pale yellow, scarcely emerging from the corolla; germen oblong, round, hirsute.—Native of Barbary and Spain.

12. Avena Flavescens; *Yellow Oat-grass.* Panicle loose; calices three-flowered, short; all the florets awned; it has a perennial creeping root.—This grass is found in most pastures, especially high ones, in some meadows, and frequently on banks by road-sides. In many of our counties it forms the principal part of the finest pasturage on the downs; and in some meadows contributes to the goodness as well as greatness of the crop.

13. Avena Hispida. Panicled: calices three-flowered,

hairy; culms a foot high, upright, smooth.—A native of the Cape of Good Hope.

14. Avena Capensis. Panicle contracted: calices three-flowered, subulate; corolla pubescent; middle awn twisted, curved; root creeping.—Native of the Cape of Good Hope.

15. Avena Purpurea. Panicle contracted; calices two-flowered, ovate; corollas villose; outer glume bifid; awn terminal, bent in.—Native of Martinico.

16. Avena Lutea. Panicle spreading; calices two-flowered, subulate; corollas naked, three-awned, middle awn flexuose.—Native of Martinico.

17. Avena Lupulina. Panicle contracted, ovate; calices three-flowered, lanceolate; corollas villose; outer glume bisubulate; middle awn reflex.—Native of the Cape.

18. Avena Fragilis; *Brittle Oat-grass.* Spiked: calices four-flowered, longer than the floret; culms many, smooth, with three joints; root annual.—Native of Spain and Portugal.

19. Avena Pratensis; *Meadow Oat-grass.* Subspiked: calices mostly five-flowered; florets smooth; leaves channelled, serrulate, naked; root perennial.—Native of Europe and Siberia, on dry pastures and heaths, flowering in July.

20. Avena Spicata. Spiked: calices six-flowered, longer than the outer petal, which is awned and forked at top; flowers six, sessile, upright.—Native of Pennsylvania.

21. Avena Bromoides. Subspiked: spicules binate, one-peduncled; awns divaricate; calices eight-flowered; height two feet; culm round, scarcely the thickness of a needle.—Native of Switzerland, and the neighbourhood of Montpellier.

22. Avena Strigosa. Panicled: calices two-flowered; corolla smooth at the base; outer valve ending in two awns, shorter than the valve, and with a bent awn from the back; root annual; culm and leaves bare; seeds hairy.—Native of Europe.

23. Avena Aurata; *Golden Oat-grass.* Calices two-flowered; panicle sparse, erect; corollas golden, villose at the base. This is a handsome grass; culms nine inches high. Whilst the plant is young, the calix is greenish; the corolla shining, pale yellow, but when arrived at maturity, the whole culm, calix, and corolla, are of a resplendent gold-colour.—Native of the Alps of Switzerland and Piedmont.

24. Avena Scheuchzeri. Spikelets five-flowered, pubescent at the base; peduncles branching; culms from six to twelve inches in height; leaves smooth, keeled.—Native of the Alps of Switzerland, Savoy, and Piedmont.

25. Avena Filiformis. Panicle erect, very slender; calices one-flowered; awns twice the length of the calix.—Native of New Zealand, and Eastern Island.

Avenues; in Gardening, are walks of trees leading to a house, and are generally terminated by some distant object. These were formerly much more in request than at present, there being few old seats in the country but had one or more of these avenues; and some had as many of them as there were views from the house; but of late, these are with good reason disused; for nothing can be more absurd, than to have the sight contracted by two or more lines of trees, which shut out the adjacent grounds, whereby the verdure and natural beauties of the country are lost; and, where the avenues are of a considerable length, even though their breadth be proportionable, they appear at each end to be only narrow cuts through a wood, which never can please any person of real taste; and when the road to the house is through the avenue, nothing can be more disagreeable; for in approaching the house, it is like going through a narrow lane, where the objects on each side are shut out from the view; and when viewed from the house, it at best has only the appearance of a road, which being extended to a great length in a straight line, is not near so beautiful as a common road, which is lost by the turnings, so as seldom to be seen to a great extent; but as these avenues must be made exactly straight, when the trees grow to any size, they entirely break the view, whatever way the sight is directed through them; and if this is in a park, the lawn of grass through which the avenue is planted, is thereby entirely deprived of the beauty which it naturally would afford, if left open and well kept: therefore, whenever the situation of a house will admit of a large open lawn in front, the road to the house should be carried round at a proper distance; and, if it be carried sometimes through trees, and serpented in an easy natural way, it will be much more beautiful than any stiff formal avenue, how large soever made. But, as there may be some persons so much wedded to the old way of laying out and planting grounds, as to prefer avenues to the most beautiful disposition of lawns, woods, &c. I shall mention the usual methods of designing and planting them, that have been esteemed the best.—The usual width allowed to these avenues was generally as much as the whole breadth of the house and wings; but if they are planted twelve or fourteen feet wider, they will be the better; because, when the trees are grown to any considerable size, they will spread and overhang so as to contract the view; and as for such avenues to woods or prospects, they ought not to be less than sixty feet in breadth; and because such walks are a long time before they are shady, it will be convenient to plant another row on each side, rather than to lose the stateliness that the main walk will afford in time by being broad, where any thing of a prospect is to be gained. As to the distance, the trees should not be planted nearer one another than thirty-five or forty feet, especially if they are of a spreading kind; and the same distance if they are for a regular grove. The trees proper for planting avenues, are English Elm, the Lime-tree, the Horse-chesnut, the Common Chesnut, the Beech, and the Abele. First, the English Elm is approved for all places where it will succeed, (and that it will do in most places, except in very wet and cold shallow lands;) because it will bear cutting, heading, lopping in any manner whatsoever, and probably with better success than any other tree. Secondly, The Lime-tree: this is approved by others, because it will do well in any tolerable soil, if the bottom be not hot and gravelly; and because of the regular shape it has in growing, the agreeableness of its shade, and the beautiful colour of its leaves. Thirdly, The Horse-chesnut is also to be used in such places as are very well defended from strong winds; because wherever it grows freely, if it be not skilfully managed now and then by cutting, the branches are subject to split down. This tree is valuable on account of its quick growth, the earliness of its coming out, the nobleness of its leaves, and the beauty of its flowers; being a fine plant both for shade and ornament. This delights in a strong hearty soil, but will do well in any tolerable ground, if good care be taken in the planting of it; but wherever these trees are planted in avenues, they should be placed thirty feet asunder, that their heads may have room to spread, otherwise they will not appear so beautiful. Fourthly, The Common Chesnut will do well in a proper soil, and will rise to a considerable height, if planted close together; but if it be planted singly, where the tree can take its own natural shape, it is rather inclined to spread and grow globous than tall. Fifthly, The Beech is recommended by some; but this seldom succeeds well after transplanting, without extraordinary care: though it arrives to a very large tree in many places of England, where it grows naturally, but is the most tedious and troublesome to raise to any tolerable size in a nursery way. Sixthly, The Abele; this indeed grows more dispersed, and looser in its head, than any of the former, and consequently is worse for

defence; but yet is not to be left out of the number of trees for avenues, because it is the quickest in growth of all the forest trees, and will thrive tolerably well in almost any soil, and particularly in wet ground, where few of the before-mentioned trees will thrive, and this seldom fails in transplanting. As for the Alder, Ash, Platanus, and Sycamore, they are but rarely used for planting avenues. All the trees that are employed for avenues should be permitted to take their natural growth, without being much cut or pruned.

Averrhoa; a genus of the class Decandria, order Pentagynia.—Generic Character. *Calix:* perianth five-leaved, erect, small; leaflets lanceolate, permanent. *Corolla:* petals five, lanceolate, the lower part erect, the upper spreading. *Stamina:* filamenta ten, setaceous, alternately the length of the corolla, and shorter. Antheræ roundish. *Pistil:* germen oblong, obscurely five-cornered. Styles five, setaceous, erect. Stigmas simple. *Pericarp:* pome turbinate, five-cornered, five-celled. *Seeds:* angular, separated by membranes. Essential Character. *Calix:* five-leaved; petals five, expanding above; pome five-cornered, five-celled.—The species are,

1. Averrhoa Bilimbi. Trunk naked, fruit-bearing; pomes oblong, obtuse-angled.—This tree is only about eight feet in height, with a few reclining branches. It is a native of Goa, and many parts of India, of both sides the Ganges. Burman describes it as a beautiful tree, with green fleshy fruit, filled with a grateful acid juice; the substance and seeds not unlike those of Cucumber: it grows from top to bottom at all the knots and branches. They make a syrup of the juice, and a conserve of the flowers, which are esteemed excellent in fevers and bilious disorders. This and the following species are singular for the fruit growing upon the trunk itself, below the leaves. The flowers resemble that of Geranium, but the fruit is widely different. The flowers are red purple, on oblong small racemes, adhering to the trunk. The fruit is an oblong pome, the thickness of a finger, smooth on the outside.

2. Averrhoa Carambola. Axillas of the leaves fruit-bearing; pomes oblong, acute-angled. This is a tree above the middle size, with spreading branches, and a very close head; pome the size of a hen's egg, acutely five-cornered, five-celled, many-seeded; the rind is yellow, thin, and smooth; the pulp clear, watery, in many sweet, in others acid, with scarcely any smell: seeds small, oblong, angular, flatted, and brown. Rheede relates, that the Caramhola is twelve or fourteen feet in height, scarcely a foot in girth, with a rough brown bark; that it bears three times a year from the age of three to fifty; that the root-leaves and fruit are used medicinally, either alone or with areca or betel leaves; that the latter, when ripe, are esteemed delicious; unripe, are pickled; and that they are also used in dyeing, and for other economical purposes. Burman informs us, that the acid juice of this plant is not so pleasant as that of the first species; that the fruit is rather larger, and is used for the same purposes; and that it is a very beautiful tree. The Bramins and Portuguese call this tree *carambola*; the Malabars, *tamara-tonga*; and in Bengal it is called *camrue*, or *camrunga*.

Avicennia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth five-parted, permanent; leaflets subovate, obtuse, concave, erect, increased by three scales. *Corolla:* monopetalous; tube bell-shaped, short; border bilabiate; upper lip square, emarginate, flat; lower trifid; divisions ovate, equal, flat. *Stamina:* filamenta four, subulate, erect, the two front ones rather shorter, bent back to the upper lip. Antheræ roundish, twin. *Pistil:* germen ovate; style subulate, erect, the length of the stamina; stigma bifid, acute; the lower division bent down. *Pericarp:* capsule coriaceous, rhomboidal, compressed, one-celled, two-valved. *Seed:* one, large, the form of the capsule, constructed of four fleshy folds, germinating. Essential Character. *Calix:* five-parted. *Corolla:* two-lipped, upper lip square. *Capsule:* coriaceous, rhomboidal, one-seeded.——The species are,

1. Avicennia Tomentosa. Leaves cordate-ovate, tomentose underneath. This tree agrees mostly with the Mangrove, rising not above sixteen feet high; its trunk is covered with a smooth whitish green bark; and the twigs from the stem, propagate the tree like those of the Mangrove.—Native of the East and West Indies. Dr. Patrick Browne says, that it is frequent near the sea, both on the north and south side of Jamaica, growing in low moist ground.

2. Avicennia Nitida. Leaves lanceolate, shining on both sides; height forty feet.—Native of Martinico.

3. Avicennia Resinifera. Leaves ovate-lanceolate, tomentose underneath. The green-coloured gum, so much esteemed by the natives of New Zealand, and which is so very hot in the mouth, is supposed to be the produce of this tree.—Native of New Zealand.

Awlwort. See *Subularia.*

Axyris; a genus of the class Monœcia, order Triandria.—Generic Character. *Male flowers in an ament. Calix:* perianth three parted, spreading, obtuse. *Corolla:* none. *Stamina:* filamenta three, capillary, spreading; antheræ roundish. *Female flowers scattered. Calix:* perianth five-leaved, concave, obtuse, converging, permanent, the two outer leaflets shorter. *Corolla:* none. *Pistil:* germen roundish; styles two, capillary; stigmas acuminate. *Pericarp:* none. *Calix:* closely involving the seed with its three leaflets. *Seed:* one, ovate, compressed, obtuse. Essential Character. *Male. Calix:* three-parted. *Corolla:* none *Female. Calix:* two-leaved. *Corolla:* none. *Styles:* two. *Seed:* one.——The species are,

1. Axyris Amaranthoides; *Simple-spiked Axyris.* Leaves ovate; stem erect; spikes simple. The leaves are rugged, with stellate hairs.—Annual; a native of Siberia.

2. Axyris Hybrida. Leaves ovate; stem erect; spikes conglomerate.—An annual plant; and a native of Siberia.

3. Axyris Prostrata. Leaves obovate; stem subdivided, much branched, six or seven inches high; flowers capitated.—An annual plant; a native of Siberia.

Ayenia; a genus of the class Gynandria, order Pentandria.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts ovate-oblong, acute, coloured in the middle, reflex, withering. *Corolla:* pentapetalous: petals five, united at the top to the nectary into a flat star; claws capillary, very long, bowed outward; borders obcordate, resupinate, with a clubbed point at the top, turned upward. Nectary bell-shaped, sitting on a cylindric erect column, shorter than the calix; border five-lobed, lobes elevated, above flattish, with a longitudinal furrow, excavated underneath, and sharp. *Stamina:* filamenta five, very short, inserted into the margin of the nectary, on the top of the ribs, between the divisions of the border, each bent downwards archwise, through a notch at the end of each petal. Antheræ roundish, under the borders of the petals. *Pistil:* germen roundish, five-cornered, at the bottom of the nectary; style cylindric; stigma obtuse, five-lobed. *Seeds:* solitary, rather oblong, gibbous on one side, angular on the other. Essential Character. Monogynous. *Calix:* five-leaved. *Petals:* united into a star, with long claws. *Antheræ:* five under the star. *Capsule:* five-celled.—These plants are propagated by seeds, sown upon a moderate hot-bed early in the spring; when they come up, and have four leaves, they should be

transplanted on a fresh hot-bed, to bring them forward; part of them may be planted in small pots, and the others on the bed; those in the pots should be plunged into a hot-bed of tanner's bark; they must be shaded until they have taken new root, and then they must have free air admitted to them every day, in proportion to the warmth of the season: they require to be frequently watered in warm weather, but they should not have it in too great plenty. The plants should continue all the summer in the hot-bed, where they must have a good share of air; for those which are fully exposed to the open air will not thrive, and if they be too much drawn, they do not flower well. The plants will live through the winter in a moderate stove; but as they perfect their seeds well the first year, few persons care to continue the old plants.——The species are,

1. Ayenia Pusilla; *Smooth Ayenia.* Leaves cordate, smooth; stem weak, woody, about a foot high; corolla purple. Many of the flowers being abortive, Linneus suggests, that they may possibly be of different sexes. The flowers continue in succession from July till winter.—Native of Peru.

2. Ayenia Tomentosa. Leaves ovate-roundish, tomentose; leaflets of the calix lanceolate, acute, permanent; antheræ three.—Native of South America.

3. Ayenia Magna. Leaves cordate, pubescent; germ of the flowers sessile. An upright shrub, five feet high.—Native of Carthagena, and other places of South America.

4. Ayenia Lævigata. Leaves ovate, entire, smooth; germen pedicelled; nectary ten-cleft, radiated.—Native of Jamaica.

Azalea; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, acute, erect, small, coloured, permanent. *Corolla:* monopetalous, bell-shaped, (in some species funnel-shaped,) semiquinquefid; the sides of the divisions bent in. *Stamina:* filamenta five, filiform, inserted into the receptacle, free. Antheræ simple. *Pistil:* germen roundish. Style filiform, the length of the corolla, permanent. Stigma obtuse. *Pericarp:* capsule roundish, five-celled, five-valved. *Seeds:* many, roundish. Essential Character. *Corolla:* bell-shaped. *Stamina:* inserted into the receptacle. *Capsule:* five-celled.——The species are,

1. Azalea Pontica; *Pontic Azalea.* Leaves shining, lanceolate, smooth on both sides; racemes terminal; flowers yellow.—Native of Pontus.

2. Azalea Indica; *Indian Azalea.* Flowers subsolitary, covering the whole upper part of the shrub, and are of a beautiful bright red colour; calices hairy.—Native of the East Indies.

3. Azalea Nudiflora; *Naked-flowered Azalea.* Leaves ovate; corolla hairy; stamina very long.—Grows naturally in shade, and upon moist ground, in most parts of North America; where it is called *Mayflowers, Wild Honeysuckles,* and *Upright Honeysuckles.* Many of the plants have been sent, of late years, to England, and several of them have produced their beautiful flowers in the gardens of the curious.—They must have a moist soil and a shady situation, otherwise they will not thrive. They can only be propagated by shoots from their roots, and laying down their branches, for they do not produce seeds here; and if good seeds could be obtained, they would be difficult to raise, and a long time before they would flower; but when they are in a proper situation, their roots extend, and put out shoots which may be taken off and transplanted. When any of them are laid down, it should be only the young shoots of the same year, for the old branches will not put out roots. The best time for this, is at Michaelmas; and if they are covered with some old tan to keep out the frost, it will be of great use to them. The autumn is also the best time to remove the plants, but the ground about their roots should be covered in winter to keep out the frost; and if this be every year practised to the old plants, it will preserve them in vigour, and cause them to flower well.

4. Azalea Viscosa; *Viscid Azalea.* Leaves scabrous at the edge; corollas with glutinous hairs. This is a low shrub, rising with several slender stems, nearly four feet high. The flowers have much the appearance of Honeysuckle, and are as agreeably scented. They appear in the middle of July, but are not succeeded by seeds in England.—It is a native of woods and moist places in North America. For its propagation and culture, see the third species.

5. Azalea Lapponica; *Lapland Azalea.* Leaves with excavated dots sprinkled over them. This is a divaricated shrub, six or seven inches high. It is, like the sixth species, a low plant of little beauty; and growing naturally on boggy ground upon the mountains, is difficult to keep in gardens.

6. Azalea Procumbens; *Procumbent Azalea.* Branches diffusely procumbent; calix purple, a little shorter than the corolla, five-cleft almost to the base; corolla bright rose-colour, or pale scarlet.—Native of the mountains of Europe, and also found in the Highlands of Scotland.

7. Azalea Punctata; *Dotted Azalea.* Leaves rugged about the edge; flowers dotted, heaped. This shrub is five feet high, upright, and branched; corolla white; calix whitish, dotted with red, as are also the corolla, antheræ, and germen.—Native of the woods of Cochin-china.

BACCHARIS; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common, cylindric, imbricate; scales linear, acute. *Corolla:* compound, equal; corollules hermaphrodite and female mixed; proper, to the hermaphrodite, funnel-form, five-cleft; to the females, scarcely apparent, almost none. *Stamina:* filamenta five, capillary, very small. Antheræ cylindric, tubular. *Pistil:* germen ovate; style filiform, the length of the flower; stigma bifid. *Pericarp:* none. *Calix:* unchanged. *Seeds:* solitary, very short, oblong; down simple. *Receptacle*, naked. Essential Character. *Calix:* imbricate, cylindric. *Florets:* female mixed with hermaphrodites. *Down:* simple. *Receptacle:* naked.—Most of the plants of this genus are shrubby: the flowers are disposed commonly in corymbs.—The species are,

1. Baccharis Ivæfolia; *Peruvian Ploughman's Spikenard.* Leaves lanceolate, longitudinally tooth-serrate. The female florets with a trifid corolla, very abundant; hermaphrodites at the disk few, and five-cleft. This shrub is five or six feet high.—It is a native of America, flowering in July and August. It may be propagated by cuttings planted in a shady border, during any of the summer months; or by seeds sown on a common border in the spring. These seeds ripen well in this country, and if permitted to scatter on the ground, the plants will come up in the following spring. It is pretty hardy, and will live abroad in mild winters, if planted in a warm situation; but it is usually kept in the green house, and placed abroad in summer; it requires much water in warm weather.

2. Baccharis Neriifolia; *Oleander-leaved Ploughman's Spikenard.* Leaves lanceolate, serrate at the upper part

with one or two toothlets, about three feet high; trunk the thickness of the human arm.—This is difficult to propagate, for the cuttings with great difficulty take root; and as it rarely has shoots near the roots to lay down, in Holland they lay down the entire head of young plants, slitting the smaller branches in the same manner as is practised for Carnations, laying them into the ground, and forking them down to prevent their rising; these, when duly watered, put out roots in one year, when they may be taken off, and placed in small pots filled with light earth, and placed in the shade till they have taken new root: after which they may be placed in a sheltered situation in summer, but in winter must be kept within the protection of the green-house.

3. Baccharis Arborea. Leaves elliptic-lanceolate, quite entire, naked, petioled; height three feet; trunk the thickness of the human arm; seeds streaked. This is the largest of the genus.—Observed by Kœnig in woods on the island of Joanna.

4. Baccharis Halmifolia; *Sea Purslane-leaved Ploughman's Spikenard*, or *Groundsel Tree*. Leaves obovate, emarginate-crenate in the upper part. This is an herbaceous kind of shrub, six, seven, or eight feet high: its foliage continues green throughout the year, flowering in October, and is a native of Virginia, and other parts of North America. This sort may be propagated by cuttings, which should be planted in April or May, upon a shady border, and duly watered in dry weather, until they have taken root; and at Michaelmas, they will be fit to transplant where they are to remain: this will live in the open air, and is never injured by the cold of our ordinary winters, but severe frost will sometimes destroy it. It was cultivated in 1688 by Bishop Compton.

5. Baccharis Dioscoridis. Leaves broad, lanceolate, toothed, sessile, stipuled; stems shrubby, six feet high, weak, a little hairy, much branching, luxuriant.—Native of Egypt.

6. Baccharis Indica. Leaves obovate, toothletted, petioled; branches with raised streaks; corymb large, terminating.—Native of Ceylon, and the Cape of Good Hope.

7. Baccharis Brasiliana. Leaves obovate, entire, scabrous, sessile, veined underneath; stem somewhat angular; down ferruginous.—Native of Brazil.

8. Baccharis Fœtida. Leaves lanceolate, serrate, toothed; corymbs leafy. This rises with a woody stem six or seven feet high.—It is a native of Carolina, and some other parts of North America. It may be propagated by cuttings, planted towards the end of May; if shaded and duly watered, they will put out roots in two months, when they should be potted, that they may be sheltered under a frame in winter.

9. Baccharis Chinensis. Leaves lanceolate, quite entire, tomentose beneath, petioled; peduncles many-flowered, axillary. An undershrub, three feet high, upright, simple, round; flowers yellow, oblong.—Native of China, near Canton.

Bacopa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted: two of the parts oblong, concave, acute; the two inferior deflex, ovate, acute; the single superior one broader, roundish, undulated. *Corolla:* one-petalled; tube short, towards the orifice a little enlarged; border five-parted; parts ovate-oblong, obtuse, equal, spreading. *Stamina:* filamenta five, inserted into the tube of the corolla; antheræ sagittate. *Pistil:* germen ovate, compressed, below incrusted by the calix growing to it; style short; stigma headed. *Pericarp:* capsule one-celled. *Seeds:* many, extremely small. Essential Character. *Corolla:* with a short tube, spreading at top. *Stamina:* inserted into the tube of the corolla. *Stigma:* headed. *Capsule:* one-celled.——The only species known, is,

1. Bacopa Aquatica. This plant puts forth several cylindric, succulent, knotty stems; leaves opposite, stem-clasping, or rather connate, thick, oblong, concave, sharp, smooth; flowers solitary, peduncled, alternate from the axils: below the calix there stands a pair of fleshy bractes on the long peduncle; corolla blue. It puts forth roots from the knots, both as it runs along the ground, and as it lies on the surface of the water.—Native of the island of Cayenne, on the borders of rivulets, flowering and fruiting in December. The French inhabitants call it *herbe aux brulures*, on account of its efficacy in curing burns.

Bactris; a genus of the class Monœcia, order Hexandria.—Generic Character. *Male Flower. Calix:* spathe universal, one-leafed; spadix branched; perianth one-leafed, three-parted, small; parts lanceolate, concave, coloured. *Corolla:* one-petalled, three-cleft; tube short; clefts ovate, acute, erect. *Stamina:* filamenta six, subulate, erect, of the length of the corolla, inserted into the middle of the tube; antheræ oblong, incumbent. *Female flowers*, few in the same spadix, intermixed with the male ones. *Calix:* spathe the same as in the males; perianth one-leafed, bell-shaped, three-toothed, sharp-pointed, coloured, very small, permanent. *Corolla:* one-petalled, erect, three-toothed, permanent. *Pistil:* germen ovate, large; style very short; stigma headed, obscurely three-cleft. *Pericarp:* drupe coriaceous, roundish, fibrous, succulent, sharp-pointed with the style. *Seed:* nut roundish, depressed on each side, marked on the sides with three holes; kernel solid. Essential Character. *Male. Calix:* three-parted. *Corolla:* one-petalled, three-cleft. *Stamina:* six. *Female. Calix:* one-leafed, three-toothed. *Corolla:* one-petalled, three-toothed. *Stigma:* obscurely three cleft. *Drupe:* coriaceous.——The species are,

1. Bactris Minor. Fruit roundish; root creeping; flowers without scent, very slightly tinged with yellow; fruit dark purple, the size of a common cherry, containing an acid juice, of which the Americans make a sort of wine. They are also eaten raw, but are not pleasant. Canes are made of the stem, which are dark coloured, shining, jointed, and very light.—Native of Carthagena in South America.

2. Bactris Major. Fruit ovate. This commonly grows to the height of twenty-five feet, and the trunk to two inches or more in diameter. Fruit the form and size of an egg, acuminate with the style, fibrous, succulent, covered with a dark purple coriaceous coat, of which the natives make a vinous liquor. The nut is large, of a dark colour, ovate-oblong, with an acuminate trifid apex, and three obscure holes, two above the middle, and the third higher; kernel oblong, blunt at both ends, cartilaginous, solid.—Native of Carthagena in South America.

Bæckia; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, funnel-form, five-toothed, permanent. *Corolla:* petals five, roundish, patulous, inserted into the calix. *Stamina:* filamenta eight, of which six are equal, two solitary, very short, bent in: antheræ subovate, small. *Pistil:* germen roundish; style filiform, shorter than the corolla; stigma capitate. *Pericarp:* capsule globular, crowned, four-celled, four-valved. *Seeds:* roundish, angular on one side. Essential Character. *Calix:* funnel-form, five-toothed. *Corolla:* five-petalled. *Capsule:* globular, four-celled, crowned.—— The only species belonging to this genus, hitherto discovered, is,

1 Bæckia Frutescens. This is a shrub, which has the habit of Southernwood, with wand like branches, and opposite short simple twigs; leaves opposite, linear, sharp, smooth, quite entire; flowers axillary, solitary, on a naked peduncle

the length of the flower, much shorter than the leaves.—Native of China, and called there *tiongina*.

Bæobotrys; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth double; *exterior* three-leaved; leaflets roundish, concave, smaller; *inferior* one-leafed, bell-shaped, short, growing to the germen, five-cleft; clefts ovate, permanent, converging after flowering, and crowning the fruit. *Corolla:* one-petalled, tubular; tube very short; border five-cleft, erect; clefts rounded, very short. *Stamina:* filamenta five, very short, in the middle of the tube; antheræ heart-shaped. *Pistil:* germen globose, half superior; style cylindric, very short, permanent; stigma obtuse, tuberculated. *Pericarp:* berry globose, somewhat dry, one-celled, growing to the calix. *Seeds:* several, angular, affixed to a columnar receptacle in the bottom of the berry. Essential Character. *Corolla:* tubular, with a five-cleft border. *Calix:* double; outer two-leaved; inner one-leafed, bell-shaped. *Berry:* globose, one-celled, growing to the calix, many-seeded.——The only species hitherto discovered, is,

1. Bæobotrys Nemoralis. Native of the isle of Tanna, in the South Seas.

Ballota; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, salver-shaped, five-cornered, oblong, ten-streaked, erect, permanent, equal; mouth acute, patulous, plaited, five-toothed; involucre of linear leaflets under the whorls. *Corolla:* monopetalous, ringent; tube cylindric, the length of the calix; upper lip erect, ovate, entire, crenate, concave; lower trifid, obtuse; the middle segment larger, emarginate. *Stamina:* filamenta four, the two shorter subulate, bending towards the upper lip, and shorter than it. Antheræ oblong, lateral. *Pistil:* germen quadrifid; style filiform, in the same situation and form with the *stamina*. Stigma slender, bifid. *Pericarp:* none. *Calix:* unchanged, fostering the seeds in its bosom. *Seeds:* four, ovate. Essential Character. *Calix:* salver-shaped, five-toothed, ten-streaked. *Corolla:* upper lip crenate, concave.—The European sorts being common stinking weeds, are never introduced into gardens.——The species are,

1. Ballota Nigra; *Stinking* or *Black Horehound.* Leaves cordate, undivided, serrate; calices acuminate; corolla purple, twice the length of the calix; filamenta brown. It is a perennial hairy plant, with an acrid pungent smell; common in most parts of Europe, in waste places and hedges, flowering in July. It is recommended in hysterical cases. In Gothland, it is an universal remedy in disorders incident to cattle; but the Swedish plant is not supposed to be the same with ours. This, says Meyrick, is one of those neglected English plants, which are possessed of great virtues, though they are but little known, and still less regarded. An infusion of the green leaves, or a conserve made of the fresh-gathered tops is one of the best remedies for hypochondriacal and hysteric complaints. It likewise promotes the menses, and is good in low-spiritedness, and all the numerous train of nervous disorders. The flowers are sometimes found white.

2. Ballota Alba; *White-flowered Black Horehound.* Leaves cordate, undivided, serrate; calices subtruncate.—This has a pale stem and white corollas, with rounded cordate veined leaves.—It is a native of Sweden.

3. Ballota Lanata; *Woolly Black Horehound.* Leaves palmate, toothed; stem woolly. The stems are white with wool; corollas extremely hirsute, pale yellow, white on the outside.—It is a hardy plant, a native of Siberia, towards China.

4. Ballota Suaveolens; *Sweet-smelling Black Horehound.* Leaves cordate; spikes leafy; calices truncate; awns linear; root annual; stem upright, shrubby at bottom, branched, hirsute; branches almost upright, villose. Browne says, that it commonly rises to the height of three or four feet; and that it is a very grateful cephalic and alexipharmic. It is a very odorous plant, and the people of St. Domingo use it in their warm baths.—A native of the West Indies. It requires the protection of a stove.

5. Ballota Disticha; *Betony-leaved Black Horehound.* Whorls halved, two-parted, half-spiked; stem pubescent, one to two feet high.—Native of the East Indies. It must be placed in a stove in England.

6. Ballota Pilosa. Leaves ovate, crenate, tomentose; whorls hairy; calices ten-toothed; stem perennial, four feet high, weak, streaked, hairy.—Native of Cochin-china. It will not live without a stove in this country.

Baltimora; a genus of the class Syngenesia, order Polygamia.—Generic Character. *Calix:* common cylindric; leaflets seven, lanceolate, erect, the interior ones shorter. *Corolla:* compound, radiate; corollules hermaphrodite of the disk many; females of the ray five; proper of the hermaphrodites funnel-form, with a five-cleft tomentose border; of the females ligulate, ovate, trifid, the middle ones less. *Stamina:* in the hermaphrodite, filamenta five; antheræ cylindric. *Pistil:* in the hermaphrodite, germen obscure, style short; stigma none. In the females, germen oblong, crowned with a toothed deciduous calicle; style filiform, very short; stigmas two, filiform, longer than the corollule. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodite, none; in the females three-sided, naked, gibbous at the top. *Receptacle:* chaffy. Essential Character. *Calix:* cylindric, many-leaved; ray of the corolla five-flowered. *Down:* none. *Receptacle:* chaffy.——One species only is yet known,

1. Baltimora Recta. An annual plant, with a stem two feet high, four-cornered, upright, green, with the sides deeply channelled, and the angles rugged; flowers yellow.—Native of Maryland, near Baltimore; it flowers in June and July.

Bambusa; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none, except glume-like bractes scattered, often three under each spikelet, oblong, pointed, concave, keeled unequal, shorter than the floscules, two opposite, the third leaning on the flat side of the spikelet; spikelets lanceolate, distichous, compressed, sharp, nearly five-flowered. *Corolla.* glume two-valved; valve inferior, oblong, ventricose, acuminate, towards the tip keeled and streaked: interior lanceolate, flat, with complicated margins, ciliate, a little longer than the inferior, and projecting from it. Nectary two-leaved, flat at the anterior side of the germen; leaflets ovate, acuminate, bearded at the tip, membranaceous. *Stamina:* filamenta six, capillary, almost the length of the corolla; antheræ parallelopiped, two-cleft at the base. *Pistil:* germen oblong; style capillary, two-cleft; stigmas feathery. *Pericarp:* none. *Seed:* single, oblong.—For the rest, see *Arundo Bambos*, and *Nastus.*

Banara; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, six-parted, permanent; parts ovate. *Corolla:* petals six, roundish, concave, spreading, three times larger than the calix, inserted into the receptacle. *Stamina:* filamenta fifteen and more, capillary, length of the corolla, inserted into a glandule surrounding the germen; antheræ roundish. *Pistil:* germen somewhat globose, seated in a glandule; style filiform, of the height of the stamina; stigma headed. *Pericarp:* berry globose, but little succulent, one-celled, crowned by the permanent style. *Seeds:* numerous, very small, cornered, striated. Essential Character. *Calix:*

six-parted, permanent. *Corolla:* six-petalled; germen seated on a glandule; stigma headed; berry globose, one-celled, many-seeded.——The following species only has been hitherto found,

1. Banara Guianensis. This is a tree of ten feet or more in height, and about seven inches in diameter, with a grayish bark, and a whitish light wood. The corolla is yellow, and the berry black.—Native of the island of Cayenne, flowering in May, and bearing fruit in July.

Baneberry. See *Actæa.*

Banisteria; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth five-parted, very small, stiff underneath with tubercles, permanent; two melliferous glands under each division of the calix, except one, they are therefore eight in number. *Corolla:* petals five, orbiculate, very large, spreading, crenate; claws oblong linear. *Stamina:* filamenta ten, very small, coalescing at bottom; antheræ simple. *Pistil:* germina three, winged, coalescent; styles three, simple; stigmas obtuse. *Pericarp:* capsules three, running out into a long wing, one-celled, marked at the sides with small appendicles, not gaping. *Seeds:* solitary, covered, toothed on the lateral edge. Essential Character. *Calix:* five-parted, with melliferous pores at the base on the outside. *Petals:* roundish, with claws; stigmas leaf-shaped. *Seeds:* three, winged with membranes.—These plants, being all natives of hot countries cannot be preserved in England, unless they are kept in a bark-stove. They are propagated by seeds, which must be procured from the countries where they grow naturally. These seeds should be fully ripe when gathered, and put into sand or earth, in which they should be sent to England, otherwise they will lose their vegetative quality; for from a large parcel of these seeds, which were sent over in papers, as fresh as they could possibly arrive here, very few plants were raised, and those did not appear till the second year; therefore, when the seeds arrive, they should be immediately sown in pots; and if it happen in autumn or winter, the pots should be plunged into a hot-bed of tanner's bark where the heat is very moderate, and secured from frost and wet till spring, when they must be removed to a fresh hot-bed which will bring up the plants; but if they should not appear the first year, the pots should be preserved till the next spring, to see if the seeds will grow. When the plants come up, they must be put into separate pots, filled with light earth, and plunged into the bark-bed; after which they must be treated like other tender plants from the same countries. ——The species are,

1. Banisteria Angulosa. Leaves sinuate-angular; corolla sulphur-coloured.—Native of the island of Dominique, where Plumier first discovered it, and also of Hispaniola.

2. Banisteria Purpurea. Leaves ovate; spikes lateral; seeds erect.—Native of the Caribbee Islands.

3. Banisteria Laurifolia. Leaves ovate-oblong, rigid, racemes terminal.—Native of Jamaica and Hispaniola.

4. Banisteria Longifolia. Leaves oblong, acuminate, rigid, shining; panicle terminating; branches spreading very much.—Native of the West Indies.

5. Banisteria Benghalensis. Leaves ovate-oblong, acuminate; racemes lateral; seeds spreading; corollas blue.—Native of the East and West Indies.

6. Banisteria Dichotoma. Leaves ovate; branches dichotomous; corolla of a golden scarlet colour, spreading.—First observed in the island of Martinico.

7. Banisteria Fulgens. Leaves subovate, tomentose underneath; racemes brachiate; peduncles umbelled.—Native of Jamaica and Barbadoes

8. Banisteria Brachiata. Leaves subovate; branches brachiate; seeds narrower within. The flowers are produced in loose spikes at the ends of the branches, are first of a gold colour, and fade to a scarlet; these are succeeded by slender thin seeds, and for the most part single.—Native of Carthagena

9. Banisteria Aculeata. Leaves pinnate; leaflets oblong, obtuse; flowers spiked; stem branching, prickly. The flowers grow in loose spikes at the end of the branches, and are succeeded by single seeds, as large as those of the greater Maple.—Native of Tolu.

10. Banisteria Cœrulea. Branches tubercled; leaves ovate-acute, coriaceous; racemes axillary; corolla blueish.—Native of Jamaica and Dominica.

11. Banisteria Nitida. Leaves ovate-oblong, quite entire, shining beneath; panicle terminating, leafy.--Native of Brazil.

12. Banisteria Chrysophylla. Branches tubercled; leaves ovate-acute, with a golden nap on the lower surface; wings very long.—Found near Rio Janeiro in Brazil.

13. Banisteria Muricata. Leaves ovate-acute, tomentose beneath; racemes axillary; capsules muricate.—Native of Peru.

14. Banisteria Leona. Branches tubercled; leaves ovate-acuminate, coriaceous; flowers panicled.—Native of America, and found also at Sierra Leone.

15. Banisteria Ferruginea. Leaves ovate-acuminate, ferruginous beneath; flowers panicled; bractes imbricate.—Native of Rio Janeiro, near St. Sebastian, in Brazil.

16. Banisteria Emarginata. Leaves ovate, subcordate, emarginate-cuspidate at the end, tomentose on the lower surface; flowers raceme-corymbed, terminating; corolla yellow.—Native of America.

17. Banisteria Quapara. Leaves ovate, tomentose beneath; flowers in corymbs; seeds erect; corolla yellow, with unequal petals; seeds lens-shaped.—Native of Guiana, on the borders of meadows, flowering in August.

18. Banisteria Sinemariensis. Leaves ovate, acuminate; flowers in corymbs, yellow; wings gradually widening. This is a shrub with a trunk five feet high, putting forth many climbing branches: the fifth petal is larger than the rest, and fringed.—Native of Guiana, on trees, by the sides of meadows and fields, flowering and fruiting in August.

19. Banisteria Orbiculata. Stem twining; leaves orbiculate, beneath tomentose and silky; petioles biglandular; gemina united; styles three; stigmas leafy, short.—Native of Jamaica, Guadaloupe, and St. Domingo.

20. Banisteria Ciliata. Leaves cordate-roundish, eared, smooth, ciliate.—Native of Brazil.

21. Banisteria Auriculata. Stem twining, slender; leaves subsagittate, smooth, with rounded lobes; flowers in umbels.—Native of Rio Janeiro.

22. Banisteria Ovata. Stem twining; leaves ovate, acute, quite entire; flowers in umbels; involucres stipuled; corolla red, or sulphur-coloured.—Native of the island of Dominique.

23. Banisteria Palmata. Stem twining; leaves palmate, tomentose beneath; petioles biglandular. The leaves are divided into five acute parts, the middle one longest.—Native of St. Domingo.

24. Banisteria Sagittata. Stem twining; leaves sagittate, large, tomentose; petioles biglandular. The leaves have one tooth on each side towards the tip.—Native of St. Domingo.

Banksia; a genus of the class Tetrandria, order Monogynia: named after Sir Joseph Banks, P. R. S. who first discovered it.—Generic Character. *Calix:* perianth one-leafed, four-cleft inferior. *Corolla:* one-petalled; tube cylindric, very short; border very long, four-parted; parts linear,

lanceolate at the tip, internally hollowed by a little cavity, acute. *Stamina:* filamenta none; antheræ four, lanceolate, sessile in the cavity of the parts of the corolla. *Pistil:* germen superior, minute; style filiform, stiff, longer than the corolla; stigma pyramidate, acute. *Pericarp:* capsule ovate or globose, woody, one-celled, two-valved. *Seeds:* two, obovate, convex on one side, flat on the other, terminated by a very large membranaceous veinless wing. ESSENTIAL CHARACTER. *Calix:* four-cleft, inferior. *Corolla:* four-parted; tube very short; border very long, linear-lanceolate; antheræ sessile in the cavity of the parts of the corolla. *Capsule:* two-seeded, one or two celled, two-valved.—Some of the species of this genus have flowered and seeded in England. They have not yet been increased any other way but by seeds. These, and the plants in general from the South Seas, are hardy, considering their climate, and may be treated much in the same manner with the Cape plants. They covet abundance of air, and flourish best near the front of the dry-stove.——The species are,

1. Banksia Serrata; *Serrate-leaved Banksia.* Leaves linear, attenuated into the petiole, equally serrate, truncate at the end with a point, This is the most handsome species of the genus. The leaves are at the ends of the branches confluent, scattered, seven or eight inches long, narrow, smooth, coriaceous, flat, spreading much, surrounding the ament, which is very large, thick, columnar, obtuse, erect; flowers much spreading, ascending, the borders pubescent on the outside, and hoary.—Native of New South Wales.

2. Banksia Integrifolia; *Entire-leaved Banksia.* Leaves wedge-form, quite entire, white-tomentose underneath.—Native of the South Sea islands,

3. Banksia Ericæfolia; *Heath-leaved Banksia.* Leaves approximating acerose, truncate-emarginate, smooth. The leaves of this are very small.—Native of New South Wales.

4. Banksia Dentata; *Tooth-leaved Banksia.* Leaves oblong, attenuated into the petiole, curved, flexuose, toothed; teeth ending in a spinule, white underneath. The flowers in this species are smaller than in the others.—Native of New South Wales.

5. Banksia Pyriformis; *Pear-fruited Banksia.* Flowers solitary; capsules ovate, pubescent; leaves lanceolate, very entire, smooth.—Native of New South Wales.

6. Banksia Gibbosa; *Gibbous-fruited Banksia.* Flowers solitary; capsules ovate, gibbous, wrinkled; leaves columnar, pale green, smooth.—Native of New South Wales.

7. Banksia Musculiformis; *Muscle-fruited Banksia.* Flowers solitary; capsules ovate-conical, muscle-shaped, pointed, with tubercles on the outside; leaves obovate, emarginate.—Native of Amboyna.

8. Banksia Spinulosa; *Prickly-leaved Banksia.* Leaves linear-revolute, with a little sharp point, and with spinous denticulations towards the top.—Native of New South Wales.

Barbadoes Cherry. See *Malpighia.*

Barbadoes Gooseberry. See *Cactus Pereskia.*

Bardadoes Wild Olive. See *Bontia.*

Bark-beds. See *Hot-beds.*

Bark, Jesuit's. See *Cinchona.*

Barleria; a genus of the class Didynamia, order Angiospermia.—GENERIC CHARACTER. *Calix:* perianth four-parted, permanent; two opposite leaflets larger. *Corolla:* monopetalous, funnel-form, quinquefid, subequal; the fifth division deeper. *Stamina:* filamenta four, filiform, two very short, capillary. Antheræ oblong, the two lower withered. *Pistil:* germen ovate; style filiform, the length of the stamina; stigma bifid. *Pericarp;* capsule acute, flat-quadrangular, two-celled, two-valved, gaping elastically at the claws; partition contrary. *Seeds:* two, compressed, roundish. ESSENTIAL CHARACTER. *Calix:* four-parted. *Stamina:* two, far less than the others. *Capsule:* quadrangular, bilocular, bivalvular, elastic without the claws. *Seeds:* two.—Barlerias being all natives either of the East Indies or South America, require the protection of the bark-stove.——The species are,

1. Barleria Longifolia. Spines of the whorls six-fold; leaves ensiform, very long, scabrous; flowers in whorls, axillary.—Native of the East Indies.

2. Barleria Solanifolia. Spines axillary; leaves lanceolate, toothletted; flowers blue, and more completely labiated than any of the other species.—Native of Panama. The roots of this species will continue three or four years, but after the second year the plants grow too rambling, and the lower parts of the branches being naked, are not so sightly as the young plants; therefore a succession of these should be raised and the old ones turned out. They are propagated by seeds, which will sow themselves in the pots which are near them in the stove, when the plants are once obtained; but where the seeds are received from abroad, they must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they must be each planted in a separate pot, and plunged into a hot-bed of tanner's bark, where they must constantly remain, and be managed in the same manner as other tender exotics from the same countries, giving them water frequently in summer, and letting the fresh air to them every day in warm weather, but in winter they should have less water, and be kept warm. They flower from June to November, and their seeds ripen soon after.

3. Barleria Hystrix. Spines axillary, twin, simple; leaves quite entire, lanceolate, ovate, smooth on both sides. The stem is wand-like, not firm.—Native of the East Indies.

4. Barleria Prionitis. Spines axillary, pedate, four-fold; leaves quite entire, lanceolate-ovate; stem herbaceous, round, stiff.—Native of the East Indies. It has flexible perennial stalks, which, if cut off during the summer, and made into lengths of six or eight inches, and planted in pots, plunging them into a hot-bed, and duly watered and shaded from the sun, will soon put out roots; when they may be planted each in a small pot, and plunged into the tan-bed in the stove; for although this sort may be kept in a dry-stove through the winter, yet the plants will not grow near so fast, nor will their leaves be so large, as those which are plunged into the bark. By this means the plants may be propagated in plenty; but as they rarely produce flowers in England, so two or three plants will be sufficient to maintain the species.

5. Barleria Buxifolia. Spines axillary, opposite solitary: leaves roundish, quite entire.—Native of Jamaica, and the East Indies. This will produce seed in England, provided the plants are kept in the tan-bed in the stove, and may therefore be propagated by seeds, which should be sown in the hot-bed; and the plants afterwards treated in the same manner as those of the fourth species.

6. Barleria Noctiflora. Spines axillary, branching; leaves lanceolate, quite entire, cuspidated; bractes ovate, scariose; tube elongated; flowers blue, and expanding during the night.—Observed near Tanjour in the East Indies.

7. Baleria Cristata. Leaves oblong, quite entire; two leaflets of the calix broader, ciliated, and two linear acute; stem round; corolla blue, with ovate lobes.

8. Barleria Coccinea. Unarmed: leaves ovate, toothletted, petioled; stem smooth, four feet high; flowers scarlet, in whorls at the joints, appearing from July till September.—Native of South America. See the fifth species.

9. Barleria Pungens. Unarmed: leaves ovate, acute, pungent; bractes ciliated.—Found at the Cape of Good Hope.

10. Barleria Longiflora. Unarmed: leaves ovate, silky; bractes cordate, scariose; corollas very long.—Observed on the mountains of St. Thomas in Malabar.

11. Barleria Procumbens. Unarmed: leaves lanceolate, crenate, hispid; heads terminating; flowers yellow.—Native of China, near Canton.

Barley. See *Hordeum*

Barnadesia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common, somewhat ventricose, spreading at the tip, imbricate; scales imbricate, gradually longer from the base to the tip; the inferior or exterior ovate, closely imbricate, sharp, pungent; the superior or interior subulate, flat, spreading, pungent. *Corolla:* compound, rayed. Corollets hermaphrodite, tubular, very few, remote, in the disk lingulate, in a simple series, in the ray. Proper to the former, funnel-form; tube very short; border hairy, five-parted; parts erect, converging. Proper to the latter, ligulate, lanceolate, spreading at the base, incurved at the tip, and split, outwardly very hairy; tube longer than the calix. *Stamina:* filamenta five. Antheræ cylindric, tubular. *Pistil:* germen ovate; style filiform, longer than the stamina; stigma bifid; clefts spreading, ovate-rounded. *Pericarp:* none; calix converging. *Seeds:* very many, ovate, hairy; hairs reversed. *Down of the flowers of the disk,* bristly; rays subulate, stiff, broken backwards, naked, or covered with extremely minute hairs. *Of the radial flowers,* long, erect, spreading, many-rayed, feathery, soft. *Receptacle:* flat, villose, without chaff. Essential Character. *Calix:* naked, imbricate, pungent. *Corolla:* radiate. Down of the ray, feathered; of the disk, bristly, broken backwards.——Of this genus the following species only has yet been discovered.

1. Barnadesia Spinosa. This is a shrub, with very smooth branches, set with a pair of thorns at their origin, which at first were stipules; they are patulous, brown, and smooth; leaves alternate, simple, ovate, quite entire, sharp, flat, veined, somewhat hairy on both sides, whitish underneath; petioles very short; stipules in pairs, small, subulate; flowers panicled, terminating; calix pubescent. The flower is singular, in having two sorts of down.—Native of South America.

Barrenwort. See *Epimedium.*

Barreria: a genus of the class Syngenesia, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-toothed, small. *Corolla:* one-petalled, five-parted; parts oblong, acute, convex beneath, concave above, with a double pit; the superior ovate, bifid, the wedge-shaped one trifid; excavated for the reception of the stamina. *Stamina:* filamenta five, ascending, linear, wider above, thick, triangular, bordered, curved. Antheræ erect, four-cornered, marginated, coalescing into the form of a mill-wheel; each, in the closed flower, answering together with the filamenta, to the pits of the two petals. *Pistil:* germen roundish; style short; stigma trifid. *Pericarp* and *Seeds:* not ascertained. Essential Character. *Calix:* five-toothed, very small. *Corolla:* five-parted. *Style:* short. *Stigma:* trifid.——The only known species is,

1. Barreria Guianensis. This tree rises forty or fifty feet in height, and is two feet and a half in diameter; the bark is ash-coloured, and the wood is reddish-brown, hard, and compact: the flowers, which appear in November, are in small axillary spikes, alternate, and almost sessile.—Native of Guiana, in the extensive forests near the banks of the river Sinemari, fifty leagues from its mouth.

Barringtonia; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth two-leaved, superior; leaflets roundish, concave, coriaceous, permanent. *Corolla:* petals four, equal, ovate, spreading, coriaceous, larger than the calix. Nectary conic, tubular, coating the base of the style, toothed at the tip; teeth several, unequal. *Stamina:* filamenta very many, monadelphous, (or conjoined from the very base into a cylinder seated on the receptacle,) capillary, longer than the corolla. Antheræ small, roundish. *Pistil:* germen inferior, turbinate; style filiform, length of the stamina; stigma simple. *Pericarp:* drupe large, ovate, conic quadrangular, crowned by the calix. *Seed:* nut long, ovate, outwardly wrinkled, fibrose, four-celled. *Kernels* ovate, wrinkled. Essential Character. *Calix:* simple, two-leaved, superior, permanent. *Fruit:* a dry four-cornered drupe, inclosing a nut, one to four-celled.——The only known species is,

1. Barringtonia Speciosa; *Laurel-leaved Barringtonia.* This is a lofty tree, and the handsomest in the whole equinoctia flora, abounding with thick shady bunches of leaves, and large handsome purple and white flowers, every where mixed with them. The flowers open at night, and fall at sun-rise: the birds pluck them off, and the ground about these trees is perfectly covered with them. The seed mixed with bait, inebriates fish in the same manner as the Coculus-indicus, &c.—It grows within the tropics, especially on the shores of the ocean, and at the mouths of rivers in the East Indies, from the southern coasts of China, through the Molucca isles to Otaheite, and the other Society Isles, the Friendly Isles, &c. It is cultivated in the governor's garden at the island of St. Helena.

Bartsia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, permanent; mouth obtuse, two-lobed; lobes emarginate, coloured at the top. *Corolla:* monopetalous, ringent; upper lip erect, slender, entire, longest; lower reflex, trifid, obtuse, very small. *Stamina:* filamenta four, bristle-shaped, the length of the upper lip; two somewhat shorter. Antheræ oblong, approximating under the top of the upper lip. *Pistil:* germen ovate; style filiform, longer than the stamina; stigma obtuse, nodding. *Pericarp:* capsule ovate, compressed, acuminate, two-celled, two-valved; partition contrary to the valves. *Seeds:* numerous, angular, small. Essential Character. *Calix:* two-lobed, emarginate, coloured. *Corolla;* coloured less than the calix: upper lip longest. *Capsule;* two-celled.

1. Bartsia Coccinea; *Red Bartsia.* Leaves alternate, linear, two-toothed on each side; capsule elastic.—This most beautiful plant has a stem entirely simple: it has been found in Maryland, Virginia, and New York.

2. Bartsia Pallida; *Pale-flowered Bartsia.* Leaves alternate, lanceolate, quite entire; floral leaves ovate, toothed; root fibrous; stem round, simple, streaked; corolla purple.—Native of Siberia and Hudson's Bay.

3. Bartsia Viscosa: *Viscid Bartsia,* or *Yellow Marsh Eyebright.* Leaves serrate, uppermost alternate; flowers distant, lateral; corolla yellow; stem a foot high, upright, cylindric, simple, hirsute. The whole plant is clammy.—It is an annual, native of France, Italy, and Britain; in the marshes of Cornwall, Devonshire, Lancashire, and Staffordshire; and of Argyleshire in Scotland; flowering in July and August.

4. Bartsia Alpina; *Alpine Bartsia.* Leaves opposite, cordate, obtusely serrate; antheræ hairy; stem simple, six or seven inches high, hard, villose, obtusely quadrangular; corollas of a violet purple, thrice as long as the calix.—Native of the mountains of Lapland, Switzerland, Savoy, Monte Baldo, and near Orton in Westmoreland.

5. Bartsia Gymnandria. Two-stamined; leaves radical, twofold, petioled; stem mostly two-leaved, three or four inches high, round, smooth, simple; one spiked; spike linear, obtuse; whorls bracted, collected; corolla pale blue.—It grows within the arctic circle on the north side of the frozen rocks in Kamptschatka, where there is no other vegetation.

6. Bartsia Odontites; *Red Bartsia.* Leaves lanceolate, serrate, the upper alternate; flowers in racemes, inclining to one side; corolla rose-coloured; antheræ smooth; root fibrous, annual.—Common in meadows and pastures, flowering in July.

Basella; a genus of the class Pentandria, order Trigynia.—Generic Character. *Calix:* none. *Corolla:* seven-cleft, pitcher-shaped, the two outer divisions broader, one within the rest, converging above, fleshy at the base. *Stamina:* filamenta five, subulate, equal, fastened to the corolla, and shorter than it. Antheræ roundish. *Pistil:* germen superior, subglobular; styles three, filiform, the length of the stamina; stigmas oblong, on one side of the tops of the styles. *Pericarp:* corolla permanent, closed, fleshy, counterfeiting a berry. *Seed:* single, roundish. Essential Character. *Calix:* none. *Corolla:* seven-cleft; two opposite divisions shorter, at length berried. *Seed:* one.—These plants are propagated by seeds, which should be sown on a hot-bed in the spring, and when they are fit to remove, they should be each planted in a separate pot filled with rich earth, and plunged into the tan-bed, where they must be treated in the same manner as other tender exotics. They may also be propagated by cuttings, which should be laid to dry a day or two after they are taken from the plants, before they are planted, that the wound may heal; otherwise they will rot. These cuttings should be treated in the same manner as the seedling plants; but as these plants rise so easily from seed, it is seldom they are propagated any other way; because they are plants of short duration. They climb to a considerable height, and send forth a great number of branches, so that they should have a place near the back of the stove, where they may be trained up to a trellis, or fastened to the back of the stove, otherwise they will twist themselves about whatever plants stand near them, and be very injurious to the other plants; whereas, when they are regularly trained to a trellis, they will have a good effect in adding to the variety. They flower from June till autumn, and the seeds ripen in September and December.——The species are,

1. Basella Rubra; *Red Malabar Nightshade.* Leaves flat; peduncles simple. The flowers of this plant have no great beauty, but the plant is preserved for the odd appearance of the stalks and leaves.—It is a native of the East Indies, Amboyna, Japan, &c. A beautiful colour is drawn from the berries; but when used for painting, does not continue very long, but changes to a pale colour. It is thought, however, this beautiful colour might be fixed, so as to become very useful; for the juice of these berries has been used for staining calico's in India.

2. Basella Alba; *White Malabar Nightshade.* Leaves oblong and flaccid. The stalks, flowers, and fruit, are smaller than those of the first species.—Native of China and Amboyna.

3. Basella Lucida; *Shining Malabar Nightshade.* Leaves subcordate; peduncles crowned, branching.—Native of the East Indies.

4. Basella Nigra; *Black Malabar Nightshade.* Leaves round-ovate, alternate, thick, smooth, entire, petioled; spikes lateral; stem perennial, twining, slender, round, succulent, branched; flowers purple and white, lateral, few, in long solitary spikes.—This is a native both of China and Cochin, in the hedges and fences of their gardens.

Basil. See *Ocymum* and *Clinopodium.*

Bassia: a genus of the class Dodecandria, order Monogynia.——Generic Character. *Calix:* perianth four-leaved; leaflets coriaceous, ovate, permanent. *Corolla:* monopetalous, bell-shaped; tube inflated, ovate, fleshy; border shorter than the tube, eight-parted; divisions ovate, almost upright. *Stamina:* filamenta sixteen, eight below the jaws, and eight in the middle of the tube. Antheræ linear, sagittate, acute, villose on the inside, shorter than the corolla. *Pistil:* germen superior, ovate; style subulate, twice as long as the corolla; stigma acute. *Pericarp:* drupe fleshy, milky. *Seeds:* nuts five, oblong, three-cornered. Essen. Char. *Calix:* four-leaved. *Corolla:* eight-cleft; tube inflated. *Stamina:* sixteen. *Drupe:* five-seeded.——The species are,

1. Bassia Longifolia. Leaves ovate-lanceolate; peduncles axillary. This is a lofty tree, with the outmost branches recurved, thickish, and covered with a gray down.—Native of Malabar and Ceylon.

2. Bassia Dubia. Seed large, half-moon shaped, flatted like a lens, smooth, shining, of a dark chestnut colour, except an oblong rugged umbilical area, which is pale, and almost white. The shell is thick, stony, and very hard.—Native country not ascertained.

3. Bassia Obovata. Leaves obovate; peduncles heaped, terminating.—Native of the isle of Tanna in the South Seas.

Bassovia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, permanent, five-parted; parts ovate, acute. *Corolla:* one-petalled; tube very short; border five-cleft, spreading; clefts ovate, acute, larger than the calix. *Stamina:* filamenta five, inserted in the tube of the corolla, and opposite to its clefts. Antheræ ovate. *Pistil;* germen ovate, sitting on a glandule; style short; stigma thickish, obtuse. *Pericarp:* berry ovate, knobbed. *Seeds:* very many, kidney-shaped, girt with a membrane, nestling in a pulp. Essential Character. *Corolla:* five-cleft, spreading, with a very short tube. *Berry:* ovate, knobbed, with many seeds.——The only species known, belonging to this genus, is,

1. Bassovia Sylvatica. Stems herbaceous, three or four feet high, branched; leaves alternate, ovate, acute smooth, quite entire, on a petiole about an inch in length; the largest are ten inches long, and four and a half broad; flowers in axillary corymbs, green, and very small.—Native of Guiana, in wet forests, flowering and fruiting in June.

Bastard Alkanet. See *Lithospermum.*
Bastard Balm. See *Melittis.*
Bastard Cabbage-tree. See *Geoffroya.*
Bastard Cedar. See *Theobroma Guazuma.*
Bastard Cress. See *Thlaspi.*
Bastard Feverfew. See *Parthenium.*
Bastard Gentian. See *Sarothra.*
Bastard Hare's Ear. See *Phyllis.*
Bastard Hatchet Vetch. See *Biserrula.*
Bastard Hemp. See *Datisca.*
Bastard Hibiscus. See *Achania.*
Bastard Jesuit's Bark Tree. See *Iva.*
Bastard Indigo. See *Amorpha.*
Bastard Knot Grass. See *Corrigiola.*
Bastard Lupine. See *Trifolium Lupinaster.*
Bastard Orpine. See *Andrachne.*
Bastard Pimpernel. See *Centunculus.*
Bastard Plantain. See *Heliconia Bihai*, and *Centunculus.*
Bastard Quince. See *Mespilus Chamæmespilus.*
Bastard Saffron. See *Carthamus.*
Bastard Toadflax. See *Thesium.*
Bastard Vetch. See *Phaca.*
Batatas. See *Convolvulus.*

Batis; a genus of the class Dicœcia, order Triandria.—Generic Character. *Male. Calix:* ament pyramidal; scales one-flowered, four-fold, imbricate. *Corolla:* none. *Stamina:* filamenta four, erect, longer than the scales of the ament. Antheræ oblong, twin, incumbent. *Female,* on a separate plant. *Calix:* ament common, fleshy, containing some floscules congloberated into an ovate quadrangular body; involucre two-leaved. *Corolla:* none. *Pistil:* germen quadrangular, fastened to the ament; style none; stigma two-lobed, obtuse, villose. *Pericarp:* berry conjoined with the rest, one-celled. *Seeds:* four, triangular, acuminate. Essential Character. *Male:* ament four-fold, imbricate. *Calix* and *Corolla:* none. *Female:* ament ovate; involucre two-leaved. *Calix* and *Corolla:* none. Stigma two-lobed, sessile. Berries conjoined, four-seeded.——The only known species is,

1. Batis Maritima. This is a shrub about four feet high; stems brittle, round, ash-coloured; fruits yellow, or greenish-yellow. The whole plant is very salt to the taste; and it is burnt for barilla at Carthagena, &c.—Native of the Caribbee islands, and the neighbouring continent. It is very common in all the salt-marshes on the south side of Jamaica.

Bauhinia; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth oblong, gaping longitudinally on the lower side, reclining on the other, gaping also five ways at the base, with five cohering leaflets above, deciduous. *Corolla:* petals five, oblong, waved with attenuated reflected tops, expanding; the lower ones a little larger, the upper one more distant, all with claws placed on the calix. *Stamina:* filamenta ten, declining shorter than the corolla; the tenth much the longest. Antheræ ovate, always on the tenth, seldom on the rest. *Pistil:* germen oblong, sitting on a pedicle; style filiform, declining; stigma obtuse, rising. *Pericarp:* legume long, subcolumnar, one-celled. *Seeds:* many, roundish, compressed, placed according to the length of the legume. Essential Character. *Calix:* five-cleft, deciduous. *Petals:* expanding, oblong, with claws, the upper one more distant, all inserted into the calix.—These plants being all natives of hot countries, will not thrive in England unless they are kept in the bark-stove. They are propagated by seed, which must be procured from the countries where they grow naturally, for they do not perfect their seeds in England. As these plants frequently flower in winter, they deserve a place in the stove.——The species are,

1. Bauhinia Scandens; *Climbing Mountain Ebony.* Stem cirrhiferous; rising with many slender stalks, which put out tendrils, and fasten themselves to the neighbouring trees.—It is a native of both Indies, but has not produced flowers in England. The flowers are at first whitish, but turn to a yellowish colour.

2. Bauhinia Aculeata; *Prickly-stalked Mountain Ebony.* An erect inelegant shrub; with the trunk and branches prickly; leaves roundish, with two roundish blunt lobes, nine-nerved, prickly. It rises to the height of sixteen or eighteen feet in Jamaica, where, as well as in the other sugar islands, it grows plentifully. The stalks are terminated by several long spikes of yellow flowers, which are succeeded by bordered pods, about three inches long, containing two or three swelling seeds; these pods are glutinous, and have a strong balsamic scent, as have also the leaves when bruised; whence, from its strong odour, the Americans call it the Indian Savin-tree.

3. Bauhinia Divaricata; *Dwarf Mountain Ebony.* Leaves smooth; lobes divaricated, acute, two-nerved; petals lanceolate. This is a low shrub, seldom rising more than five or six feet high, dividing into several branches. Flowers in a simple upright raceme; corolla white. The flowers have a very agreeable scent, appear most part of the summer, and are one of the greatest beauties of the hot-house. The pods are taper, about four inches long, and contain four or five dark-coloured seeds.—It flowers from June till September, and grows naturally in great plenty on the north side of the island of Jamaica.—This sort has several times produced pods in the Chelsea garden, but they have never come to maturity. The seeds should be brought over in their pods; which will preserve them good. These must be sown in pots filled with light fresh earth, and plunged into a moderate hot-bed of tanner's-bark; if the seeds be good, the plants will come up in about six weeks, and in a month after will be fit to transplant, when they should be carefully shaken out of the seed-pod, so as not to injure the roots, and each planted into a separate small pot filled with light loamy earth, and plunged into the hot-bed again, being careful to shade them until they have taken fresh root; after which they should have fresh air admitted to them every day in warm weather. In the autumn they must be placed in the bark-stove, and treated in the same way as other tender exotics, giving them but little water in winter.

4. Bauhinia Ungulata. Leaves ovate; lobes parallel; stem smooth, dividing into many small branches, terminated by loose bunches of white flowers.—Native of America.

5. Bauhinia Variegata; *Variegated Mountain Ebony.* Calices one-leafed, bursting; petals sessile, ovate; lobes of the leaves ovate obtuse. The flowers are large, and grow in loose panicles at the extremity of the branches, of a purplish red colour, marked with white, and the bottom yellow.—It grows naturally in both Indies.

6. Bauhinia Purpurea; *Purple Mountain Ebony.* Leaves subcordate, two-parted, rounded, tomentose underneath. A tall tree. The corolla is of a very red purple.—Native of the East Indies, where it flowers the whole year.

7. Bauhinia Tomentosa; *Downy Mountain Ebony.* Leaves cordate; lobes semiorbiculate, tomentose. Flower yellowish-white scentless.—Native of the East Indies.

8. Bauhinia Acuminata; *Sharp-leaved Mountain Ebony.* Leaves ovate; lobes acuminate, semiovate; flowers bell-shaped, pure white.—Native of the East Indies.

9. Bauhinia Marginata. Stem prickly; leaves cordate with round lobes, tomentose underneath. The flowers grow at the extremity of the branches, two or three together, large, and of a dirty white colour. Native of New Spain.

10. Bauhinia Rotundata. Stem prickly; leaves subcordate, two-parted, rounded; flowers scattered, large, and white.—Native of Carthagena in New Spain

11. Bauhinia Aurita; *Long-eared Mountain Ebony.* Leaves subtransverse at the base; lobes lanceolate, porrected, three-nerved; petals lanceolate.—Native place unknown. It flowers in September.

12. Bauhinia Porrecta; *Smooth Broad-leaved Mountain Ebony.* Leaves cordate; lobes porrected, acute, three-nerved; petals lanceolate. This tree rises to about fifteen feet in height, with several straight trunks. The wood is very hard, and veined with black; whence its name of Ebony.—It grows on the hills in Jamaica, and flowers in July.

13. Bauhinia Candida; *White-leaved Mountain Ebony.* Leaves cordate, pubescent underneath; lobes ovate, obtuse; calices attenuated upwards, and elongated.—It flowers in May and June; and is a native of the East Indies.

Bay. See *Laurus.*

Bay, Loblolly. See *Gordonia.*

Bead Tree. See *Melia.*

Beam Tree. See *Cratægus Aria.*
Bean. See *Vicia Faba.*
Bean, Kidney, or *French.* See *Phaseolus.*
Bean Capor. See *Zygophylum.*
Bean Trefoil. See *Anagyris* and *Cytisus.*
Bear-Berry. See *Arbutus.*
Bear's Breech. See *Acanthus.*
Bear's Ears. See *Primula Aricula.*
Bear's Ear Sanicle. See *Verbascum.*
Bear's Foot. See *Helleborus.*
Bee-Flower, or *Orchis.* See *Ophrys.*
Beech Tree. See *Fagus.*
Beet. See *Beta.*

Begonia; a genus of the class Monœcia, order Polyandria. —Generic Character. *Male Flowers. Calix:* none. *Corolla:* petals four (in Bergonia Octopetale six to nine) of which two opposite ones are larger, commonly roundish (in Begonia Ferruginea all nearly equal, oblong.) *Stamina:* filamenta numerous (fifteen to one hundred) inserted into the receptacle, very short, sometimes united at the base. Antheræ oblong, erect. *Female Flowers,* usually on the same common peduncles with the males. *Calix:* none. *Corolla:* petals in most species five, in some six, in others perhaps four, commonly unequal. *Pistil:* germen inferior; three-sided, in very many winged; styles in most three, bifid; stigmas six. *Pericarp:* capsule in most three-cornered, winged, three-celled, opening at the base by the wings; some are two-celled, and others perhaps one-celled. Essential Character. *Male. Calix:* none. *Corolla:* many petalled. *Stamina:* numerous. *Female. Calix:* none. *Corolla:* many-petalled, superior. *Capsule;* winged, many-seeded.—The plants of this genus increase readily by cuttings; and if kept in the bark-stove prove highly ornamental, being much esteemed, both for the beauty of the flowers and the singularity of the leaves. Where there is no bark-stove, they will be found to do very well over the flue of the dry-stove.—The species are as follows:

1. Begonia Nitida. Shrubby, erect; leaves very smooth, unequally cordate, obscurely toothed; largest wing of the capsule roundish; corolla flesh or rose coloured. It is an elegant shrub, flowering here from May till December.—Native of Jamaica.

2. Begonia Isoptera. Caulescent; leaves smooth, semicordate, obscurely toothed; wings of the capsule almost equal, parallel; seeds numerous, small.—Native of Java.

3. Begonia Reniformis. Caulescent; leaves kidney-shaped, angular, toothed; the largest wing of the capsule acute-angled, the others parallel, very small.—Native of Brazil, in the shady clefts of the rocks.

4. Begonia Erminia. Caulescent: leaves cordate, acuminate, serrate; the largest wing of the capsule sickle-shaped, the rest obliterated.—Native of Madagascar, on stones and rocks by brooks.

5. Begonia Crenata. Caulescent: leaves unequally cordate, roundish, obtuse, crenate-toothed; capsules two-celled; flowers pale red.—Native of the island of Salsette in the East Indies, on walls and rocks.

6 Begonia Tenuifolia. Caulescent: leaves unequally cordate, ovate, acute-angular, obscurely toothed; capsules two-celled.—Native of Prince's Island, near Java.

7. Begonia Ferruginea. Caulescent: leaves unequally cordate, toothed; petals of the male flower oblong, nearly equal; flowers blood red, nodding.—Found in New Granada.

8. Begonia Grandis. Caulescent: leaves unequally cordate, angular, serrate; wings of the capsule a little unequal; male corolla purple.—Native of Japan.

9. Begonia Macrophylla. This is two feet high, entirely smooth; female flowers five petalled.—A native of the islands in the West Indies.

10 Begonia Acutifolia. Caulescent: leaves semicordate, angular, toothed; the largest wing of the capsule obtuse-angled, the others acute-angled.—Native of Jamaica.

11. Begonia Acuminata. Caulescent: leaves hispid, semicordate, acuminate, unequally toothed; the largest wing of the capsule obtuse-angled, the others acute-angled.—Found in the Blue Mountains in Jamaica.

12. Begonia Humilis. Caulescent, upright; leaves hispid, semicordate, doubly serrate; wings of the capsule rounded, a little unequal.—Native of the island of Trinidad.

13. Begonia Hirsuta. Caulescent: leaves hispid, semicordate, doubly serrate; the largest wing of the capsule obtuse-angled, the others parallel and very small; corolla white.—Observed on the rocks of Guiana, in South America.

14. Begonia Urticæ. Caulescent, radicant: leaves hispid on both sides, unequally ovate, doubly serrate; capsules three-horned at the base; flowers usually in pairs, a male with a female; males blood-red; no stamina; no rudiment of a pistil.—Found by Mutis in New Granada.

15. Begonia Scandens. Scandent, radicant: leaves ovate-roundish, obscurely-toothed; the largest wing of the capsule obtusely angled, the others parallel and very small.—Native of Guiana, of Jamaica, and of the Isle of France.

16. Begonia Tuberosa. Creeping: leaves unequally cordate, angular, toothed; wings of the capsule parallel.—Native of Amboyna, the Moluccas, and Celebes.

17. Begonia Rotundifolia. Creeping; leaves reniform, roundish, crenate; stems thick, cylindric, naked, with small permanent stipules, between which they are marked with scars from the fallen leaves. The leaves are slightly crenate, green, and shining above, white beneath, on pretty long petioles. From the end of each stem arises a peduncle, or rather scape, longer than the leaves, bearing an umbel-shaped paniele of red monœcous flowers at the top.—Native of South America, on rocks and trees.

18. Begonia Nana. Stemless: leaves lanceolate; scape with about two flowers.—Native of Madagascar, on rocks and trunks of trees.

19. Begonia Tenera. Stemless: leaves unequally cordate; flowers umbelled.—Native of Ceylon.

20. Begonia Diptera. Stemless: leaves unequally cordate; peduncles dichotomous: one wing of the capsule very large, another narrow, and the third obscure.—Native of the island of Joanna, in shady places, by the sides of mountains.

21. Begonia Octopetala. Stemless: leaves cordate, five-lobed; peduncles dichotomous; root tuberous, viscid, purple within.—Found on the mountains of Lima.

22. Begonia Malabarica. Stems herbaceous; peduncles axillary, short, subtriflorous; fruits berried.—Native of Malabar.

23. Begonia Repens. Stems creeping, rooting at the joints; leaves one-eared; peduncles axillary, long, many-flowered.—Native of St. Domingo.

Bejaria; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, gibbous downwards, subventricose, seven-cleft; divisions subequal, ovate, acute, converging, small; the outer ones broader, permanent. *Corolla:* petals seven, oblong, broader above, obtuse, patulous, inserted into the receptacle. *Stamina:* filamenta fourteen, subulate, rather shorter than the corolla, alternately less. Antheræ oblong, incumbent. *Pistil:* germen superior; style columnar, middle-sized, permanent; stigma thickish, seven-striated. *Pericarp:* berry juiceless, seven-cornered, depressed, umbilicate, seven-celled.

Seeds: numerous, columnar-oblong, imbricate. Essen. Char. *Calix:* seven-cleft. *Petals:* seven. *Stamina:* fourteen. *Berry:* seven-celled, many-seeded.——The species are,

1. Bejaria Æstuans. Leaves lanceolate; flowers in racemes. This is a shrub, twelve feet in height, with roundish spreading branches; corolla flesh-colour.—Native of Mexico.

2. Bejaria Resinosa. Leaves ovate; flowers heaped; corolla purple, very resinous or viscid.—Found in New Granada.

Belladonna. See *Amaryllis* and *Atropa.*

Bell-flower. See *Campanula* and *Canarina.*

Bellis; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common hemispheric, upright; leaflets ten to twenty, in a double row, lanceolate, equal. *Corolla:* compound, radiate; corollules hermaphrodite, tubular, numerous in the disk; female ligulate, more in number than the leaves of the calix in the ray. Proper of the hermaphrodite funnel-form, five-cleft; of the female ligulate, lanceolate, scarcely three-toothed. *Stamina:* of the hermaphrodite; filamenta five, capillary, very short. Antheræ cylindric, tubular. *Pistil:* germen ovate; of the hermaphrodite, style simple; stigma emarginate: of the female, style filiform; stigmas two, patulous. *Pericarp:* none. *Calix:* unchanged. *Seeds:* solitary, obovate, compressed; down none. *Receptacle:* naked, conical. Essen. Char. *Calix:* hemispheric, with equal scales. *Seeds:* ovate, with no down. *Receptacle:* naked, conical.——The species are,

1. Bellis Perennis; *Perennial* or *Common Daisy.* Scape naked. It is a native of most parts of Europe, in pastures, flowers almost all the year, and shuts up very close every night, and in wet weather.—The taste of the leaves is somewhat acrid, notwithstanding which, it is used in some countries as a pot-herb. The roots have a penetrating pungency. It is ungrateful to cattle, and even to geese; although it occupies a large share of pasture lands, to the exclusion of grass and profitable herbs. It has been much recommended as excellent for fresh wounds, externally, and against inflammatory disorders, &c. internally; but it is now wholly out of use. Meyrick, however, recommends a strong decoction of the roots, as an excellent medicine in scorbutic complaints; but says, the use of it must be continued for a considerable length of time before its effects will appear. Some persons give the roots, boiled in milk, to keep puppies from growing; but they have no such effect.—The varieties of this species are: the Double White, Red, White, and Red-striped; Variegated, Scarlet, and Pied; Double-quilled, or with fistular florets; Double Cock's-comb-shaped, white, red, and speckled; Proliferous, Childing, or Hen-and-Chicken Daisy. The common wild Daisy being a troublesome weed in pasture lands, and the lawns and grass walks in gardens, is never cultivated. The Garden Daisies flower in April and May, when they make a pretty variety, being intermixed with plants of the same growth; they should be planted in a shady border, and a loamy soil, without dung, in which they may be preserved without varying, provided the roots are transplanted and parted every autumn; which is all the culture they require, except keeping them clear from weeds. These were formerly planted for edgings to borders, but they are very unfit for this purpose, because, where they are fully exposed to the sun, they frequently die in large patches, whereby the edgings become bald in many places.

2. Bellis Annua; *Annual Daisy.* Stem somewhat leafy. This is a low annual plant, seldom rising more than three inches high, with an upright stalk, hairy leaves on the lower part, but the upper part naked, and supporting a single flower like that of the Common Daisy, but smaller.—Native of Sicily, Spain, about Montpellier, Verona, and Nice.

Bellium; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common simple, with very many equal boat-shaped leaflets. *Corolla:* compound, radiated; in the ray female, ten or twelve; in the disk hermaphrodite, very many: proper of the hermaphrodite funnel-shaped, quadrifid, erect; of the females, elliptic-emarginate, ligulate. *Stamina:* in the hermaphrodite, filamenta, four, short. Antheræ cylindric. *Pistil:* in the hermaphrodite, germen turbinate; style filiform; stigma bifid, oblong: in the females, germen turbinate; style very short; stigma bifid, minute. *Pericarp:* none; calix unchanged. *Seeds:* turbinate; crown chaffy, eight-leaved, rounded; down with eight single awns. *Receptacle:* naked, conic. Essential Character. *Calix:* with equal leaflets. *Seeds:* conic, with a chaffy eight-leaved crown, and awned down. *Receptacle:* naked.——The species are,

1. Bellium Bellidioides. Scapes naked, filiform. It has the habit of the Daisy, but differs essentially from it in having a down to the seed; ray white; disk yellow.—Native of Italy, about Rome, and in the island of Majorca.

2. Bellium Minutum. Stem leafy. This is one of the minutest of plants; stem capillary, an inch in length; the whole plant smooth and ascending.—Native of the Levant.

Bellonia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, semiquinquefid, permanent; divisions lanceolate, acute. *Corolla:* monopetalous, wheel-shaped; tube very short; border flat, semiquinquefid, obtuse, large. *Stamina:* filamenta five, subulate, erect, very short. Antheræ erect, convergin, short. *Pistil:* germen inferior; style subulate, straight, longer than the stamina; stigma acute. *Pericarp:* capsule turbinate, ovate, wrapped up in the calix, and beaked with its converging divisions, one-celled. *Seeds:* numerous, roundish, small. Essential Character. *Corolla:* wheel-shaped. *Capsule:* one-celled, inferior, many-seeded, beaked with the calix.——The species are,

1. Bellonia Aspera. Leaves ovate-serrate: flowers corymbed, terminating. This is a shrub ten or twelve feet in height, from which issue many lateral branches.—Common in the warm islands of America.

2. Bellonia Spinosa. Thorny: leaves ovate, angular, tooth-serrate; peduncles axillary, one-flowered.—Discovered by Swartz in Hispaniola.

Benjamin Tree. See *Laurus.*

Bennet Herb. See *Geum.*

Bent Grass. See *Agrostis.*

Berberis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth six-leaved, patulous; leaflets ovate, with a narrower base, concave, alternate, smaller, coloured, deciduous *Corolla:* petals six, roundish, concave, erect, expanding, scarcely larger than the calix. Nectary, two small roundish coloured bodies, fastened to the base of each petal. *Stamina:* filamenta six, erect, compressed, obtuse. Antheræ two, fastened on each side to the top of the filamenta. *Pistil:* germen cylindric, the length of the stamina; style none; stigma orbiculate, broader than the germen, surrounded with a sharp edge. *Pericarp:* berry cylindric, obtuse, umbilicated with a point, one-celled. *Seeds:* two, oblong, cylindric, obtuse. Essential Character. *Calix:* six-leaved. *Petals:* six, with two glands at the claws. *Style:* none. *Berry:* two-seeded. ——The species are,

1. Berberis Vulgaris; *Common Barberry.* Peduncles racemed; spines triple. The Common Barberry is a shrub, rising to the height of eight or ten feet, with stems upright and branched, smooth, and slightly grooved, brittle, with a white

pith, and covered with an ash-coloured bark; flowers towards the ends of the branches in pendulous racimes; berries first green, but when ripe changing to a fine red colour.—Native of the eastern countries, and now of most parts of Europe, in woods, coppices, and hedges It is found in a chalky soil in England, particularly about Saffron-Walden in Essex. The flowers appear in May, and the fruit ripens in September The varieties of this species are not worth enumerating. The leaves of this shrub are gratefully acid: the smell of the flowers is offensive when near, but pleasant at a certain distance: the berries are so very acid that birds seldom touch them. The Barberry is cultivated for the sake of the fruit, which are pickled, and used for garnishing dishes, and being boiled with sugar, form a most agreeable rob or jelly; they are used likewise as a sweetmeat, and in sugar-plums or comfits. The roots boiled in lee, yield a yellow colour; and in Poland they dye leather of a fine yellow colour with the bark of the root. The inner bark of the stems will also dye linen of a fine yellow, with the assistance of alum. Cows, sheep, and goats, are said to eat it; horses and swine, to refuse it. The fruit of the Barberry is considered as a mild restringent acid, agreeable to the stomach, and of efficacy, like other vegetable acids, in hot bilious disorders, and in a putrid disposition of the humours. According to Prosper Alpinus, the Egyptians employed a diluted juice of the berries in ardent and pestilential fevers. Their method is to macerate them in about twelve times their quantity of water, and let them stand for about twenty-four hours, and then to add a little Fennel-seed. The liquor is then pressed out and strained, and sweetened with sugar, or syrup of citrons, roses, &c. and given plentifully as a drink. A concrete, similar to cream of tartar, may be obtained from the juice, by mixing it with Lemon juice, in the proportion of two pounds of Barberry juice, and two ounces of Lemon juice, and digesting them in a sand-heat for two days, and then gently evaporating the filtered liquor to one half, and setting it in a cellar for some days. The tartar incrustates the sides of the vessel, and is a grateful medicine in febrile disorders: in fact, it is the essential salt of the Barberry. The berries of this shrub are also made into an agreeable jelly, by boiling them with an equal weight of fine sugar to a proper consistence, and then straining it. As the leaves are also acid, they have been sometimes employed for the same purposes as the fruit, and have been introduced as an ingredient in salads. The celebrated naturalist, Mr. Ray, successfully employed the inner yellow bark, which is austere and bitterish, in the form of a decoction, as a gentle purgative in the jaundice. It is also said to be a good lotion for the itch, and other cutaneous eruptions. Insects of various kinds are remarkably fond of the Barberry flowers. Linneus observed long since, that when bees, in search of honey, touch the filaments, they spring from the petal, and strike the antheræ against the stigma, and thereby explode the pollen. The purpose which this curious contrivance of nature is intended to answer is evident: in the original position of the stamina, the antheræ are sheltered from rain by the concavity of the petals; thus probably they remain, till some insect, coming to extract honey from the base of the flower, thrusts itself between the filamenta, and almost unavoidably touches them in the most irritable part; thus the impregnation of the germen is performed; and as it is chiefly in fine sunny weather that insects are on the wing, the pollen is also in such weather most fit for the purpose of impregnation.—It is generally propagated by suckers, which are put out in great plenty from the roots: but these plants are very subject to send out suckers in greater plenty than those which are propagated by layers; therefore the latter method should be preferred. The best time for laying down the branches is in autumn, and the young shoots of the same year are the best; these will be well rooted by the next autumn, when they may he taken off, and planted where they are designed to remain. When this plant is cultivated for its fruit, it should be planted single, (not in hedges, as was the old practice,) and the suckers every autumn taken away, and all the gross shoots pruned out; by this method the fruit will be much fairer, and in greater plenty. A few of these shrubs may be allowed to have place in wildernesses, or plantations of shrubs, where they will make a pretty variety; but they should not be planted in great quantities near walks, because their flowers emit a very strong disagreeable odour.

2. Berberis Cretica; *Cretan,* or *Box-leaved Barberry.* Peduncles subumbelled; spines triple. This never rises more than three or four feet high in England. It flowers in April and May, but is not succeeded by fruit.—Native of Crete or Candia, and also of Japan. This sort may be propagated by laying down the branches in the same manner as the first species; but when the young plants are taken off, they should be planted in pots, and sheltered under a frame in winter, till they have obtained strength, when they may be turned out of the pots, and planted in a warm situation.

Bergera; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, very small, acute, spreading, permanent. *Corolla:* petals five, oblong, bluntish, spreading. *Stamina:* filamenta ten, five alternately shorter. Antheræ round. *Pistil:* germen roundish, superior; style filiform, club-shaped; stigma turbinate, shining, with transverse grooves. *Pericarp:* berry subglobular, one-celled. *Seed:* two. Essential Character. *Calix:* five-parted. *Petals:* five. *Berry:* subglobular, one-celled, with two seeds.——The only species hitherto discovered is,

1. Bergera Kœnigii. This a very leafy tree, with the bark of Alder.—Native of the East Indies.

Bergia; a genus of the class Decandria, order Pentagynia.—Generic Character. *Calix:* perianth five-parted, spreading; leaflets lanceolate, permanent. *Corolla:* petals five, oblong, spreading, the length of the calix. *Stamina:* filamenta ten, bristle-shaped, of middling length. Antheræ roundish. *Pistil:* germen roundish, superior; styles five, very short, approximating; stigmas simple, permanent. *Pericarp:* capsule simple, subglobular, mucronate, with five little swellings, five-celled, five-valved; valves ovate, flat, opening along the furrows, permanent, spreading very widely. *Seeds:* numerous, minute. Essential Character. *Calix:* five-parted. *Petals:* five. *Capsule:* one, globular, with swellings, five-celled, five-valved; valves resembling petals. *Seeds:* very many.——The species are,

1. Bergia Capensis. Leaves lanceolate, or elliptic; flowers in whorls.—A native of Tranquebar in the East Indies.

2. Bergia Glomerata. Leaves obovate, crenulate; flowers glomerate.—Native of the Cape of Good Hope.

Bertiera; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth turbinate, five-toothed. *Corolla:* one-petalled; tube short; mouth villose; border five-cleft; clefts ovate, acute, spreading. *Stamina:* filamenta five, very short, inserted into the tube beneath the orifice. Antheræ linear, erect. *Pistil:* germen roundish, inferior, crowned by a gland; style filiform; stigma two-plated. *Pericarp:* berry globose, crowned by the teeth of the calix, two-celled. *Seeds:* very many, roundish, affixed to the dissepiment. Essential Character. *Calix:* turbinate, five-toothed. *Corolla:* tube short, with a

villose mouth. *Berry:* globose, inferior, two-celled, many-seeded.——The only known species is,

1. Bertiera Guianensis. This is a shrub six or seven feet in height, the thickness of the human arm; branches opposite, knotty tomentose.—Found in the wood of Aurora in Guiana, flowering and fruiting in the month of June.

Besleria; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted, acuminate, erect, loose, with reflected tops. *Corolla:* monopetalous, ringent; tube the length of the calix, roundish, gibbous on one side at the base, and at the top; border five-cleft; divisions roundish, the lowermost largest, the two upper less divided. *Stamina:* filamenta four, within the tube of the corolla, of which two are a little shorter. Antheræ oblong, twin, hanging down on each side. *Pistil:* germen globular, sitting on a glandular body, which embraces it and is permanent, cordate where the corolla is gibbous; style subulate, erect; stigma bifid, obtuse. *Pericarp:* berry subglobular, one-celled; partition two opposite semiovate laminas. *Seeds:* numerous, round, very small, nestling, fixed to the inner surface of the berry. Essential Character. *Calix:* five-parted. *Berry:* subglobular, many-seeded.—These plants grow naturally in the warm countries. The seeds should be sown on a hot-bed, early in the spring, and when the plants are come up half an inch high, they should be each transplanted into a small pot filled with light fresh earth, and plunged into a hot-bed of tanner's bark, observing to water and shade them until they have taken root, after which time they should have air and water in proportion to the warmth of the season, and the heat of the bed in which they are placed. When the plants have filled these small pots with their roots, they must be shaken out, the roots trimmed, and put into large ones, filled with light fresh earth, and treated as before. In the second year they will flower.—— The species are,

1. Besleria Melittifolia. Peduncles branching; leaves ovate.—Native of South America.

2. Besleria Lutea. Peduncles simple, crowded; leaves lanceolate.—Native of Martinico, Jamaica, &c.

3. Besleria Cristata. Peduncles simple, solitary; calices serrate-crested; corolla yellow.—Native of woods and moist mountains in Martinico.

4. Besleria Bivalvis. Stem herbaceous, long, creeping, hairy, round; calices bivalve, torn.—Observed at Surinam.

5. Besleria Biflora. Peduncles two-flowered; involucre caducous, inflated; leaves ovate, quite entire.—Native of the island of Otaheite.

6. Besleria Cymosa. Peduncles cymed; pedicels with little bractes; leaves ovate, crenate.—Native of the island of Tanna.

Beta; a genus of the class Pentandria, order Digynia.——Generic Character. *Calix:* perianth five-leaved, concave, permanent; divisions ovate-oblong, obtuse. *Corolla:* none. *Stamina:* filamenta five, subulate, opposite to the leaves of the calix, and of the same length with them. Antheræ roundish. *Pistil:* germen in a manner below the receptacle; styles two, very short, erect; stigmas acute. *Pericarp:* capsule within the bottom of the calix, one-celled, deciduous. *Seed:* single, kidney-form, compressed, involved in the calix. Essential Character. *Calix:* five-leaved, *Corolla:* none. *Seed:* kidney-form, within the substance of the base of the calix.——The species are,

1. Beta Vulgaris; *Red Garden Beet.* Flowers heaped; leaflets of the calix toothed at the base.—There are many seminal varieties; for the Beet is very subject to change and to degenerate in our climate. It is a native of the sea-coast of the southern parts of Europe. The roots of Red Beet are boiled, sliced, and eaten cold, by themselves, or in salads; are used as garnish to dishes, and as a pickle. The green-leaved sort is most esteemed; the roots being the largest and tenderest. Martial has justly marked the Beet for its fatuity. It is said to be prejudicial to the stomach, and to afford little nourishment: taken in quantity, it tends to loosen the belly. The juice both of the roots and leaves is said to be a powerful errhine, occasioning a copious discharge of mucus, without provoking sneezing. A good sugar may be obtained from the juice of the fresh roots.—This species is frequently sown with Carrots, Parsnips, or Onions, by the kitchen-gardeners near London, who draw up their Carrots or Onions when they are young, whereby the Beets obtain room to grow, when the other crops are gathered; but if the other crops are not removed in time, it will be better to sow them separately. This sort requires a deep light soil; for, as their roots run deep in the ground, so in shallow ground they will be short and stringy. The seeds should be sown in March, but the plants should not be left nearer than a foot apart, or in good land a foot and a half, for the leaves will cover the ground at that distance. The roots will be fit for use in the autumn, and continue good all the winter; but in the spring, when they begin to shoot, they will be hard and stringy: a few roots may be left for seed, or some of the fairest roots transplanted to a sheltered spot of ground, where they may be defended from strong winds, which frequently break down their stalks, if they are not well supported, especially when the seeds are formed; which, becoming heavy as they increase in bulk, are apt to weigh down the tender stalk upon which they grow. The seed will ripen in September, when the stalks should be cut off, and spread on mats to dry, and afterwards threshed out and cleared, and put up in bags for use.

2. Beta Cicla; *White Garden Beet.* Flowers threefold; leaflets of the calix unarmed at the base. The lower leaves of this sort are thick and succulent, and their footstalks are broad: for these it is cultivated; the leaves being boiled as Spinach, or put into soups, and the stalks and midrib of the leaf being eaten as Asparagus: it affords both food and medicine.—The juice of the fresh root is an excellent remedy for the head-ache, and that species of the tooth-ache in which the whole jaw and side of the face is affected. The method of using it, is to snuff it up the nose in order to provoke sneezing, and a discharge of humours from the head and parts adjacent.—This sort is commonly sown by itself, and not mixed with other crops. It must be sown in the beginning of March, upon an open spot of ground, that is not very moist; the seeds should be sown thinly, because the plants require room to spread; for when they are too close, the leaves, being small and full of fibres, will be unfit for the purposes designed. When the plants have put out four leaves, they should be hoed, as is practised for Carrots, carefully cutting up all the weeds, and also the plants where they are too near each other, leaving them at least four inches asunder: if this be done in dry weather, all the present weeds will be destroyed; but as young weeds will soon appear, in three weeks or a month's time the ground should be a second time hoed over, to cut up the weeds, and thin the plants to a greater distance; for by this time they will be past danger, and should not be left nearer than six inches.—A large variety of this has been introduced from abroad, under the titles of *Mangel Wurzel, Racine de Disette, Root of Scarcity.* It is much cultivated on the continent, both in the fields and gardens. Its qualities, and the quantity of its produce, have been much magnified, like most other newly introduced

things. The leaf and root are said to be excellent food for man and beast, not liable to be affected by drought, or to destruction from insects. The leaves are twelve or fifteen inches broad or more, and of proportionable length, and may be gathered every fortnight during the season. The roots weigh from ten to twenty pounds; they have an earthy taste, and are mawkishly sweet, either boiled, fried, or in salad. The young, thick, fleshy stalks, divested of the leafy part, peeled or scraped, then boiled and served up with butter, are tender, and agreeably tasted; as are also the leaves, to boil occasionally as Spinach and other small greens.

3. Beta Maritima; *Sea Beet.* Flowers double, or twin; leaflets of the calix even, not toothed.—It is a native of Holland; and is also found plentifully about Nottingham, and on the sea-coast, and in the salt marshes of Great Britain.

4. Beta Patula; *Spreading Beet.* Flowers heaped; all the leaves linear-lanceolate; branches divaricated. It flowers in August.—Native of the island of Madeira.

Betel, or *Bettle.* See *Piper.*

Betonica; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, cylindric, five-toothed, awned, permanent. *Corolla:* monopetalous, ringent; tube bent in, cylindric; upper lip roundish, entire, flat, erect; lower trifid; middle division broader, roundish, emarginate. *Stamina:* filamenta four, subulate, the length of the throat; two shorter, inclined to the upper lip. Antheræ roundish. *Pistil:* germen four-parted; style, form, situation, and size of the stamina; stigma bifid. *Pericarp:* none. *Calix:* fostering the seeds in its bosom. *Seeds:* four, ovate. Essential Character. *Calix:* awned. *Corolla:* upper lip ascending, flattish; tube cylindric.—They may be propagated by seeds, or by parting the roots. They require a shady situation and a moist stiff soil. The best time to transplant and separate the roots, is in autumn; but the seeds should be sown in the spring, upon a shady border, and they will require no other care but to keep them clean from weeds, and to thin them where they are too close.——The species are,

1. Betonica Officinalis, *Wood Betony.* Spike interrupted; helmet of the corolla entire; middle division of the lower lip emarginate; calices smoothish. There are two varieties of this species.—Betony, says Linneus, was formerly much used in medicine; but it is discarded from modern practice. When fresh, it intoxicates; the leaves when dry excite sneezing: sheep eat it, but goats refuse it. The leaves and flowers, according to Lewis, have an herbaceous, roughish, and somewhat bitterish taste, with a weak aromatic flavour. An infusion or light decoction of them may be drank as tea; or a saturated tincture, in rectified spirits, may be given in laxity and debility of the viscera. The sneezing quality of the dried leaves seems to be merely owing to the rough hairs on them. The roots are bitter, and very nauseous: in a small dose they vomit and purge violently. Meyrick informs us, that many people have been cured of inveterate head-aches, which resisted every other remedy, by daily breakfasting on a tea made of the leaves and tops of this herb: he says, the dried leaves are often smoked as tobacco, in disorders of the head and stomach, and that the young leaves, beaten into a conserve, are beneficial in the jaundice, falling-sickness, palsy, gout, and dropsy; as also in colds, coughs, wheezing, shortness of breath, and sharp defluxions on the lungs. A strong decoction of the plant kills worms, removes obstructions, takes away stitches and other pains in the back and sides, and eases the colic. Bruised, and applied to green wounds, it quickly heals them, and draws thorns, splinters, and other bodies, out of the flesh. It is a native of woods, heaths, and pastures, among bushes; flowering from the beginning of July to September.

2. Betonica Orientalis; *Oriental Betony.* Spike entire, middle division of the lip of the corolla quite entire.—First discovered in the Levant.

3. Betonica Alopecuros; *Fox-tail Betony.* Spike leafy at the base; helmet of the corolla bifid.—Native of the mountains of Savoy, Piedmont, Austria, Carniola, Silesia, and Provence.

4. Betonica Hirsuta; *Hairy Betony.* Spike leafy at the base; helmet of the corolla entire.—Native of the Alps, Appenines, and Pyrenees.

5. Betonica Heraclea. Spike with woolly calices; teeth filiform; leaves lanceolate, naked; stem and leaves almost smooth; corollas yellow.—Native of the Levant.

6. Betonica Stricta; *Danish Betony.* Spike oblong; helmet of the corolla entire; middle division of the lower lip notch-waved; calices hairy.—Native of Denmark.

7. Betonica Incana; *Hoary Betony.* Spike interrupted; helmet of the corolla bifid; middle division of the lower lip notched; tube tomentose, bent in.—Native of Italy.

Betula; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male flowers*, in a cylindric ament. *Calix:* ament imbricate on every side, loose, cylindric; consisting of three flowered scales, in each of which are two very minute scales, placed at the sides; three equal floscules, fixed to the disk of each scale of the calix. Perianth in each one-leafed, small, entire, three or four parted; divisions ovate, obtuse. *Corolla:* none. *Stamina:* filamenta to each four, very small. Antheræ twin. *Female flowers*, in an ament of the same plant. *Calix:* ament cylindric or roundish, imbricate, with two-flowered scales. *Corolla:* none. *Pistil:* germen proper, ovate, compressed, very small, two-seeded; styles two, setaceous; stigmas simple. *Pericarp:* none. Ament under each scale cherishing the seeds of two florets. *Seeds:* solitary, ovate. Essential Character. *Male. Calix:* one-leafed, three-cleft, three-flowered. *Corolla:* four-parted. *Female. Calix:* one-leafed, subtrifid, two-flowered. *Seed:* with a winged membrane on each side.——The species are,

1. Betula Alba; *Common Birch Tree.* Leaves ovate, acuminate, serrate. This tree is known at first sight by the silvery colour of its bark: it is of a middling or rather inferior size among other forest trees. The wood of Birch is very white; women's shoe-heels and pattens, and packing cases, are made of it. It is planted along with hazel, to make charcoal for forges. In the northern parts of Lancashire they make a great quantity of besoms with the twigs, for exportation. The bark is of great use in dying wool yellow, and particularly in fixing fugacious colours. For this purpose it is best to use it dry, and to disbark trees of eighteen or twenty years' growth, at the time when the sap is flowing. The trees should stand, and be cut down the following winter. The black American Birch may be applied equally well to the same purpose. The Highlanders of Scotland use the bark for tanning leather, and for making ropes; and sometimes they burn the outer rind instead of candles. With the fragments dexterously braided, the Laplanders make themselves shoes and baskets; they use large thick pieces, set out with a hole in the middle to fit the neck, for a surtout to keep off the rain. The Russians, Poles, and Norwegians, cover their houses with it, laying turf three or four inches thick over. In Kamtschatka they make hats and drinking cups of it. The wood was formerly used by the Scotch Highlanders for their arrows; but now by the wheelwright, and for most rustic implements; by the turner, for trenchers, bowls, ladles, &c.

and when of a proper size, it will make tolerable gates, rails, &c. In France, it is generally used for wooden shoes. It affords good fuel, some of the best charcoal; and the soot is a good lamp-black for printers' ink. The small branches serve the Highlanders for hurdles and side fences to their houses. Moxa is made of the yellow fungous excrescences of the wood, which sometimes swell out from the fissures. The leaves afford good fodder to horses, cows, sheep, and goats. The seeds are the favourite food of the siskin, or aberdevine; and the tree also furnishes food for a variety of insects.—The vernal sap of the Birch-tree is well known to have a saccharine quality, and to make a wholesome diurètic wine. In order to obtain this juice, in the beginning of March, while the sap is rising, and before the leaves shoot out, bore holes in the bodies of the largest trees, and put fossets therein, made of Elder sticks with the pith taken out, setting vessels under to receive the liquor. If the tree be large, you may tap it in four or five places at a time; and thus from several trees you may draw several gallons of juice in a day. If you do not obtain enough in one day, bottle up close what you have, until you have extracted sufficient for your purpose; but the sooner it is boiled, the better. Boil the sap as long as any scum rises, skimming it all the time. To every gallon of liquor put four pounds of sugar, and boil it afterwards half an hour, skimming it well; then put it into an open tub to cool, and when cold, turn it into a cask; when it has done working, bung it up close, and keep it three months; then either bottle it off, or draw it out of the cask when it is a year old.—This juice is an excellent medicine against the scurvy, and other similar disorders. It removes obstructions, promotes urine, and, if taken pretty freely, loosens the belly. Fermented with yeast, it yields a vinous liquor, which is far from being unpleasant, and is said to be good for the stone and gravel. The leaves and bark of the tree, resolve, clean, and resist putrefaction. A decoction of them may be advantageously employed to bathe cutaneous eruptions with, and is also serviceable in the dropsy.—This tree deserves to be planted in parks and ornamental woods, to increase the variety, and its fragrant smell after rain justly entitles it to a place in the wilderness. The stem being straight, the bark smooth and white, and the foliage neat, the Birch has a picturesque appearance, when properly placed in ornamental plantations; either in the openings here and there, to show the foliage and hanging down of the twigs; or within, to display its silvery bark through the gloom. Though it is in the lowest esteem as a timber tree, it may yet deserve to be cultivated, not merely as an ornament, but for its various uses; especially as it will grow to advantage upon barren land, where better trees will not thrive: it will flourish in moist spungy land, or in dry gravel and sand, where there is little surface; upon ground which produced nothing but moss, these trees have succeeded so well as to be fit to cut in ten years after planting, when they have been sold for nearly ten pounds the acre standing, and the after-produce has been considerably increased; and as the woods near London have been grubbed up, the value of these plantations has advanced in proportion: therefore those persons who are possessed of such poor land, cannot employ it better than by planting it with these trees, especially as the expense of doing it is not great. The best method to cultivate it, is to furnish yourself with young plants from the woods where they naturally grow; but in places where there are no young plants to be procured, they may be raised from seeds, which should be carefully gathered in the autumn, as soon as the scales under which they lodge begin to open, otherwise they will soon fall out and be lost: the seeds being small, should not be buried deep in the ground, a quarter of an inch is sufficient. They should be planted in autumn, or from the middle of October till the middle of March, in the shade, where they will thrive better than when they are exposed to the full sun; for in all places where there are any large trees, the seeds fall, and the plants come up well without care; so that if the young plants are not destroyed by cattle, there is generally plenty of them in all the woods where there is any of these trees. If the plants take kindly to the ground, they will be fit to cut in about ten years; and afterwards they may be cut every seventh or eighth year, if they are designed for the broom-makers only; but where they are intended for hoops, they should not be cut oftener than every twelfth year. The expense of making these plantations, in places where the young plants can be easily procured, will not exceed forty shillings per acre, and the after-expense of clearing, about twenty shillings more; so that the whole will not be more than three pounds: and if the land so planted be of little value, the proprietor cannot make better use of his money; for when the wood is cut, it repays the expense with interest, and a perpetual stock upon the ground.—The several varieties of this species are of too trifling a nature to be here enumerated.

2. Betula Nigra; *Black Virginia Birch-tree.* Leaves rhomb-ovate, acute, doubly serrate, pubescent underneath, entire at the base; scales of the strobiles villose; segments linear equal. Although this species has been hitherto propagated chiefly for ornamental plantations, it is to be hoped that it will be admitted among our forest trees, for it is equally hardy with the European White Birch, and attains to a much greater size, growing upwards of sixty feet high, and thriving on the most barren ground, and may be cultivated to great advantage in England, in the same manner as the first species; which see.—There are several varieties of this species, differing in the colour, size of the leaves, and shoots; such as the Broad-leaved Virginia, the Poplar-leaved Virginia, the Paper Birch, Brown Birch, &c.

3. Betula Lenta; *Canada Birch.* Leaves cordate oblong, acuminate, serrate. It grows to sixty feet or more in height. The liquor flowing from its wounds is used by the inhabitants of Kamtschatka without previous fermentation; with the wood they build sledges and canoes; and they convert the bark into food by stripping it off when green, and cutting it into long narrow pieces, like vermicelli, drying it, and stewing it with their caviar.—Of this species, which is propagated in the same manner as the first, there are also several varieties not worth noticing.

4. Betula Nana; *Smooth Dwarf Birch.* Leaves orbiculate, crenate, or circular, scollopped. This is an upright shrub, seldom above two or three feet high; trunk hard and stiff, with a roughish bark, like that of the Elm, of a russet or blackish purple colour. It flowers in May, and is a native of the northern parts of Europe.—This plant, the leaves of which, according to Linneus, dye a better yellow than the common Birch, is of signal use in the economy of the Laplanders; the branches furnishing them with their bed, and their chief fuel. The seeds are the food of the ptarmigan, which makes so considerable a part of their sustenance. The moxa is also prepared from it, which the Laplanders consider as an efficacious remedy in all painful diseases.

5. Betula Pumila; *American* or *Hairy Dwarf Birch.* Leaves obovate, crenate.—It is a native of North America, cultivated only in the gardens of the curious.

6. Betula Alnus; *Alder.* Peduncles branched; leaves roundish, wedge-form, very obtuse, glutinous: axils of the veins villose underneath. Though this species appears generally as a shrub, it will grow to a considerable tree, thirty-five

or forty feet in height.—It is a native of Europe, from Lapland to Gibraltar, and of Asia, from the White Sea to mount Caucasus, in wet and boggy grounds, and on the banks of rivers; flowering with us in March and April. There are many varieties, of which our limits will not admit; but there is a long-leaved Alder from America, which grows to thirty feet in height, and merits a place in all plantations. The branches are slender, smooth, numerous, and dark-brown, or purple; the leaves are long, and free from the clamminess of the common sort: they sometimes continue on the tree even in December, and it has then the appearance of an evergreen.—The wood of the Alder is valuable for piles, pipes, pumps, sluices, and in general for all works intended to be constantly under water. It is said to have been used under the Rialto at Venice; and we are told that the morasses about Ravenna were piled with it, in order to lay the foundations for building upon. In Flanders and Holland, it is raised in abundance for this purpose. It serves also many domestic and rural uses, as for cart wheels, spinning-wheels, milk-vessels, bowls, spoons, small trays, trenchers, and other turnery ware, troughs, handles of tools, clogs, pattens, and wooden heels. The roots and knots furnish a beautiful veined wood for cabinets. The Scotch Highlanders often make chairs with it, which are very handsome, and the colour of Mahogany. The wood that has lain in bogs, is black like Ebony. It is very generally planted for coppice wood, to be cut down every ninth or tenth year for poles; and the branches make good charcoal. The bark is used by tanners and leather-dressers; also by fishermen for their nets. This, and also the young shoots, dye yellow, and, with a little copperas, a yellowish gray, very useful in the demi-tints and shadows of flesh in tapestry. The shoots cut in March will dye a cinnamon colour; and a fine tawny, if they be dried and powdered. The fresh wood yields a dye the colour of rappee-snuff. The catkins dye green. The bark is used as a basis for blacks; an ounce of it dried and powdered, boiled in three quarters of a pint of water, with an equal quantity of logwood, with solution of copper, tin, and bismuth, six grains of each, and two drops of solution of iron vitriol, will dye a strong deep *boue de Paris*. The leaves have been sometimes employed in tanning leather. The Laplanders chew the bark, and dye their leather garments red with their saliva.—The whole tree is very astringent. Motherby says, a decoction of the bark of the Alder has been often known to cure agues, and is frequently used by country people, to repel inflammatory tumors in the throat, and parts adjacent. According to Tournefort, the peasants on the Alps are frequently cured of rheumatic complaints, by being covered with bags full of the heated leaves. The bark possesses a considerable degree of astringency, and a decoction of it may be advantageously employed to bathe swellings and inflammations. It dyes woollen of a reddish colour, and, with the addition of copperas, black. The Alder makes good hedges by the sides of streams and ditches, and in all wet morassy soils, and serves to keep up the banks; but if it be planted in a low meadow, it is said that the ground surrounding it will become boggy; whereas, if Ash be planted, the roots of which penetrate a great way, and run near the surface, the ground will become firm and dry. The shade of Alder seems to be no material impediment to the growth of grass. The boughs cut in summer, spread over the land, and left during the winter to rot, are found to answer as a manure, clearing the ground in March of the undecayed parts, and then ploughing it. The fresh-gathered leaves are covered with a glutinous liquor, in which fleas are said to entangle themselves, as birds do in lime. Linneus says, that horses, cows, sheep, and goats, eat it, but that swine refuse it. The tongues of horses feeding upon it are turned black, and it is supposed by some persons not to be wholesome for them.—The Alder delighting in a very moist soil, where few other trees will thrive, is a great improvement to such lands. It is propagated by layers, cuttings, or truncheons about three feet in length. The best time for planting truncheons is in February, or the beginning of March; they should be sharpened at one end, and the ground should be loosened with an iron crow before they are thrust into it, that the bark may not be torn off. They must be planted at least two feet deep, to prevent their being blown out of the ground by strong winds, after they have made their shoots. The plantations should be cleared at first of tall weeds; but when the trees have made good heads, they will require no farther care. If you raise them by layers, this operation must be performed in October, and by the October following they will have taken root sufficiently to be transplanted. They should be set at least a foot and a half deep in the ground; and their tops must be cut off to about nine inches above the surface, which will occasion them to shoot out many branches. In planting Alders for coppices, it is much better to raise them from young trees than from truncheons. To obtain a quantity of these, plant suckers, and head them down for stools; lay the shoots in the succeeding autumn, and in twelve months they will have taken root; then remove and plant them in rows; in one or two years, they may be planted where they are to remain. If the coppice is to be on boggy or watery ground, they may be removed from the nursery, and planted three feet asunder in holes previously prepared. There they may stand six or seven years, when half the trees may be taken away, and the rest cut down for stools. Every ninth or tenth year will afford a fall for poles. These trees will thrive exceedingly on the sides of brooks, and may be cut for poles every sixth year. The banks of rivers may be secured by placing truncheons very close, and cross-wise. Their leaves being large, and of a deep green, they will add much to the beauty of aquatic plantations.

7. Betula Incana; *Hoary Alder*. Peduncles branched; leaves roundish, elliptic, acute, pubescent underneath; axils of the veins naked; stipules lanceolate. This species is totally distinct from the common Alder; it never attains the size of that, and is commonly shrubby; the trunk is scarcely thicker than a man's arm, the wood white, and of a close texture.—It grows naturally in dry sandy soils, and may perhaps be cultivated with the Birch, where land is of little value, as an under-wood, and may be propagated either by layers or cuttings, as well as by seeds, where they can be obtained.—Native of the alpine and subalpine parts of Switzerland, of Dauphiny, of eastern Siberia, and of the islands beyond Kamtschatka.

8. Betula Populifolia; *Poplar-leaved Birch*. Leaves deltoid, drawn out to a long point, unequally serrate, very smooth; the scales of the strobiles having roundish side-lobes; petioles smooth.—Native of North America.

9. Betula Papyracea; *Paper Birch*. Leaves ovate, acuminate, doubly serrate; veins hirsute underneath.—Native of North America.

10. Betula Excelsa; *Tall Birch*. Leaves ovate, acute, serrate; scales of the strobiles having the side-lobes rounded; petioles pubescent, shorter than the peduncle.—Native of North America.

11. Betula Oblongata; *Turkey Alder*. Peduncles branched; leaves oval, somewhat obtuse, glutinous; the axils of the veins marked underneath.—This is very common in Austria and Hungary.

12. Betula Serrulata; *Notched-leaved Alder*. Peduncles

branched; leaves obovate, acute; veins and their axils villose underneath; stipules oval, obtuse.—Native of Pennsylvania.

13. Betula Crispa; *Curled-leaved Alder.* Peduncles branched; leaves ovate, acute, somewhat waved; veins hairy underneath; axils naked; stipules roundish, ovate.—Native of Newfoundland and Hudson's Bay.

14. Betula Daurica. Leaves ovate, acuminate, serrate, hairy on the nerve. This species, when young, is scarcely to be distinguished from our common Birch, except by the leaves: it does not grow so tall, and the trunk does not exceed a foot in diameter: the wood is hard, yellower than that of the common sort, and in old trees marbled with brown and gray towards the middle: it is tougher, and therefore more fit for the use of the wheelwright: it is also used for making charcoal.—Native of Dauria.

15. Betula Fruticosa. Leaves rhomboid-ovate, equally serrate, smooth.—It abounds in marshes, and on rocky mountains, and in the cold subalpine regions of eastern Siberia, especially towards the lake Baikal.

Bidens; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix*: common imbricate erect; leaflets often equal, oblong, channelled, concave. *Corolla:* compound uniform, tubular; corrollules hermaphrodite, tubular; proper one-petalled, funnel form, border five-cleft erect. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen oblong; style simple, the length of the stamina; stigmas two, oblong, reflex. *Pericarp:* none. *Calix:* unchanged. *Seed:* solitary, obtuse-angular; down with two or more awns, oblong, straight, acute, rough-hooked backwards. *Receptacle:* flat, chaffy; chaffs deciduous, flattish. Essential Character. *Calix:* imbricate. *Corolla:* sometimes, but seldom, with a floscule or two in the ray. *Seed:* crowned with erect scabrous awns. *Receptacle:* chaffy.——The species are,

1. Bidens Tripartita; *Trifid Water Hemp Agrimony*, or *Bur Marygold.* Leaves trifid; calices somewhat leafy; seeds erect; root annual; stem one to three feet high.—This plant dyes a deep yellow: the yarn or thread must be first steeped in alum-water, then dried and steeped in a decoction of the plant, and afterwards boiled in the decoction. The seeds have been sometimes known to destroy gold fish by adhering to their gills and jaws. As it is found by a chemical analysis to possess much the same qualities as *Verbesina acmella*, it is probable that it might have the same good effects in expelling the stone and gravel: it grows readily in wet situations.

2. Bidens Minima; *Nodding Bur Marygold.* Leaves lanceolate, sessile; flowers and seeds erect.—This, like the first species, prospers in a wet soil.

3. Bidens Nodiflora; *Sessile-flowered Bidens.* Leaves oblong, quite entire, one-toothed; stem dichotomous; flowers solitary, sessile; annual.—Native of the East Indies. It must be sown upon a moderate hot-bed in the spring, and afterwards treated like other hardy annual plants, planting them into the full ground the latter end of May They will flower in June, soon after which the plants decay.

4. Bidens Tenella. Leaves linear; peduncles capillary; calices mostly four-leaved; seeds erect, five-fold.—It is an annual, a native of the Cape of Good Hope, and must be cultivated in the same manner as the preceding species.

5. Bidens Cernua; *Drooping Water Hemp Agrimony*, or *Bur Marygold.* Leaves lanceolate, stem-clasping; flowers nodding, yellowish-green; seeds erect; root annual.—Native of most parts of Europe. Found at Ditchingham in Norfolk, and Tarporley in Cheshire; it is frequent in Ireland. It flourishes in wet situations.

6. Bidens Frondosa; *Smoothed-stalked Bidens.* Leaves pinnate, serrate, marked with lines, smooth; seeds erect; calices leafy; stem polished, three feet high.—It grows naturally in Virginia, Maryland, and Canada, where it is often a troublesome weed. It is easily propagated by seeds sown in the spring, in an open situation, where, if they be permitted to scatter, the plants will come up the following spring. Two or three of them may be transplanted where they are to grow, and, after they are rooted, will require no further care.

7. Bidens Pillosa; *Hairy Bidens.* Leaves pinnate, somewhat hairy; stem with bearded joints; calices with a simple involucre; seeds diverging.—Native of America, and the island of Tongataboo in the South Seas. See the third species.

8. Bidens Bipinnata; *Hemlock-leaved Bidens.* Leaves bipinnate, gashed; calices involucred; corollas half radiated; seeds diverging. Annual.—Native of Virginia. For its cultivation, see the sixth species.

9. Bidens Nivea; *Snowy Bidens.* Leaves simple, cordate-ovate, acuminate; branches trichotomous, serrate; flowers hemispherical; peduncles elongated.—Native of Jamaica, in elevated pastures, and on the sea-coast of the southern parts. It is propagated by seeds, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they must be each planted into a separate small pot, plunged into a fresh hot-bed, and treated as other tender plants from the same hot countries: in autumn, they must be placed in the bark-stove, and will generally live some years with management.

10. Bidens Verticillata. Leaves oblong, entire, lower ones entire, upper ones opposite; flowers verticilled.—Native of Vera Cruz in South America. For the cultivation of this plant, see the preceding species.

11. Bidens Scandens. Leaves opposite, ovate, acuminate, serrate; stem climbing, shrubby; flowers panicled, ovate.—Native of the cooler mountains of Jamaica, and of Vera Cruz. See the ninth species.

12. Bidens Bullata; *Various-leaved Bidens.* Leaves ovate, serrate; lower ones opposite, upper ones ternate, the middle larger.—Native of America, found also wild in Italy. See the third species

13. Bidens Hirsuta. Leaves opposite, ovate-lanceolate, entire, tomentose-hirsute; stem climbing, shrubby; peduncles opposite, diverging, many-flowered; annual.—Native of Jamaica. See the ninth species.

14. Bidens Odorata. Stem four-cornered, branching very much; leaves connate, bipinnate; pinnules wedge-trifid, smooth; seeds rugged.—It is a native of Mexico. See the ninth species.

Bignonia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, erect, cup-form, five-cleft. *Corolla:* monopetalous, campanulate; tube very small, the length of the calix; throat very long, ventricose beneath, oblong-campanulate; border five-parted, the two upper divisions reflex, lower patulous. *Stamina:* filamenta four, subulate, shorter than the corolla; two longer than the other two. Antheræ reflex, oblong, as it were doubled. *Pistil:* germen oblong; style filiform, situation and form of the stamina; stigma capitate. *Pericarp:* silique two-celled, two-valved; partition membranaceous, parallel, thickened at the sutures. *Seeds:* very many, imbricate, compressed, membrane-winged on both sides. Essential Character. *Calix:* five-cleft, cup-form. *Corolla:* throat bell-form, five-cleft, ventricose beneath. *Silique:* two-celled. *Seeds:* membrane-winged.—These are exotic trees or shrubs, and may be raised from seeds sown on a moderate hot-bed in the spring. They should be soon inured to the open air, to prevent their being drawn up weak. They may

also be increased by cuttings, and some of them by layers. ——The species are,

1. Bignonia Catalpa; *Common Catalpa Tree.* Leaves simple, cordate; stem erect; seeds winged with membranes. A deciduous tree, with a smooth brown bark, thirty or forty feet high; with lateral branches; ovate-leaves; and the flowers in branching panicles, of a dirty white colour, with purple spots, and faint stripes of yellow inside.—The branches dye wool a kind of cinnamon colour. Thunberg mentions, that the Japanese lay the leaves on parts of the body affected with pains, supposing them to be beneficial to the nerves: and that a decoction of the pods is esteemed useful in the asthma.—The seeds of this tree are usually imported from South Carolina. The seedling plants should be placed abroad in the beginning of June, in a sheltered situation, till autumn, when they should be placed under a common frame, to screen them from frost in winter; but in mild weather they must be fully exposed to the open air. The following spring they may be taken out of the pots, and planted in a nursery-bed in a warm situation, where they may remain two years to get strength, and be afterwards planted where they are designed to remain. These plants, when young, are frequently injured by frost, for they shoot pretty late in autumn, so that the early frosts often kill the extremity of their branches; but as the plants advance in strength, they become more hardy, and are seldom injured but in very severe winters. It is late in the spring before the leaves come out, which has often caused persons to believe they were dead, and some have been so imprudent as to cut them down on that supposition, before the tree was well known. This tree may also be propagated by cuttings, which should be planted in pots in the spring, and plunged into a moderate hot-bed, observing to shade them from the sun in the middle of the day, and refresh them occasionally with water. In about six weeks these will have taken root, and made shoots above, so should have plenty of air admitted to them, and be hardened by degrees to bear the open air. They must be treated in the same manner as the seedling plants, and the spring following planted out into a nursery-bed, as is before directed. The Catalpa delights in a rich moist soil, where it will make great progress, and in a few years produce flowers.

2. Bignonia Tomentosa. Leaves simple, cordate, tomentose beneath; flowers axillary, panicled.—Native of Japan.

3. Bignonia Sempervirens; *Carolina Yellow Jasmine.* Leaves simple, lanceolate; stem twining, rising to a considerable height on the neighbouring plants.—It grows naturally in South Carolina, where it spreads over the hedges, and at the season of flowering, perfumes the air to a great distance; also sparingly in Virginia. The inhabitants call it Yellow Jasmine, probably from the sweet odour of its flowers.—The young plants are impatient of cold, so must be sheltered in the winter until they have obtained strength, when they should be planted against a warm wall, and in winter protected from frost by a covering of mats, and the ground about their roots covered with tan.

4. Bignonia Unguis. Leaves conjugate; tendril very short, bowed, three-parted.—Native of the West Indies. It will live in the open air, if planted against a wall that has a south aspect, and sheltered in very severe frost.

5. Bignonia Æquinoctialis. Leaves conjugate, cirrhose; leaflets ovate-lanceolate; peduncles two-flowered; siliques linear.—Native of New Spain. See the fourth species.

6. Bignonia Paniculata. Leaves conjugate, cirrhose; leaflets cordate-ovate; flowers racemed; peduncles three-flowered.—Native of South America. It will not thrive in this country, except kept in the bark-stove.

7. Bignonia Crucigera. Leaves conjugate, cirrhose; leaflets cordate; stem muricated.—Native of Campeachy. See the preceding species.

8. Bignonia Capreolata; *Four-leaved Trumpet-flower.* Leaves conjugate, cirrhose; leaflets cordate-lanceolate; bottom leaves simple.—Native of Virginia and Carolina. See the sixth and twelfth species.

9. Bignonia Pubescens. Leaves conjugate, cirrhose; leaflets cordate-ovate, pubescent beneath.—It grows naturally in Virginia, and several other parts of America. When this sort is planted in the full ground against a wall, the roots should be covered in autumn with some old tanner's bark, to keep out the frost in winter; and in very severe frost, the branches should be covered with mats.

10. Bignonia Triphylla; *Three-leaved Trumpet-flower.* Leaves ternate; leaflets ovate, acuminate; stem shrubby, erect.—Native of South America. See the sixth species.

11. Bignonia Pentaphylla; *Hairy Five-leaved Trumpet-flower.* Leaves digitate; leaflets quite entire, obovate.—Native of Jamaica. See the sixth species.

12. Bignonia Leucoxylon; *Smooth Five-leaved Trumpet-flower, White Wood,* or *Tulip-flower.* Leaves digitate; leaflets quite entire, ovate, acuminate. It rises with an upright stem forty feet high.—Native of Jamaica. It will take root from cuttings planted during summer in pots, and plunged into a bark-bed: the wood is very hard and white.

13. Bignonia Radiata; *Ray-leaved Trumpet-flower.* Leaves digitate; leaflets pinnatifid; stem three inches high; corolla pale yellow.—Native of very dry sand in Peru.

14. Bignonia Radicans; *Rooting* or *Ash-leaved Trumpet-flower.* Leaves pinnate; leaflets gashed; stem with rooting joints; flowers at the ends of the new shoots, in large bunches, with long swelling tubes, shaped like a trumpet: corolla of an orange colour, opening at the beginning of August. Native of Carolina.—This kind is hardy enough to thrive in the open air; but as the branches trail, they must be supported; it is therefore usually planted against walls or buildings, where, if the branches have room, it will spread to a great distance, and rise very high, forty or fifty feet; it is therefore very convenient for covering unsightly buildings. It may also be trained up against the stems of trees, where, by proper management, it will make a fine appearance when in flower. It is propagated by seeds, but the young plants, so raised, do not flower in less than seven or eight years; therefore those which are propagated by cuttings, or layers from flowering plants, are most esteemed, because they will flower in two or three years after planting. The culture necessary for these plants, after they are established, is to cut away all the small weak shoots of the former year in winter, and shorten the strong ones to about two feet long, that young shoots may be obtained for flowering the following summer. These plants are of long duration.

15. Bignonia Stans; *Branching-flowered Trumpet-flower.* Leaves pinnate; leaflets serrate; stem erect, firm; flowers racemed, yellow, with red lines in the inside of the tube.—Native of all the sugar islands in the West Indies, chiefly in a dry rocky or gravelly soil. It is propagated by seeds sown on a hot-bed, and the plants afterwards transplanted into separate small pots, filled with light fresh earth, and plunged into a fresh hot-bed; in the autumn they must be removed into the bark-stove, and during the winter should have but little water, and in summer refreshing them with it sparingly. The plants should constantly remain in the bark-stove, and be treated in the same manner as other tender plants from hot countries. The third year from the seed they will flower, but they do not produce seeds in England.

P. 166.

BERBERIS — *The Common Berberry.*

P. 172

BIGNONIA — *The Trumpet-flower.*

P. 180.

BORAGO — *Oriental Borage.*

P. 94.

Bugloſs, or Garden Alkanet

Published by Henry Fisher, Caxton, London, 1823.

T. Hilliard

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

16. Bignonia Grandiflora. Leaves pinnate; leaflets ovate, acuminate, serrate; stem twining; calix semiquinquefid; corolla purple, the size of a rose.—Native of Japan.

17. Bignonia Chelonoides. Leaves unequally pinnate; leaflets ovate, quite entire, acuminate, pubescent; corollas bearded with the rudiment of a fifth stamina. This is a large tree, with a whitish ash-coloured bark. The fresh flowers, immersed in water, give it a pleasant odour; and in the East Indies, of which it is a native, they sprinkle it over the temples in a morning, to correct the stagnant air.

18. Bignonia Spathacea. Leaves unequally pinnate; leaflets ovate, rough with hairs; calix one-leafed, spotted; corolla salver-shaped.—A large tree, native of Malabar, Java, and Ceylon, in woods near waters.

19. Bignonia Peruviana. Leaves decompound; leaflets gashed; stem with tendrils at the joints. This species climbs by tendrils, which come out from the joints of the branches. Native of America.

20. Bignonia Indica; *Indian Trumpet-flower.* Leaves bipinnate; leaflets quite entire, ovate, acuminate. This is a large tree, with ascending branches.—Native of the East Indies, and Cochin-china.

21. Bignonia Cœrulea. Leaves bipinnate; leaflets lanceolate, entire.—Native of the Bahamas.

22. Bignonia Longissima; *Waved-leaved Trumpet-flower.* Leaves simple, oblong, acuminate; stem erect; seeds woolly. This beautiful tree, forty feet high, is now cultivated in many parts of Jamaica, especially in the low lands and savannas, where it grows to a considerable size, and is generally looked upon as an excellent timber-tree. Its numerous flowers, and slender siliques, add a peculiar grace to its growth.—Native of the West Indies.

23. Bignonia Echinata; Climbing; lower leaves ternate, upper bijugous cirrhose; fruits echinate. This is a rambling shrub, climbing to the tops of trees, by its very long and numerous branches; corolla flesh-coloured.—Native of the West Indies, Carthagena, and Guiana.

25. Bignonia Pentandra. Leaves bipinnate; stamina five, with two antheræ on each; calix fleshy coloured, five-toothed. —Native of Cochin-china, near rivers.

25. Bignonia Alliacea. Leaves conjugate; leaflets elliptic, entire, coriaceous; peduncles five-flowered, axillary: calices entire. This plant obtained its trivial name from the strong scent of Garlic, which betrays it from afar.—It is a native of the West Indian islands, and the forests of Cayenne and Guiana.

26. Bignonia Cassinoides. Leaves simple, elliptic, coriaceous; raceme terminating; corolla large, smooth, two inches in diameter.—Native of Rio Janeiro.

27. Bignonia Bijuga. Leaves abruptly pinnate, bijugous; leaflets elliptic, quite entire; branches alternately compressed above, covered with an ash-coloured bark, and smooth; raceme terminating.—Native of Madagascar.

Bilberry. See *Vaccinium.*

Bindweed. See *Convolvulus.*

Bindwith. See *Clematis.*

Birch Tree. See *Betula.*

Bird Cherry. See *Prunus Padus.*

Bird Pepper. See *Capsicum.*

Bird's Eye. See *Adonis.*

Bird's Foot. See *Ornithopus.*

Bird's Foot Trefoil. See *Lotus.*

Bird's Tongue. See *Senecio.*

Birthwort. See *Aristolochia.*

Biscutella; a genus of the class Tetradynamia, order Siliculosa.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate, acuminate, gibbous at the base, coloured, deciduous. *Corolla:* four-petalled, cruciform; petals oblong, obtuse, spreading. *Stamina:* filamenta six, the length of the tube of the corolla, two opposite shorter; antheræ simple. *Pistil:* germen compressed, orbiculate, emarginate; style simple, permanent; stigma obtuse. *Pericarp:* silicle erect, compressed, flat, semibifid, with roundish lobes, two-celled; partition lanceolate, ending in a rigid style; cells two-valved, affixed to the partition, on its straight margin. *Seeds:* solitary, roundish, compressed, in the middle of the cell. Essential Character. Silicle compressed, flat, rounded above, and below two-lobed. *Calix:* leaflets gibbous at the base.—They are all annual plants, except the last, which perish soon after they have perfected their seeds. These should be sown either in spring or autumn, upon a border of light earth, in an open situation, where they are to remain. Those sown in autumn will come up in about three weeks, and will live through the winter without any protection, and flower earlier the following summer, whereby good seeds may be always obtained; whereas, those which are sown in the spring, in bad seasons decay before their seeds are ripe. The autumnal plants flower in June, and the spring plants in July, and their seeds ripen about six weeks after: if these are permitted to scatter, there will be plenty of young plants produced without any care. They require no further culture, but to keep them clean from weeds, and to be thinned where they are too close, leaving them eight or nine inches asunder.——The species are,

1. Biscutella Auriculata; *Ear-podded Buckler Mustard.* Calices gibbous on each side with the nectary; silicles running into the style; flowers in panicles, pale yellow.—Native of the south of France and Italy.

2. Biscutella Apula; *Spear-leaved Buckler Mustard.* Silicles scabrous; leaves lanceolate, sessile, serrate. It flowers in June and July.—Native of Italy.

3. Biscutella Lyrata. Silicles scabrous; leaves lyrate.—Native of Spain and Sicily.

4. Biscutella Coronopifolia. Silicles smooth; leaves toothed, rough with hairs.—It is found in dry barren places in Spain, Italy, and Germany.

5. Biscutella Lævigata; *Smooth Buckler Mustard.* Silicles smooth; leaves lanceolate-serrate. Flowers in June and July.—Native of Italy and Austria.

6. Biscutella Sempervirens; *Shrubby Buckler Mustard.* Silicles somewhat scabrous; leaves lanceolate, tomentose. This is a very distinct species.—Native of Spain.

Biserrula; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, tubular, erect, semiquinquefid; teeth subulate, equal, the two upper ones more remote. *Corolla:* papilionaceous; banner larger, reflected on the sides, ascending, roundish; wings ovate-oblong, free, shorter than the banner; keel the length of the wings, obtuse, ascending. *Stamina:* filamenta diadelphous, (simple and nine-cleft,) ascending at their tips, inclosed within the keel; antheræ small. *Pistil:* germen oblong, compressed; style subulate, ascending; stigma simple. *Pericarp:* legume large, linear, flat, two-celled; partition contrary to the valves. *Seeds:* very many, kidney-form, compressed.—Essential Character. Legume two-celled, flat; partition contrary.——The only known species is,

1. Biserula Pelecinus; *Bastard Hatchet Vetch.*—This is an an annual plant, which grows naturally in Italy, Sicily, Spain and the south of France. It sends out many angular stalks, which trail on the ground, subdivided into many branches, with long winged leaves, composed of many pairs of leaflets terminated by an odd one; these are heart-shaped: towards

the upper part of the branches come out the peduncles, which sustain several small purplish flowers.—It is propagated by seeds, which in this country should be sown in the autumn, on a bed of light earth, where the plants will come up in about three weeks, and will live in the open air very well. These should be sown where they are designed to remain, or transplanted very young; for when they are large they will not bear removing. When the plants are come up, they will require no other care but to keep them clean from weeds; and where they are too near, they should be thinned to about a foot distance from each other. They flower in June, and the seeds ripen in September.

Bishop's Weed. See *Ammi.*

Bitter Vetch. See *Orobus.*

Bitterwort. See *Gentiana.*

Bixa; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-toothed, very small, obtuse, flat, permanent. *Corolla:* double, outer with petals, five, oblong, equal, large, more rude; inner with five petals like the outer, but thinner. *Stamina:* filamenta numerous, setaceous, shorter by half than the corolla; antheræ erect. *Pistil:* germen ovate; style filiform, the length of the stamina; stigma parallelly bifid, compressed. *Pericarp:* capsule ovate-cordate, compressed, fenced with bristles, bivalve, gaping at the angles, one-celled, with an inner bivalve membrane. *Seeds:* numerous, turbinate, with a truncated navel, berried. *Receptacle:* linear, longitudinal, fastened to the middle of the valves. Essential Character. *Corolla:* ten-petalled. *Calix:* five-toothed. *Capsule:* hispid, bivalve.——The only known species is,

1. Bixa Orellana; *Arnotto,* or *Arnotta.* This shrub rises with an upright stem to the height of eight or ten feet, sending out many branches at the top, forming a regular head. The name of this plant is variously spelt in England, as *arnotto, arhotta, anotta, anato, anoto, annotto.* The drug called *terra orellana,* or *orleana, roneou,* or *arnotto,* is thus prepared from the red pulp which covers the seeds. The contents of the fruit are taken out and thrown into a wooden vessel, where as much hot water is poured upon them as is necessary to suspend the red powder or pulp; and this is gradually washed off with the assistance of the hand, or of a spatula or spoon. When the seeds appear quite naked, they are taken out, and the wash is left to settle; after which the water is gently poured away, and the sediment put into shallow vessels, to be dried by degrees in the shade. After acquiring a due consistence, it is made into balls or cakes, and set to dry in an airy place, until it is perfectly firm. Some persons first pound the contents of the fruit with wooden pestles, then covering them with water, leave them to steep six days: this liquor being passed through a coarse sieve, and afterwards through three finer ones, is again put into the vat or wooden vessel, and left to ferment a week. It is then boiled until it is pretty thick, and when cool it is spread out to dry, and then made up into balls, which are usually wrapped up in leaves.—Arnotto, of a good quality, is of the colour of fire, bright within, soft to the touch, and dissolves entirely in water. It is reputed to be cooling and cordial, and is much used by the Spaniards in their chocolate and soups, both to heighten the flavour, and to give them an agreeable colour. It is esteemed good in bloody fluxes, and disorders of the kidneys: mixed with lemon-juice and a gum, it makes the crimson paint with which the Indians adorn their persons. It was formerly used by dyers to form the colour called aurora; but at present it is not held in such estimation as a dye, though it still maintains its ground with painters. Arnotto is well known to be the drug which is used for dyeing cheese in Gloucestershire, under the name of cheese-colouring. It is used in Holland for colouring butter. The bark makes good ropes for the common plantation uses in the West Indies; and pieces of the wood are used by the Indians to procure fire by friction.—It is propagated by seeds, and may be cultivated with great ease. It is planted in many parts of Jamaica, Barbadoes, Cayenne, &c. in rich soils and shady situations, shooting luxuriantly near rivulets. The seed should be sown in a small pot, filled with light rich earth, and plunged into a hot-bed of tanner's bark, where, if the bed be of a proper temperature of heat, the plants will appear in about a month after: when these are about an inch high, they should be taken out of the pot, and carefully separated, so as not to tear off their tender roots, and each replanted in a small pot filled with some rich light earth, and plunged into a fresh hot-bed of tanner's bark, observing to shade them every day until they have taken new root; after which they must be treated as other tender plants from the same country.

Blackberry. See *Rubus Fruticosus.*

Blackburnia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth very short, four-toothed, inferior; teeth short, acute, horizontal. *Corolla:* petals four, elliptic. *Stamina:* filamenta four, subulate, rather shorter than the petals; antheræ heart-shaped, erect. *Pistil:* germen conic; style filiform, erect, length of the stamina; stigma simple. *Pericarp:* berry. *Seed:* single. Essential Character. *Calix:* four-toothed. *Petals:* four, elliptic. *Antheræ:* heart-shaped. *Germen:* conic. *Stigma:* simple. *Pericarp:* berry with a single seed. ——The only known species is,

1. Blackburnia Pinnata. Leaves alternate, abruptly pinnate, with two or three pairs of leaflets, which are opposite, oblique, ovate, quite entire, and very smooth; panicles axillary, small.—Native of Norfolk Island.

Bladder Nut. See *Staphylæa.*

Bladder Sena. See *Colutea.*

Bladhia: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very short, permanent, five-parted; parts ovate, concave, spreading, torn, subserrate. *Corolla:* one-petalled, wheel-shaped, five-parted; parts ovate, obtuse, spreading. *Stamina:* filamenta five, very short; antheræ heart-shaped, acute, converging into a cone, shorter than the corolla. *Pistil:* germen superior; style filiform, longer than the corolla; stigma simple, acute. *Pericarp:* berry globose, crowned by the permanent style, one-celled. *Seed:* single, globose, involved in a membrane. Essen. Char. *Corolla:* wheel-shaped, deciduous. *Berry:* containing one arilled seed.—These plants are all natives of Japan.——The species are,

1. Bladhia Japonica. Leaves serrate, smooth; corolla white, sweet-smelling.

2. Bladhia Villosa. Leaves serrate, villose; stem filiform, almost erect, tomentose a finger's length.

3. Bladhia Crispa. Leaves oblong, curled, smooth; stem round, smooth, a span or more in height; berry red, the size of a pea.

Blæria; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four parted; leaflets linear, erect, a little shorter than the corolla, permanent. *Corolla:* monopetalous, campanulate; tube cylindric, the length of the calix, pervious; border small, four-cleft; divisions ovate, reflex. *Stamina:* filamenta four, setaceous, the length of the tube, inserted into the receptacle; antheræ oblong, compressed, erect, obtuse, emarginate. *Pistil:* germen four-cornered, short; style setaceous, much

longer than the corolla; stigma obtuse. *Pericarp:* capsule obtuse, quadrangular, four-celled, gaping at the angles. *Seeds:* some roundish. Essential Character. *Calix:* four-parted. *Corolla:* four-cleft. *Stamina:* inserted into the receptacle. *Capsule:* four-celled, many-seeded.—These are all shrubs, inhabitants of the Cape; requiring the same shelter and treatment with other Cape plants, in the dry-stove; and may be increased by cuttings, like the Ericas or Heaths, which they much resemble.——The species are,

1. Blæria Ericoides; *Heath-leaved Blæria.* Antheræ awnless, standing out; calices four-leaved; bractes the length of the calix; leaves in fours, oblong, accrose, hairy, imbricate. It is about the height of common Heath.

2. Blæria Ciliaris; *Ciliated Blæria.* Flowers in a head; calices ciliate, by the whiteness of which the plant is also readily known.

3. Blæria Articulata; *Jointed-leaved Blæria.* Stamina protruded, two-parted; corollas cylindric.—This is a distorted shrub, about the stature of common Heath.

4. Blæria Purpurea; *Purple-flowered Blæria.* Stamina included, two-parted; corollas oblong, straight; flowers terminating, aggregate; peduncles erect.

5. Blæria Pusilla; *Dwarf Blæria.* Flowers scattered, corollas funnel-form: this must be cautiously distinguished from the Heaths.

6. Blæria Muscosa; *Moss-leaved Blæria.* Antheræ awnless, almost standing out; calices one-leafed, hairy; corollas bell-shaped, hairy in the upper part; flowers axillary; stigmas peltate. It flowers from June till August.

Blakea; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth of the fruit inferior, six-leaved; leaflets ovate, concave, expanding, the size of the flower; perianth of the flower superior; margin quite entire, hexangular, membranaceous. *Corolla:* petals six, ovate, expanding, equal. *Stamina:* filamenta twelve, subulate, erect; antheræ triangular, depressed, concatenated into a ring. *Pistil:* germen inferior, obovate, crowned with the margin of the calix; style subulate, the length of the flower; stigma acute. *Pericarp:* capsule obovate, six-celled. *Seeds:* very many. Essential Character. *Calix:* inferior six-leaved; superior entire. *Petals:* six. *Capsule:* six-celled, many-seeded.—These trees have not been cultivated in Europe.——The species are,

1. Blakea Trinervia. Two calicled: leaves nerveless, very finely striated across, oblong-ovate, petioled, opposite. Flowers opposite, solitary. It grows generally to the height of ten or fourteen feet. It is certainly one of the most beautiful productions of America. It supports itself for a time by the help of some neighbouring shrub or tree, but it grows gradually more robust, and at length acquires a pretty moderate stem, which divides into many weakly declining branches, well supplied on all sides with beautiful rosy blossoms. It thrives best in the West Indies, on the sides of ponds or rivulets; and when planted in gardens, where it makes a very elegant appearance, it ought to be supported while it is young and weakly.—Native of cool moist places, in Jamaica.

2. Blakea Triplinervia. Uncalicled. This tree grows to the height of sixteen feet. Leaves triple-nerved, opposite, petioled, six or seven inches long, ribbed underneath, and having a nerve running along the edge; peduncles three-flowered; seeds minute. The fruit is of a yellow colour, and sapid.—It is a native of Surinam, and also of Guiana, where it flowers and fruits in May.

Blasia; a genus of the class Cryptogamia, order Algæ, or Flags.——The only species yet brought to light is,

1. Blasia Pusilla; *Dwarf Blasia.* It grows on the sides of ditches and brooks, and in moist shady places in a sandy soil, in many parts of Europe.—It is found with us on Hounslow Heath, also near Manchester and Halifax.

Blechnum; a genus of the class Cryptogamia, order Filices, or Ferns.—Generic Character. Fructifications disposed in two lines, approaching to the rib of the frond, and parallel.—These ferns are natives of warm or hot countries, and require protection. They are increased by parting the roots ——The species are,

1. Blechnum Occidentale; *South American Blechnum.* Fronds pinnate; pinnas lanceolate, opposite, emarginate at the base.—Native of the West India islands, and the continent of South America.

2. Blechnum Orientale; *Chinese Blechnum.* Fronds pinnate, three feet long; pinnas linear, alternate.—Found in China, and also in the Society Isles.

3. Blechnum Australe; *Cape Blechnum.* Fronds pinnate; pinnas subsessile, cordate-lanceolate, quite entire, the lowest opposite.—Native of the Cape of Good Hope.

4. Blechnum Virginicum; *Virginian Blechnum.* Fronds pinnate; pinnas multifid.—Native of Virginia and Carolina.

5. Blechnum Japonicum; *Japanese Blechnum.* Frond bipinnatifid; pinnules ovate, obtuse, serrated.—Native of Japan.

6. Blechnum Radicans; *Rooted-leaved Blechnum.* Fronds bipinnate; pinnas lanceolate-crenulated; the lines of fructification interrupted.—Native of Virginia and Madeira.

Blights. There is nothing so destructive to a fruit-garden as blights; nor is there any thing in the business of gardening which requires more of our serious attention, than the endeavouring to prevent or guard against this great enemy of gardens.—1. Blights are often caused by a continued dry easterly wind for several days together, without the intervention of showers or any morning dew, by which the perspiration in the tender blossoms is stopped, so that in a short time their colour is changed, and they wither and decay; and if it so happen that there is a long continuance of the same weather, it equally affects the tender leaves; for their perspiring matter is hereby thickened and rendered glutinous, closely adhering to the surface of the leaves, and becomes a proper nutriment to those small insects, which are always found preying upon the leaves and tender branches of fruit-trees whenever this blight happens: but it is not these insects which are the first cause of blights, as has been imagined by some; though it must be allowed that whenever these insects meet with such a proper food, they multiply exceedingly, and are instrumental in promoting the distemper; so that many times when the season proves favourable to them, and no proper care has been taken to prevent their mischief, it is surprising to think how whole walls of trees have suffered by this infection. The best remedy yet known for this distemper, is gently to wash and sprinkle over the trees from time to time with common water, that is, such water as has not had any thing steeped in it; and the sooner this is done after danger is apprehended, the better; and if the young and tender shoots seem to be much infected, wash them with a woollen cloth so as to clear them, if possible, from all this glutinous matter, that their respiration and perspiration may not be obstructed; and if some broad flat pans or tubs of water be placed near the trees, that the vapours exhaled from the water may be received by the trees, it will keep their tender parts in a ductile state, and greatly help them: but whenever this operation of washing the trees is performed, it should be early in the day, that the moisture may be exhaled before the cold of the night comes on, especially if the nights be frosty: nor should it be done when the sun shines very hot upon the wall, which

would be subject to scorch up the tender blossoms.—2. Another cause of blights in the spring is, sharp hoary frosts, which are often succeeded by hot-sunshine in the day time: this is the most sudden and certain destroyer of fruits that is known; for the cold of the night starves the tender parts of the blossoms, and the sun rising hot upon the walls before the moisture is dried from the blossoms, (which being in small globules, collects the rays of the sun,) a scalding heat is thereby acquired, which scorches the tender flowers, and other parts of plants. The method to prevent this mischief is, to cover the walls carefully with mats, canvass, or reeds, fastened so as not to be disturbed by the wind, and suffered to remain on during the night, but taken off every day when the weather permits. Although this method is thought by some to be of little service, (and may be really prejudicial, if the trees be too long covered, or incautiously exposed,) yet when this covering is conducted properly, it frequently proves a great protection to fruit-trees; and if the covering be fixed near the upper part of a wall, and be fastened to pulleys, so as to be drawn up or let down occasionally, the operation will be easy, and the success will sufficiently repay the trouble.—3. But there is another sort of blight that sometimes happens later in the spring, namely, in April or May, which is often very destructive to orchards and open plantations; against which we know not any remedy. This is called a fire-blast, which in a few hours has not only destroyed the fruit and leaves, but many times parts of trees, and sometimes entire trees, have been killed by it. This is supposed to be effected by volumes of transparent flying vapours, which among the many forms they revolve into, may sometimes approach so near to a hemisphere or hemicylinder, either in the upper or lower surfaces, as thereby to make the beams of the sun converge enough to scorch the plants or trees they fall upon, in proportion to the greater or less convergency of the sun's rays. Against this enemy there is no guard, nor any remedy to cure it: but as this more frequently happens in close plantations, where the stagnating vapours from the earth, and the plentiful perspirations from the trees, are pent in for want of a free air to dissipate and dispel them, (which are often observed in still weather to ascend in so plentiful a manner as to be seen with the naked eye, but especially with reflecting telescopes, so as to make a clear and distinct object become dim and tremulous,) than in those which are planted at a greater distance, or are not surrounded with hills or woods; this directs us in the first planting of kitchen-gardens and orchards, that we should allow a greater distance between the trees, and make choice of clear healthy situations, that the air may freely pass between the trees, to dissipate those vapours before they are formed into such volumes; whereby the circumambient air will be clear, and less subject to injuries, as also the fruits which are produced in this clearer air will be much better tasted than those that are surrounded with a thick rancid air; for as fruits are often in a respiring state, they consequently, by imbibing a part of these vapours, are rendered crude and ill-tasted, which is often the case with a great part of our fruits in England.—4. But that blights are frequently no more than an inward weakness or distemper in trees, will evidently appear, if we consider how often it happens, that trees against the same wall, exposed to the same aspect, and equally enjoying the advantages of sun and air, with every other circumstance which might render them equally healthy, yet very often are observed to differ greatly in their strength and vigour; and indeed we generally find the weak trees to be blighted, when the vigorous ones in the same situation shall escape very well; which must therefore, in a great measure, be ascribed to their healthy constitution. This weakness, therefore, in trees, must proceed either from the want of a sufficient supply of nourishment to maintain them in perfect vigour, or from some ill qualities in the soil where they grow; or perhaps from some bad qualities in the stock, or inbred distemper of the buds or scions, which they had imbibed from their mother-tree, or from mismanagement in the pruning, &c. all which are productive of distempers in trees, and of which they are with difficulty cured. Now if this is occasioned by a weakness in the tree, we should endeavour to trace out the true cause: first, whether it has been occasioned by ill management in the pruning, which is too often the case; for how common is it to observe peach-trees trained up to the full length of their branches every year, so as to be carried to the top of the wall in a few years after planting, when at the same time the shoots for bearing have been so weak, as scarcely to have strength to produce their flowers; but this being the utmost of their vigour, the blossoms fall off, and many times the branches decay, either the greatest part of their length, or quite down to the place where they were produced; and this, whenever it happens to be the case, is ascribed to a blight. Others there are, who suffer their trees to grow just as they are naturally disposed, during the summer season, without stopping shoots, or disburdening their trees of luxuriant branches; by which means two, three, or four shoots shall exhaust the greatest part of the nourishment of the trees all the summer; which shoots, at the winter pruning, are entirely cut out; so that the strength of the tree was employed only in nourishing useless branches, while the fruit-branches are thereby rendered so weak as not to be able to preserve themselves. (See *Amygdalus*.) But should the weakness of the tree proceed from an inbred distemper, it is the better way to remove the tree at first, and, after renewing the earth, plant a new one in its place. Or if your soil be a hot burning gravel or sand, in which your peach-trees are planted, you will generally find this to be the case, after their roots have got beyond the earth of your borders; for which reason it is much more adviseable to dig them up and plant Grapes, Figs, Apricots, or any other sort of fruit which may do well in such a soil, rather than to be annually disappointed of your hopes; for by a variety of experiments, it has been found that Apricots attract and imbibe moisture with a much greater force than Peaches and Nectarines, and consequently are better able to extract the nutritive particles from the earth, than the others which require to be planted in a generous soil, capable of affording them a sufficiency of nourishment without much difficulty: and it is in such places we often see Peaches do wonders, especially if assisted by art; but as for the Vine and Fig-tree, they perspire very slowly, and are very often in an imbibing state, so that a great part of that fine racy flavour, with which their fruits abound when planted in a dry soil, is probably owing to those refined aërial particles, which are collected when in a state of respiration; and therefore as these trees delight not in drawing much watery nourishment from the earth, so they will better succeed in such a soil, than in one that is more generous: we should therefore always endeavour to suit the particular sorts of fruits to the nature of our soil, and not pretend to have all sorts of good fruit in the same ground.

Blitum; a genus of the class Monandria, order Digynia. —Generic Character. *Calix*: perianth three-parted, spreading, permanent; divisions ovate, equal, two more gaping than the other. *Corolla*: none. *Stamina*: filamenta setaceous, longer than the calix, within the middle division, erect; antheræ twin. *Pistil*: germen ovate, acuminate; styles two, erect, gaping, the length of the stamen; stigmas simple.

Pericarp: capsule very thin, (rather the crust of the seed,) ovate, a little compressed, contained within the calix, now become a berry. *Seed:* single, globular, compressed the size of the capsule. Essential Character. *Calix:* trifid. *Petals:* none. *Seed:* one, with a berried calix.—This genus consists of annual plants, which will drop their seeds if permitted, and the plants will come up in plenty the following spring; or if the seeds of either of the sorts are sown in March or April upon a bed of common earth, in an open situation, the plants will come up in a month or six weeks after; and if they are to remain in the place where they are to be sown, will require no other care but to keep them clear from weeds, and to thin them out, so as to leave them six or eight inches apart; and in July the plants will begin to shew their berries, when they will make a pretty appearance. When the plants are designed to be removed, they should be transplanted before they shoot up their flower-stems, for they will not bear transplanting well afterwards; and if they are planted in pots, they will require to be duly watered in dry weather: as the flower-stems advance, they should be supported by sticks, or the branches will fall to the ground when the berries are grown rather large and weighty.——The species are,

1. Blitum Capitatum; *Berry-headed Strawberry Blite.* Heads spiked, terminal. This is about two feet high; the flowers on the upper part issuing in small heads at every joint: when the flowers are past, these heads swell to the size of Wood Strawberries, when ripe having the same appearance, and full of purple juice, which stains the hands, and was formerly much used for colouring in cookery. Commonly called Strawberry Blite, Strawberry Spinach, or Bloody Spinach, and by some Berry-bearing Orach.—Native of Switzerland, the Grisons, Austria, the Tyrol, Spain, and Portugal.

2. Blitum Virgatum; *Slender-branched Strawberry Blite.* Heads scattered, lateral. It seldom exceeds a foot high.—Native of the south of France, Spain, Italy, and Tartary.

3. Blitum Tataricum. Leaves triangular, sharply-toothed; heads simple, lateral.

4. Blitum Chenopodioides. Heads in whorls, juiceless.—Native of Tartary, now in Sweden.

Blood Flower. See *Hæmanthus.*

Bloodwort, or *Bloody Dock.* See *Rumex.*

Blue-Bottle. See *Centaurea.*

Bocconia; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth two-leaved, ovate, obtuse, concave, caducous. *Corolla:* none. *Stamina:* filamenta twelve, very short; antheræ linear, very large, the length of the calix. *Pistil:* germen roundish, contracted both ways, large, pedicelled; style one, bifid; stigmas simple, reflex. *Pericarp:* capsule subovate, attenuated to each end, compressed, one-celled, two-valved; valves coriaceous, gaping from the base, the annular suture continuing, crowned with the style. *Seed:* one, globular, the base involved in a pulp, fixed to the bottom of the capsule. Essential Character. *Calix:* two-leaved. *Corolla:* none. *Style:* bifid. *Berry:* dry, one-seeded.——The species are,

1. Bocconia Frutescens; *Shrubby Bocconia, Tree Celandine,* or *Parrot-weed.* It is a shrub, rising to the height of ten or twelve feet, with a straight trunk, as large as a man's arm, covered with a white smooth bark, and branched towards the top. The trunk is hollow, filled with a pith like the Elder. It abounds in all its parts with a thick yellow juice, like Celandine. The singular beauty of this plant renders it worthy of a place in every curious collection. The juice is acrid, and is employed in the West Indies to take off tetters and warts.—Native of Mexico and the West India islands.—It is propagated by seeds, which should be sown in a pot filled with light fresh earth, early in the spring, and plunged into a hot-bed of tanner's bark, observing to water it now and then gently, otherwise the seeds will not grow. When the plants are come up, they should be each transplanted into separate small pots, filled with light sandy earth, and plunged into the hot-bed again, observing to shade the glasses in the heat of the day, until the plants have taken root. They must be sparingly watered while young; for the stems being very tender and full of juice, will rot if they receive too much moisture; but after their stems are become woody, they will require it often, especially in hot weather, when also they should have a large share of air. In two months, they will have filled these small pots with their roots; therefore they should be taken out, and planted into pots one size larger, filled with light fresh earth, and plunged into the bark-stove, where they should have a good share of fresh air in warm weather.

2. Bocconia Cordata. Leaves cordate, a little lobed; panicle elongated, with single branches; calix white; stamina about twenty-four; style none; stigma bilamellated, sessile.—Native of China.

Boehmeria; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male flowers,* on the same plant with the Female, either distinct or mixed. *Calix:* perianth one-leafed, four-parted to the base: parts lanceolate, acute, somewhat erect, coloured. *Corolla:* none. *Nectary:* none. *Stamina:* filamenta four, longer than the calix, subulate, upright; antheræ roundish, ovate. *Pistil:* a rudiment, or none. *Female flowers. Calix:* none; but numerous, crowded, ovate, acuminate scales. *Corolla:* none. *Pistil:* germen ovate, between each scale, compressed: style filiform, erect, permanent; stigma simple, pubescent. *Pericarp:* none. *Seed:* roundish, compressed, margined. Essential Character. *Male. Calix:* four-parted. *Corolla:* none. *Female. Calix:* none, but crowded scales; between each germen, obovate. *Style:* single. *Seed:* single, compressed.—The species are,

1. Boehmeria Caudata. Leaves opposite, ovate, acute, serrate; racemes very long, pendulous; flowers dicœous; stem suffruticose. A shrub, 11 or 12 feet high.—Native of Jamaica.

2. Boehmeria Littoralis. Leaves opposite, obovate-lanceolate, serrate; flowers conglomerate, axillary, monœcous, mixed; stem herbaceous, four-cornered.—Native of Hispaniola.

3. Boehmeria Cylindrica. Leaves opposite, ovate, acuminate, serrate; racemes spiked, axillary, erect, simple. Annual.—Native of North America, and Jamaica.

4. Boehmeria Ramiflora. Leaves alternate, broad-lanceolate, acuminate, serrate, wrinkled; flowers aggregate, axillary and lateral, monœcous, distinct; males three-stamined. A shrub, eight feet high.—Native of the West India islands.

5. Boehmeria Hirta. Leaves alternate, ovate, acute, serrate, hirsute; flowers monœcous, heaped, axillary, mixed.—Native of Jamaica.

Boerhavia; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix:* perianth oblong, tubular and angular, placed beneath the corolla, with a contracted entire mouth, permanent. *Corolla:* one-petalled, bell-shaped, upright, bluntly five-cleft, plaited, seated on the calix. *Nectary:* fleshy, subcylindric, with a toothletted mouth, surrounding the base of the germen. *Stamina:* filamenta, one, two, or three, inserted into the edge of the nectary, between the toothlets, capillary at bottom, within the calix, more slender, upright, about the length of the corolla; antheræ twin, globular. *Pistil:* germen roundish, pedicelled, the pedicel surrounded by the nectary; style filiform,

twisted, the height of the stamina; stigma capitate. *Pericarp:* none. *Calix:* enlarged, closed, incrusting the seed. *Seed:* one, oblong, obtuse-angular. ESSENTIAL CHARACTER. *Calix.* small, entire. *Corolla:* one-petalled, bell-shaped, plaited. *Seed:* one, naked, inferior. *Stamina:* one, two, or three.——The species are,

1. Boerhavia Erecta; *Upright Hogweed.* Stem erect, smooth; flowers two-stamined.—This was discovered at Vera Cruz, and in the Society Isles: it is an annual plant.

2. Boerhavia Diffusa; *Spreading Hogweed.* Stem smooth and even, diffused; leaves ovate. The flowers, in corymbose heads, are purple, have only one stamen, and a twin antheræ. —Native of both Indies.

3. Boerhavia Hirsuta. Stem diffused, pubescent; leaves ovate, repand; flowers in heads, scarlet.—Native of Jamaica.

4. Boerhavia Scandens; *Climbing Hogweed.* Stem erect; flowers two-stamined, in umbels, green; leaves cordate, acute. —Native of Jamaica, especially about Spanish Town.

5. Boerhavia Repens. Stem creeping.—Native of Nubia.

6. Boerhavia Angustifolia. Leaves linear, acute.—Native place unknown.

7. Boerhavia Tetrandria. Stem creeping; flowers four-stamined.—Native of the Society Isles.

8. Boerhavia Adscendens. Leaves oblong-ovate, somewhat fleshy; flowers panicled; peduncles two-flowered; stem ascending.—Native of Guinea.

9. Boerhavia Plumbaginea. Leaves subcordate, orbiculate-ovate, pubescent beneath; flowers in umbels; corolla pale rose colour.—Native of Spain.

Bog-Berry. See *Vaccinium.*

Bog-Rush. See *Schœnus.*

Boletus, is characterised by Linneus as a horizontal Fungus, porous, or punched with lobes underneath. In the *Systema Naturæ,* 14th edition, only twenty-one species are recited; eleven of which are parasitical and stemless, the rest are stipitated. Mr. Hudson has thirteen species, five of which are not in Linneus, but chiefly from Schœffer, who has a vast many others not noticed by Linneus.—From the *Boletus Igniarius* is prepared the Amadon, commonly used on the continent for tinder, to receive the spark struck from the steel by the flint; and the Agaric, for stopping hæmorrhages in amputation.

Boltonia; a genus of the class Syngenesia, order Polygamia Superflua.—GENERIC CHARACTER. *Calix:* common, flattish, imbricate, with somewhat equal, linear, sharp scales. *Corolla:* compound, radiate; corollets, hermaphrodite, tubular, numerous in the hemispheric disk; females, several in the ray. Proper of the hermaphrodite, funnel-form, five-cleft; female, linear, entire. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil,* in the hermaphrodites: germen oblong; style filiform, length nearly of the hermaphrodite; stigmas two, revolute. *Pericarp:* none. *Calix:* unchanged. *Seed,* in the hermaphrodites, solitary, compressed, crowned, with a five-toothed margin: in the females, extremely similar. *Receptacle:* naked, hemispheric. ESSENTIAL CHARACTER. *Calix:* common subimbricate, with linear scales. *Corolla:* radiate. *Germina:* compressed, vertical. *Down:* obscurely toothed, two-horned. *Receptacle:* honey-combed.——The species are,

1. Boltonia Asteriodes; *Starwort-flowered Boltonia.* Leaves quite entire.—Native of South America.

2. Bombax Glastifolia; *Glaucous-leaved Boltonia.* Lower leaves serrate.—Native of South America.

Bombax; a genus of the class Monadelphia, order Polyandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed, tubular, campanulate, permanent; mouth three or five cleft, obtuse, erect. *Corolla:* five-parted, spreading; segments oblong, concave. *Stamina:* filamenta five or more, subulate, the length of the corolla, connate at the base; antheræ oblong, bent in, incumbent. *Pistil:* germen roundish; style filiform, the length of the stamina; stigma capitate, five-toothed. *Pericarp:* capsule large, turbinate, oblong, five-celled, five-valved; valves woody. *Seeds:* very many, round, woolly. *Receptacle:* columnar, five-cornered, forming the partitions. ESSENTIAL CHARACTER. *Calix:* five-cleft. *Stamina:* five or more. *Capsule:* woody, five-celled, five-valved. *Seeds:* woolly. *Receptacle:* five-cornered.—The plants of this genus are all tender, and will not thrive in the open air in England. Bombax, or silk-cotton, is propagated by seeds, which must be sown on a hot-bed in the spring; if the seeds are good, the plants will appear in a month, and will be strong enough to transplant in a month after, when they should be each planted in a small pot, filled with fresh loamy earth, and plunged into a moderate hot-bed of tanner's bark, being careful to shade them from the sun till they have taken fresh root; after which they should have a large share of fresh air admitted to them when the weather is warm, to prevent them from being drawn up weak; they must also be frequently refreshed with water, which must not be given in large quantities. In this bed they remain till autumn, provided there be room for the plants under the glasses. In the autumn they must be removed into the bark-stove, where they must constantly remain, being too tender to thrive in this country in any other situation. In winter they must have but little wet, especially if they cast their leaves; but in the summer they should be frequently refreshed with water, and in warm weather must have plenty of fresh air admitted to them. With this management the plants will make great progress, and in a few years will reach the glasses on the top of the stove. They form an agreeable variety in a large stove, where they have room to grow, their leaves having a different appearance from most other plants.—The species are,

1. Bombax Pentandrum. Flowers five-stamined; leaves in sevens. A tree, sixty or eighty feet high. Bark greenish, smooth, easily separating from the wood; branches near the summit pendent; leaves on long peduncles; flowers in a simple umbel; petals five, white and velvety without, smooth, concave, and of a purple or delicate rose colour within; fruit half a foot long, shaped like a cucumber, very slender at its base; seeds oval, with a sharpish point, enveloped with a great quantity of short dark cotton, which is not spun, but used for stuffing pillows, mattresses, &c.—Native of both Indies.

2. Bombax Ceiba. Flowers many-stamined; leaves quinate. The canoes now made in the West Indies from this tree frequently carry from fifteen to twenty hogsheads of sugar, from six to twelve hundred weight each; the average about twenty-five tons burden. When sawn into boards, and then well saturated with lime-water, the wood bears exposure to the weather many years; it is also formed into laths for roofs, curing-pots, and hogshead-heading. When the tree decays, it becomes a nest for the Macaca beetle, the caterpillar of which, gutted and fried, is esteemed by many persons one of the greatest delicacies. The down which is enclosed in the seed-vessels is seldom used, except by the poorer inhabitants to stuff pillows or chairs; and it is generally thought unwholesome to lie upon.—It is a native of both Indies; and some modern writers have affirmed, that there are trees of the silk-cotton now growing in the West Indies, so large as not to be fathomed by sixteen men, and so tall that an arrow cannot be shot to their top.

3. Bombax Heptaphyllum. Flowers many-stamined; leaves sevenfold. This tree grows to the height of fifty feet

before it branches, and is eighteen feet in thickness.—It abounds in Malabar, and is also a native of America.

4. Bombax Gossypium. Leaves five-lobed, acuminate, tomentose underneath. A large tree, with green, nearly smooth bark.—Native of the coast of Coromandel; and the Spanish West Indies, where the inhabitants spin the down enclosed in the pods, which is of a fine purple colour, and work it into garments, which they wear without dyeing.

Bonnetia; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts concave, acute, two larger. *Corolla:* petals five, ovate, somewhat obtuse, concave, longer than the calix; of which the three smaller are upright; the two larger declinate, gaping. *Stamina:* filamenta very many, inserted into the receptacle, shorter than the corolla, dilated at the tip; antheræ oblong, tetragonal. *Pistil:* germen oblong, superior; style length of the germen, incurved; stigma three-lobed. *Pericarp*: capsule oblong, three-celled, three-valved; valves sharp-pointed. *Seeds:* very many, small, oblong, involved in a coloured membrane, affixed to the three-sided receptacle. Essential Character. *Calix:* five-parted, two parts larger. *Corolla:* five-petalled, three smaller upright, two larger declinate. *Capsule:* oblong, three-celled, three-valved, many-seeded.—The only known species is,

1. Bonnetia Palustris, which grows in marshy places in Cayenne and Guiana. It is a tree of about 15 feet high, and seven or eight inches in diameter; branching chiefly towards the top. The branches are upright in their growth; the leaves are alternate, smooth, ovate, and entire; the flowers are borne on terminal spikes, and of a purple colour. In its native climate it flowers in August, and ripens its seeds in October.

Bontia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted; leaflets blunt, upright, permanent. *Corolla:* one-petalled, ringent; tube long, cylindric; border gaping; upper lip upright, emarginate; lower revolute, semitrifid, the size of the upper. *Stamina:* filamenta four, subulate, bending to the upper lip, the length of the corolla, two higher; antheræ simple. *Pistil:* germen ovate; style simple, situation and length of the stamina; stigma bifid, blunt. *Pericarp:* drupe ovate, with the top oblique. *Seed:* nut-oval, one-celled, germinating. Essential Character. *Calix:* five-parted. *Corolla:* two-lipped, lower lip three-parted, revolute. *Drupe:* ovate, one-seeded, with the end oblique. ——The only known species is,

1. Bontia Daphnoides; *Barbadoes Wild Olive.* Leaves alternate; peduncles one-flowered. A shrub, four or five feet high; leaves rather stiff, lanceolate, smooth; flowers yellowish, with a line of dusky purple across the lower lip, axillary, single, or in pairs; tube and lower lip hairy.—Birds grow fat upon the fruit, but unless the entrails are taken out as soon as they are killed, the flesh becomes too bitter to be eaten.—This plant is greatly cultivated in Barbadoes, for making hedges, than which there is not any thing more proper for those hot countries, it being an evergreen and of quick growth. From cuttings planted in the rainy season, when they have immediately taken root, there has been a complete hedge, four or five feet high, in eighteen months: and as this will very well bear cutting, it is formed into a very close thick hedge, which makes a beautiful appearance. In Europe, it may be raised from seeds, which should be sown on a hot-bed early in the spring, that the plants may acquire sufficient strength before winter. When they are come up, they must be transplanted out, each into a separate half-penny pot, filled with light fresh earth, and plunged into a moderate hot-bed of tanner's bark, observing to water and shade them until they have taken root; after which they must have a large share of air in warm weather, and be often refreshed with water. In winter they must be placed in the stove, where they should have a moderate degree of warmth, and but little water during that season. In summer they must have a great share of air, but will not do well if exposed abroad, especially in cold summers; so that they should remain in the stove among plants which require a great share of air, which may be admitted by opening the glasses in very hot weather. They may also be propagated by cuttings, which should be planted in summer.

Borago: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, permanent. *Corolla:* monopetalous, rotate, length of the calix; border five-parted, flat; throat crowned with five emarginate obtuse prominences. *Stamina:* filamenta five, subulate, converging; antheræ oblong, fixed to the inside of the filamenta in the middle, converging. *Pistil:* germen four; style filiform, longer than the stamina; stigma simple. *Pericarp:* none. *Calix:* larger, inflated. *Seeds:* four, roundish, wrinkled, keeled outwards at the top, globular at the base, inserted longitudinally into a hollow receptacle. Essential Character. *Corolla:* rotated; throat closed with rays.——The species are,

1. Borago Officinalis; *Common Borage.* All the leaves alternate; calices spreading. Stem about a foot and a half high, branched, hollow, succulent, cylindric; leaves large, wrinkled, deep green; flowers terminating, blue, flesh-coloured, or white. The whole plant of Common Borage is rough, with white, stiff, prickly hairs; flowering from May till August. It came originally from Aleppo, but is now naturalized in most parts of Europe; where it is scarcely biennial. In England we frequently find it on dunghills and heaps of rubbish.—It was formerly in great request, being reckoned one of the four cordial flowers. Very light, surely, (says an ingenious author,) were those sorrows which could be so driven away. The whole herb is succulent, and very mucilaginous, having a peculiarly faint smell when bruised: the juice affords a true nitre: the plant is now seldom taken inwardly, except as an ingredient in cool tankards: the young tender leaves may be used in salads, or as a pot herb. A water, distilled from the flowers of this plant, was formerly in great esteem as a cordial and strengthener, but is very little regarded at present. It is, however, of a remarkably cooling nature, and consequently may be used with success, in inflammations of the eyes externally, and inwardly in burning fevers. The juice is good in obstinate coughs, catarrhs, hoarseness, and defluxions on the lungs: the flowers made into a conserve, are said to be good in putrid malignant fevers, and hypochondriacal complaints; likewise to remove obstructions, and cure the jaundice. This is an hardy annual plant, which, if permitted to scatter its seeds, the plants will come up in plenty without care; the seeds may also be sown either in spring or autumn, but the latter season is preferable, on a spot of open ground where the plants are designed to remain: when the plants have obtained a little strength, the ground should be hoed to destroy the weeds, and the plants must be cut up where they are too near each other, leaving them eight or ten inches asunder: after this they require no farther care, unless the weeds should come up again; then the ground should be a second time hoed over to destroy them, which, if well performed, and in dry weather, will clear the ground from weeds, so that it will require no more clearing till the Borage is decayed. The plants which are raised in the

autumn, will flower in May; but those which are raised in the spring, will not flower till June.

2. Borago Indica; *Indian Borage*. Leaves of the ramifications opposite, stem-clasping; peduncles one-flowered. An annual plant, rarely rising a foot high.—Native of the East Indies. The seeds of this, and the third and fourth species, should be sown upon a hot-bed in March, and when the plants are strong enough to be removed, they should be each planted in a small pot filled with light earth, and plunged into a new hot-bed to bring them forward, otherwise they will not perfect their seeds in this country; but in hot weather they must have a great share of air, otherwise they will draw up weak, and fail before the seeds are ripe.

3. Borago Africana; *African Borage*. Leaves of the ramifications petiolate; peduncles many-flowered; corolla small, blue, yellow within, with five purplish spots.—Native of the Cape of Good Hope. See the second species.

4. Borago Zeylanica; *Ceylon Borage*. Branch-leaves alternate, sessile; peduncles one-flowered; calices earless.—Native of the East Indies. See the second species.

5. Borago Orientalis; *Oriental Borage*. Calices shorter than the tube of the corolla; leaves cordate.—Native of the country about Constantinople. It is perennial; and is easily propagated by the root, which may be parted in the autumn; it should have a dry soil and a warm situation, for as the flower-stalks appear early in the spring, when they are much exposed, they are often killed by the frost: if it be planted in dry rubbish, it will not grow too luxuriant, nor be in danger of suffering by the frost.

6. Borago Longifolia. Leaves linear-lanceolate, sessile, alternate; calix very hairy at the base.—Native of Barbary.

Borassus; a genus of Palms (see the Appendix, *Palmæ*, of Linneus.)—Generic Character. *Male, Ampana. Calix:* spathe universal, compound; spadix amentaceous, imbricate; perianth proper, three-leaved; leaflets ovate, concave. *Corolla:* none. *Stamina:* filamenta six, thickish; antheræ thicker, striated. *Female, Carimpana*, on a different plant. *Calix:* spathe and spadix as in the male; perianth proper, three-leaved, permanent; leaflets roundish, obtuse. *Corolla:* petals three, roundish, small, acute, permanent. *Pistil:* germen roundish; styles three, small; stigmas simple. *Pericarp:* berry (drupe) roundish, obtuse, rigid, one-celled. *Seeds:* three, subovate, compressed, distinct, filamentose. Essential Character. *Corolla:* three-parted. *Male. Stamina:* six *Female. Styles:* three. *Drupe:* three-seeded. ——The only known species is,

1. Borassus Flabelliformis. Fronds palmate, plaited, cowled; stipes serrate. This tree is twenty-five or thirty feet in height, two feet thick at bottom, and one at top. The fruit is the size of a child's head. A wine and sugar are made from the sap of this palm.—It is a native of Ceylon, the coast of Coromandel, and Java.

Borbonia; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, semiquinquefid, turbinate, half the length of the corolla; divisions lanceolate, acuminate, rigid, pungent, subequal, the lowest longer than the rest. *Corolla:* pentapetalous, papilionaceous, hirsute on the outside; banner reflected, obtuse, claw the length of calix; wings semicordate, a little shorter than the banner; keel two-petalled, lunulate, obtuse. *Stamina:* filamenta nine, united into a cylinder, gaping longitudinally above, rising at the ends; antheræ small. *Pistil:* germen subulate; style very short, ascending; stigma obtuse, emarginate. *Pericarp:* legume roundish, acuminate, one-celled, mucronate, with a spine. *Seed:* kidney-form. Essential Character. *Calix:* acuminate spiny. *Stigma:* emarginate. *Legume:* mucronate.—The method of propagating these plants, in the country, has been that of laying down their shoots; but these are commonly two years before they put out roots fit to be separated from the old plant. In laying these down, the joint which is laid in the ground should be slit upward, as is practised in laying carnations, and the bark of the tongue at bottom taken off. The best time is the beginning of September. But where good seeds can be procured, that is the more eligible method of propagating the plants; for those raised from the seeds make the straightest plants, and are quicker of growth. They should be sown in pots filled with light loamy earth, as soon as they are received; if it happens in the autumn, the pots should be plunged into an old bed of tanner's bark, under a frame, where they may remain all the winter, being careful that they are secured from frost, and have not much wet. In the spring, the pots should be plunged into a hot-bed, which will bring up the plants in five or six weeks. When these are fit to remove, they should be each planted into a small separate pot, filled with the like loamy earth, and plunged into a moderate hot-bed, observing to shade them until they have taken fresh root, as also to refresh them with water as they may require it. After this they must by degrees be inured to the open air, into which they should be removed in June, and placed in a sheltered situation, where they may remain till autumn, when they must be removed into the green-house, and placed where they may enjoy the air and sun. During the winter season, these plants must be sparingly watered; but in summer, when they are placed abroad, they will require to be frequently refreshed, but must not have too much water given them at each time. These plants make a pretty variety in the green-house in winter, and as they do not require any artificial heat to preserve them, they are worthy of a place in every garden where there is a conveniency for keeping them. They are all natives of the Cape of Good Hope.——The species are,

1. Borbonia Ericifolia. Leaves sublinear, acute, villose; heads terminal; flowers yellow, small.

2. Borbonia Lævigata. Leaves lanceolate, nerveless, smooth; involucres and calices rough with hairs.

3. Borbonia Trinervia. Leaves lanceolate, three-nerved, quite entire.

4. Borbonia Lanceolata; *Spear-leaved Borbonia*. Leaves lanceolate, many-nerved, quite entire. It flowers in August and September.

5. Borbonia Cordata. *Heart-leaved Borbonia*. Leaves cordate, many-nerved, quite entire.

6. Borbonia Crenata; *Notch-leaved Borbonia*. Leaves cordate, many-nerved, toothletted.

Bosea; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth, five-leaved, equal; leaflets roundish, concave, erect, thinner at the edge. *Corolla:* none. *Stamina:* filamenta five, subulate, longer than the calix; antheræ simple. *Pistil:* germen ovate-oblong, cuspidate; style none; stigma two. *Pericarp:* berry-globular, one-celled. *Seed:* one, round, acuminate. Essential Character. *Calix:* five-leaved. *Corolla:* none. *Berry:* one-seeded.——The only species is,

1. Bosea Yervamora; *Golden-rod Tree*. Leaves simple, alternate, petioled, ovate, pointed, entire, smooth, with fine purple nerves; flowers reddish, in loose axillary racemes. This is a pretty strong woody shrub, with a stem as large as a middling person's leg.—It is a native of the Canary Islands; and has also been since found in some of the British West India Islands.

Box-Thorn. See *Lycium*.

Box-Tree. See *Buxus.*

Brabeium: a genus of the class Polygamia, order Monœcia.—Generic Character. *Calix:* ament pubescent, with ovate, obtuse, three-flowered scales. *Corolla:* one-petalled, funnel-form, four-parted, deciduous; divisions linear, obtuse, rolled back at the top, deciduous. *Stamina:* filamenta four, capillary, inserted into the base of the segments of the corolla, and scarcely so long as that; antheræ small, gaping on the sides. *Pistil:* germen very small, villose; style filiform, longer than the stamina, somewhat thicker at the top; stigma simple. *Pericarp:* drupe very dry, roundish, villose. *Seed*: nut-globular. *Male Flowers on the same tree. Calix:* ament as in the hermaphrodites. *Corolla:* one-petalled, funnel-form, four or five cleft; clefts oblong, revolute. *Stamina:* filamenta four or five, inserted into the throat, of a middling length; antheræ oblong, fastened to the inside of the filamenta, except at the tip. *Pistil:* germen none; style filiform, of a middling length; stigmas two, erect. Essential Character. *Hermaphrodite:* scales of the ament. *Corolla:* four-parted, revolute above. *Stamina:* four. *Pistil:* one. *Drupe*: roundish. *Seed:* globular. *Male:* scales of the ament. *Corolla:* four or five parted. *Stamina:* four, inserted into the throat; style bifid, abortive.—The only known species is,

1. Brabeium Stellulifolium; *African Almond.*—Native of the Cape of Good Hope, where it becomes a tree of middling growth; but in Europe it seldom exceeds nine feet high. It is difficult to propagate this tree by layers, which are often two years before they make roots strong enough to be taken from the old plants; when the branches are laid down, it will be a good method to slit them at a joint, as is practised in laying Carnations; which will promote their taking root. They must have but little water, especially in winter, for as the young shoots are chiefly pith within, they are very apt to rot with much moisture. The best time to make the layers is in April, just as the plants are beginning to shoot: and they must always be of the former year's growth. The plants must have a good green-house in winter; but in summer they should be set abroad in a sheltered situation, where they will thrive, and annually produce flowers in the spring, making a pretty variety among exotic plants.

Bradleja; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male Flower. Calix:* none. *Corolla:* petals six, ovate, concave, spreading, nearly equal. *Stamina:* filamenta three, extremely minute; antheræ cylindric, erect, formed of three united twin antheræ, tipped at the point with a cusp or spearlet. *Female Flowers. Calix:* none. *Corolla:* one petalled, six parted, inferior, three of the parts interior. *Pistil:* germen globose, six-furrowed, superior; style none; stigmas six to eight, very small, converging. *Pericarp:* capsule depressed, round, twelve-streaked, six-celled, six-valved, gaping. *Seed:* solitary, somewhat globose. Essential Character. *Male. Calix:* none. *Corolla:* petals six, nearly equal; filamenta three, with three twin antheræ. *Female Calix:* none. *Corolla:* six-parted, three parts interior; germen superior, with six to eight stigmas. *Capsule:* six-celled, six-valved. *Seed:* solitary.——The species are,

1. Bradleja Sinica; *Chinese Bradleja.* A shrub, with leaves resembling the Annona, but not of a lucid surface.

2. Bradleja Zeylanica. A Ceylonese shrub.

3. Bradleja Glochidion. A tree which grows in the islands of the Southern or Pacific ocean.

Brassica: a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved, erect, a little converging; leaflets lanceolate-linear, concave-channelled, gibbous at the base, erect, parallel, deciduous. *Corolla:* cruciform; four-petalled; petals subovate, flat, expanding, entire, gradually lessening into claws nearly the length of the calix; nectareous glands four, ovate, of which one on each side between the shorter stamina and the pistil, and one on each side between the longer stamina and the calix. *Stamina:* filamenta six, subulate, erect, of these two opposite ones are of the length of the calix, and four longer; antheræ erect, acuminate. *Pistil:* germen columnar, the length of the stamina; style short, the thickness of the germen; stigma capitate, entire. *Pericarp:* silique long, somewhat like the shaft of a column, but flatted on both sides; partition with a prominent columnar top, two-celled, two-valved; valves shorter than the partition. *Seeds:* many, globular. Essential Character. *Calix:* erect, converging. *Seeds:* globular. A gland between the shorter stamina and the pistil, and between the longer and the calix. ——The species are,

* *Siliques slender, four-angled, with a short permanent Style.*

1. Brassica Orientalis; *Perfoliate Cabbage.* Stem-leaves cordate, stem-clasping, smooth; root-leaves scabrous, quite entire; siliques four-cornered; root spindle-shaped, small, white.—Native of corn-fields and cliffs in the Levant, about Montpellier; in Germany, Switzerland, Austria, Carniola, Piedmont, &c. In England it is found near Harwich; Bardsey, near Orford, Suffolk; Godstone, and Marcsfield, Sussex. Annual, flowering in June.—This, with the second, third, fourth, and fifth species, may be propagated by sowing their seeds on a bed of light earth, early in the spring, in the place where they are designed to remain, for they do not bear transplanting well. When the plants are come up pretty strong, they should be so thinned as to leave them four or five inches apart, and they must be constantly kept clear from weeds. They will flower in June, and ripen seed in the beginning of August. If these be permitted to fall, the plants will come up, and maintain themselves without any further care. They are cultivated merely for curiosity.

2. Brassica Austriaca; *Austrian Cabbage.* Leaves cordate, stem-clasping, smooth, all quite entire; siliques four-cornered, striated, erect.—Native of Austria. It is a biennial plant. For its culture and propagation, see the preceding.

3. Brassica Campestris; *Yellow Field Cabbage.* Root and stem slender; stem-leaves uniform, cordate, sessile. Root annual; corolla yellow, never white.—For its culture and propagation, see the first species.

4. Brassica Arvensis; *Purple Field Cabbage.* Leaves stem-clasping, spatulate, repand; the upper cordate, quite entire. Perennial.—Native of corn-fields in the south of Europe. For its culture and propagation, see the first species.

5. Brassica Alpina: *Alpine Cabbage.* Stem-leaves cordate, sagittate, stem-clasping; radical leaves ovate; petals erect. —Native of Germany and Sweden. For its culture and propagation, see the first species.

** *Siliques with a cylindric, rather obtuse Style.*

6. Brassica Napus; *Wild Cabbage, Rape,* or *Navew.* Root caulescent, fusiform. The roots when cultivated may be eaten, but have a stronger taste than the Turnip. It is much cultivated in the Isle of Ely, and some parts of England, under the title of Rape or Cole-seed; and in some parts of England for its seed, from which the rape-oil is drawn; and for feeding cattle. The residue, after the oil is expressed, is called oil-cake or rape-cake. It is a very efficacious manure, and is sold at from four to six pounds per ton. It is not this but the lint-cake, or residuum of Flax-seed, used in making linseed oil, that is used in fattening beasts. It grows among

corn, and on ditch-banks.—When it is cultivated for feeding cattle, it should be sown about the middle of June. The ground should be prepared in the same manner as for Turnips; the quantity of seeds for an acre of land is from six to eight pounds, and as the price of the seeds is not great, it is better to allow eight pounds; for if the plants are too close in any part, they may be easily thinned when the ground is hoed. When the plants have put out six leaves, they will be fit to hoe, which must be performed in the same manner as is practised for Turnips, with this difference only, of leaving these much nearer together; for as they have fibrous roots and slender stalks, they do not require near so much room. They should be hoed a second time, five or six weeks after the first, which, if well performed in dry weather, will entirely destroy the weeds, and they will require no further culture. By the middle of November these will be grown large enough for feeding, when, if there is a scarcity of fodder, this may be either cut or fed down; but where there is not an immediate want of food, it had better be kept as a reserve for hard weather, or spring seed, when there may be a scarcity of other green food. If the heads are cut off, and the stalks left in the ground, they will shoot again early in the spring, and produce a good second crop in April, which may be either fed off, or permitted to run to seed, as is the practice where this is cultivated for the seeds: but if the first is fed down, there should be care taken that the cattle do not destroy their stems, or pull them out of the ground. As this plant is so hardy as not to be destroyed by frost, it is of great service in hard winters for feeding ewes; for when the ground is so hard frozen that Turnips cannot be taken up, these plants may be cut off for a constant supply. In several places an acre of land, sown with this seed, has produced as much food as almost two acres of Turnips; and this will afford late food, after the Turnips are run to seed: one acre will produce as much as, at a moderate computation, will sell for five pounds, clear of charges. Partridges, pheasants, turkeys, and most other fowls, are very fond of this plant; so that wherever it is cultivated, if there are any birds in the neighbourhood, they will constantly lie among these plants. The seeds are sown in gardens for winter and spring salads, as it is one of the small salad herbs.—Cole or Rape is sometimes sown on fallow like Turnips, sometimes on the stubble of an arable crop: it requires good land; very stiff clay does not suit it, and poor land is wholly unfit; but on the sward of old grazing grounds, on fen and marsh lands, it generally turns out the most profitable crop for seed, either immediately, or after Flax. On old pastures the turf is pared and burnt, and the ashes are spread generally with a mixture of lime. The seed is sown in July, early enough to get a strong leaf, and late enough to prevent its running up to stem the first autumn; the quantity of one gallon to an acre, generally on one ploughing, and brushed in with a thorn-harrow. The crop is seldom hoed or weeded. The vacant patches are filled up in October with plants from those parts which are over-stocked; this work is done by women: the plants seldom fail, but they ripen later than the others. When a large piece fails, the plough is sometimes used in transplanting; the expense, four shillings an acre; namely, eight women at sixpence a day. In the common method of culture, the whole tribe of biennial weeds have time to establish themselves before winter; and the crop not being reaped until July or August following, they have time to mature and shed their seed. The grasses and strong-rooted weeds of every kind, gain possession of the soil; which also gets out of tilth, by lying so long without ploughing. One ploughing in autumn would extirpate the biennial weeds, check the grasses and strong-rooted weeds, and preserve the soil in tillage. Draw from the first land sufficient plants for the last land, and bury the roots in a vacant place until wanted. Plough the first land, burying the weeds and the refuse Rape, and stock it at the same time with plants drawn from the second land. The first land being finished, supply the second with plants from the third, and so on, furnishing the last land with the plants in reserve. Thus the entire piece would have prime plants, equal in strength and regular in distance; the soil would be evenly occupied, and the crop would ripen equally; the hoe, and even the horse-hoe, might be used between the rows; and the foulest crop which farmers have to deal with, might, at a small expense, be rendered a fallow crop of the first estimation. In this management, the first or seed ploughing ought to be very shallow across the ridges; and the second or transplanting ploughing should be across the first; gathering up the ridges dry against winter. A manured fallow, a rich Wheat stubble, or other land sufficiently clean and in heart, might be planted in a similar manner; raising plants for this purpose in a detached seed-bed.—Rape is generally ripe in July, and is considered as fit for cutting when the fowardest of the seed has begun to turn black. It is cut with sickles, and laid in broad thin heaps upon the tops of the stubble, which is generally cut about a foot high, or as high as the lower branches will allow. It lies until the sap is pretty well dried out of the greenest pods, and the ripest are ready to open, and is commonly threshed in the field upon a cloth. It would be far better, however, to bind, shock, and carry it into the barn, threshing it when markets and conveniency require. When Rape succeeds Flax, the ground is cleared of weeds as soon as convenient: it is then ploughed four or five inches deep, and from half a peck to a peck of seed, according to the richness of the soil, is sown from a week before to a week after Michaelmas; it is usually well harrowed in, and if it grows into rough leaf before winter, it is considered as better than growing more, which would place it in danger of being destroyed by frost; no weeding takes place, and the crop will be ready about the middle of July. It is reaped, and laid on the ground in single handfuls, and when dry, it is carried to the threshing-floor, on sledges covered with sail-cloth. The crop is from three to seven quarters on an acre. The seed lost in reaping and getting in, produces a crop of green food for sheep, which is fed off early enough to prepare the ground for a second crop of Flax. This straw is sold at two shillings an acre, to persons who burn it on the spot for the ashes. For immediate profit, and on old pastures broken up, Rape or Cole may be thus cultivated for seed; but on stubbles or fallows it answers better to feed it off with sheep, (the fat ones going over it once, and afterwards the lean or store sheep following,) in the autumn, but particularly in the spring, when there is frequently a scarcity of green food: this is an exeellent preparation for either Wheat or Barley. It succeeds best on a deep soil, with good manure, and deep ploughing, and does best after Beans, Barley, Oats, or Wheat; it is sometimes sown after Turnips or Cabbages, which cannot be a right practice.—When sown on a fallow, the land should be ploughed up soon after Christmas, and lie till the end of March; it should then be ploughed a second time, harrowed down, and a coat of manure laid on, as for Turnips; when this is spread, the land should be crop-ploughed, and got into fine tilth by the end of June. The first rain after this, the seed should be sown, from two to four quarts an acre, according to circumstances, in the same manner with Turnips, and the land be lightly harrowed and rolled: the crop should be hoed, as above directed, and the vacant places filled up in October: many persons omit the hoeing entirely,

when it is intended only for feeding. Colesced being an exhauster of land, should not be repeated oftener than every seventh year, and not so often when cultivated for the seed.

7. Brassica Rapa; *Turnip*. Root caulescent, orbicular, depressed, fleshy. The variations of Turnip are chiefly in the root, and arise from the different soils, situations, and modes of cultivation. The general use of this root, for the table and feeding of cattle, is well known; and it has been a considerable improvement of light lands, particularly in the county of Norfolk, whence other counties have derived the culture. Skilful farmers prefer the large green-topped Turnip, because the roots grow to a large size, and continue much longer good; it also grows above ground more than any of the others, which renders it preferable for feeding cattle; and being the softest and sweetest, even when very large, it is most esteemed for the kitchen. In very severe winters, however, this is in greater danger of suffering by frost, than those whose roots lie deeper, especially if the ground be not covered with snow; for when the roots are alternately frozen and thawed, they rot sooner than those which are more covered and less tender. Roots of this sort have been boiled when more than a foot in diameter, and ate as sweet and tender as any of the smallest that could be found. The next in goodness to the green-topped, is the red or purple topped Turnip, which will also grow large, and be extremely good for some time; but the roots will become stringy much sooner than the others. The long-rooted, the yellow, and the black rooted Turnips, are now rarely cultivated except for the sake of variety, none of them being so good for the table or seed, as the red and green topped sorts. The early Dutch Turnip is chiefly sown in the spring, to supply the table before the others can be procured; and when drawn off young, this sort is tolerably good, but if the roots be left to grow large, they become stringy, rank, and unfit for use. The French Turnip is not much cultivated in England, but in France and Holland it is in great esteem, especially for soups, in which, being small, the roots are boiled whole; they must be used whilst they are young, otherwise they are rank and stringy.—Turnip roots are reputed to relax the bowels, and to sweeten the blood; to be hurtful to pregnant and hysteric women, and to all who are subject to flatulencies. The juice, well fermented, affords by distillation an ardent spirit. The rind is acrimonious. The tender tops boiled, are frequently eaten in the spring as greens with meat.—Although the practice of sowing Turnips for feeding cattle was evidently known to the ancients, it has only been of late adopted in Europe. The Turnip delights in a light, sandy, loamy soil; in a rich soil the roots grow rank, and are sticky, but if it be moist, they will thrive better in summer, especially in fresh land, where they are always sweeter than upon an old worn-out or rich soil. In field culture, a deep sand, such as has adhesion enough to make it of the value of from 5*s*. to 10*s*. an acre, is the best. If the land be wet or stiff, such as yield good Wheat crops, the culture may not be advantageous, especially if used, as it should be, as a preparation for Barley; on such soil it would shorten the crop at least two or three coombs an acre. Even blowing sands of 3*s*. 6*d*. or 2*s*. 6*d*. an acre, are to be preferred; for these, when folded, if the season should happen to be wet, yield profitable crops: indeed such lands are to be farmed no other way; for if no Turnips are gained, no corn can be had, and a mere sheep walk is then the only use that can be made of them. Where a farmer has no proper soil for Turnips, it is more prudent to give up the winter-feeding of more cattle than his hay and straw will do for, unless he can depend on buying Turnips, which may sometimes be advantageous, and sometimes the contrary. The first earth or ploughing for Turnips should be given before Christmas, or certainly not later, and should be of a common staple depth; unless the land is foul, in which case it should be ploughed very shallow, in two-furrow ridges, and the second time to the full depth, but it should never be ploughed in wet weather. This second earth, for which frequently the farmer has not leisure, should be given before the spring seed-time, and will be very useful; for if there should be any spire or spear grass (quick, quich, or couch) in the hand, that pernicious weed is too apt to get a hold before Barley sowing is over. Immediately after the Barley is in the ground, the third earth should be given, this will be in May; the fourth, about the second week in June; and the fifth, or seed-earth, about the latter end of the same month; unless the soil be subject to the mildew, in which case old Midsummer, the first week in July, will be full soon enough; and let it be observed, that harrowing with every earth is very necessary, for the surface should always be kept in fine friable order, that the seed-weeds may grow; whereas, if this be omitted till the seed-earth, they will then be grown so powerful as to smother many of the young plants. On a light dry soil, the Turnip-root is in a degree necessary; but where land will remain in grass, and where other arable crops are more certain and productive, it is less essential to good husbandry: in particular situations, however, under proper management, it may frequently be useful, and may be occasionally practised, on a small scale, in almost every situation. It may be very acceptable, therefore to give the proper tillage of the Turnip crop on rich retentive soils. If the land be foul, or if early sowing be proposed, break up in autumn, by a rice-balk or half-ploughing across the lands, gathering a bont in each interfurrow, and opening the cross trenches in order to lay the soil as dry as possible during the winter: but if the land be tolerably clean, and early sowing be not wanted, break up in the spring, in order that the roots and stems of grasses, &c. may remain in an undigested state, and assist in rendering a closely-textured soil loose, and fit to receive the weakly fibres of the seedling Turnips: cross, and give the first stirring (the third ploughing) without previous harrowing; and if the root-weeds be not yet subdued, give a fourth ploughing before the harrows be suffered to come upon the land. Spread dung which is in a middle state on the rough plit; if too long and strawy, it is pulled up by the harrows, and if wholly digested, it loses the valuable quality of rendering this retentive soil loose and open. As the dung is spread, harrow and roll, until the surface be perfectly reduced, and in this state let it lie until the seed-weeds have vegetated. Turn under the weeds, and manure, by a mean depth, or somewhat shallow ploughing; if not, harrow and roll, letting another crop of seed-weeds spend themselves; remembering that the stronger the seed-weeds are before they are ploughed under, the fitter the soil will be for the reception of the seedling Turnips, especially if it be of a tenacious quality. Harrow immediately the plit of the seed-ploughing with rough harrows, in order to give a uniform looseness to the surface, as well as that the seed may be buried at a uniform depth. Sow, and immediately cover with one full tine of a pair of light harrows, and, if possible, with the horses trotting. For a crop to be eaten off in autumn, sow, in June, the *Tankard* or *Pudding* Turnip, which has a rapid growth, but standing high above the ground, cannot bear the winter. For winter and spring feed, sow the common *White Loaf* in July; if these miscarry, or if stubble Turnips be attempted, sow in August the *Stone* Turnip, a small, hard, sweet root, which stands the winter with singular hardihood. In a common season, sow two pounds

of seed on an acre, all upon the same surface; for perhaps the nearer the plants come up, the less danger there is of their being wholly cut off by insects; but if these are known to be in force, or if any doubt arise, either as to the quality of the seed or the season, sow at least three pounds of seed to an acre; if the soil lie in broad rough lands, plough one, two, or even three bouts in each interfurrow, according to the width, height, and wetness of the lands, as soon as the seed-weeds have done vegetating; and if any root-weeds appear to be alive on the surface, or being dead, if any are likely to impede the hoe, pick them off, and cast them upon the intervals. If the first sowing miscarry, and the failure be fully ascertained, before the weeds have got too strong to be got out with rough harrows, harrow only before resowing; but if the weeds have got fast hold of the soil, or if the season be too moist to obtain the intention by harrowing alone, plough a mean depth, and harrow, sow, and cover as before. On such soils the Turnips cannot be fed off the lands without injury, even by sheep; nor can they well be carted off, except in light broad wheeled carts, or on sledges: they may, however, be useful in stall-feeding bullocks, or given to sheep on a sound piece of pasture.—Another method has been practised lately in cultivating Turnips; which is, by sowing the seed in rows, with the drilled plough. In some places the rows have been sown three feet asunder, in others four, in some five, and some six. The latter has been commended by skilful persons as the most proper distance, for although the intervals are so large, yet the crop produced on an acre has been much greater than upon the same quantity of land where the rows have been but half this distance; and upon all the fields which have been cultivated for Turnips, the crops have greatly exceeded those which have been hand-hoed. In a trial which was made of these two methods of husbandry, the same field was divided into different lands, which were alternately sown in broadcast; the latter were hoed by hand in the common method, and the other cultivated by the hoeing plough; and when the roots were fully grown, an equal quantity of land, which had been sown in different methods, was measured, and their roots drawn up and weighed; and those roots which had been cultivated by the plough, were so much larger than the other, that the crop of one acre weighed a ton and a half more than that of an acre in the other husbandry.—When the Turnips are sown in drills, they will require to be hoed by hand, to separate and cut out the plants when they are too near together in the rows, as also to cut up the weeds between the plants, where the plough cannot reach them. If this is carefully performed, the ploughing of the intervals will encourage the growth of the roots, by thus stirring the ground, and prepare it much better for the crop of Barley, or whatever else is sown the following spring. This method of culture may be supposed to be more expensive than that commonly practised by those unacquainted with it; but those who have made trial of both, find the horse-hoeing to be much the cheapest, and by far the best, for the labourers who are employed in hand-hoeing Turnips, are very apt to hurry over their work, so that half the weeds are left growing, and the plants are seldom singled out so well as they should be; nor are they curious enough to distinguish the Charlock (which is one of the most common weeds in arable land) from the Turnips; so that about the middle of September, it is very common to see the fields of Turnips full of the yellow flowers of the Charlock. Now, in the horse-hoeing, all the weeds in the intervals will be entirely destroyed, or if a few plants of Charlock in the rows should be overlooked, they may be easily drawn out afterwards, and by this method the land will be sooner and better cleared from weeds. The above advantages of drilling Turnips have been confirmed from subsequent observations and experiments: the spaces between the rows will be hoed in half the time that would be required if sown in the common way; and when they come to be set out at proper distances in the rows, the superfluous plants may be cut out in one-third of the time usually required, and that by women and children, which is a considerable advantage, when the hoeing is to be done in the busy time of harvest. It is not the practice, nor does it seem to be any advantage, to set out the rows at a greater distance than from seven to eight, or ten to twelve inches. The difference in weight, on a given quantity of land, appears also to be considerably to the advantage of the drill culture, to the amount of one ton, three, four, or twelve hundreds; two tons, five hundred; and even three tons. The principal advantage seems to consist in depositing the seed at a proper depth in the soil, namely, about two inches, where there is moisture, which in a dry season will send the plants up in a few days; whereas, when they are sown broadcast in a time of drought, the seed may remain for several weeks waiting for rain to make them vegetate; but the seed being all deposited at the same depth, will vegetate at the same time, and by getting into the rough leaf sooner, will stand a better chance of escaping the fly.—No Turnips, and consequently no Barley after them, can be had without dung, and the crop in a great measure depends upon the quantity of it. The dependence for manure is chiefly on the fold or farm-yard, usually both. Of farm-yard dung, or else muck, that is, dung mixed with mould, marl, &c. not less than twelve loads should be spread on an acre, such as was made the preceding winter, and once turned over. The dung should neither be long nor quite rotten; the best condition is, when it is in such a state, that the labourers say it will neither spit nor fork. When the dung is rather long, and ploughed in with the seed-earth, the seed should be only rolled in. It is the custom with some farmers, to turn in the dung very shallow at the last ploughing but one, harrowing well to mix it with the soil, and they think it will ferment by the time the seed-earth is given to the land. It seems, however, to be the better method, to turn in the dung by the last ploughing or seed-earth, because it is then turned down, not by a shallow furrow; but covered as soon as possible from the sun, and deposited where the roots will be sure to find it, and where the immediate action of the sun and wind is excluded; whereas, in mixing the manure with the soil by the harrow, much of it is pulled out and exposed on the surface. Rough dung is in general preferred before such as is rotten; a better crop, however, has been obtained, by mixing dung with earth or other manure in the winter, and getting it rotten enough to lay at top, and harrow it in with the seed, than by ploughing in long dung. Rape-cake, in a pulverized state, is also recommended for Turnip manure: being reduced to powder by two mills, it is put into the drills. The quantity used to an acre, is a quarter of a ton, which has never exceeded 25*s.* in price. Others use malt-coombs, soot, soaper's ashes, lime, crag, &c. but none of these manures are very general, or so effectual as farm-yard dung.—The quantity of seed to be sown depends much on the soil; upon a naturally good Turnip sand, a pint an acre, evenly delivered by a good hand or sowing engine, will be enough; but in general two pints are allowed. No soil requires so much seed as chalky lands, when the chalk comes quite to the surface: upon such soil a quarter of a peck will seldom be too much for an acre, because the fly is sure to attack the plants more voraciously, and with greater certainty, on this soil than on any other. The sowing engine

though with care a good tool, yet is liable to have the holes stopped by two seeds sticking in them, so that if the sower is not very attentive, he may go some distance without a regular delivery. The common season for sowing Turnips, is any time from the beginning of June till the middle of August, or a little later, though it is not advisable to sow them much after, because if the autumn should not prove very mild, they will not have time to apple of a proper size before winter, nor will the roots of those which are sown after the end of July grow very large, unless the frost keeps off very long in autumn. But notwithstanding this is the general season in which the greatest part of the Turnips are sown in the country, yet about London they are sown successively from March till August, by those who propagate them to supply the markets with their roots; but there is a great hazard of losing those which are sown early in the year, if the season should prove dry, by the fly, which will devour whole fields of this plant while young, so that where a small quantity for the supply of a family is wanted, it will be absolutely necessary to water them in dry weather; and where a person sows those seeds in April or May, it should always be upon a moist soil, otherwise they seldom come to good, the heat of the weather being too great for them at that season upon a dry soil: but those which are intended for the general crop, are sown towards the end of June, when they commonly receive some refreshing showers to bring them forward, without which it is very common to have them all destroyed. The season for field-sowing extends from a week before Midsummer, to the middle or end of July: this variation is necessary for two reasons; first, because the land cannot be all manured to sow early; and secondly, because the late-sown will last much longer than the early ones, which are subject to the blight or mildew, and consequently are more likely to be rotted by hard frosts afterwards, for which reason all farmers should take care to have some late-sown. Sometimes a crop sown the first week in August, has proved the most profitable, this having escaped, whilst the rest has been killed by the frost. An active farmer, therefore, will, in cases where it is necessary, as soon as he has set up or shocked his wheat, plough up the intervals, and sow them immediately with Turnips, for the chance of a late crop, which will furnish spring-feed, although they should fail of appleing well. Where a farmer has many Turnips, it does not seem a bad plan to sow a fourth part at the end of June, or the beginning of July, to come up early; half in the middle of July, for the main crop, and the remainder at the end of the same month to come late: this, however, must depend upon his business, the weather, and other contingencies. At any rate, the main crop should not be sown too soon, nor allowed too much room, because large roots will not stand the frost near so well as smaller ones. What is ploughed for the last earth should always be sown the same day, else, unless rain fall, the ground will be too dry for the seed to vegetate: the seed must be harrowed in as soon as it is sown with a short-tined harrow, and the ground rolled with a wooden roller to break the clods, and make the surface even: the plants will come up in ten days or a fortnight after sowing; but this will vary very much with the weather: and there will be a difference of three days between the germinating of new and old seed.—When the plants have got four or five leaves, they should be hoed, to destroy the weeds, and to cut up the plants where they are too thick, leaving the remaining ones about six inches asunder each way, which will be room enough for the plants to stand for the first hoeing: and the sooner this is performed when the plants have four leaves, the better they will thrive; but in the second hoeing, which must be performed about a month after the first, they should be cut up so that the remaining plants may stand fourteen or sixteen inches distance or more, especially if they are designed for feeding cattle, for where the plants are allowed a good distance, the roots will be proportionably large, provided the ground is good, so that what is lost in number, will be overgained by their bulk: but in places where they are sown for the use of the kitchen, they need not be left at a greater distance than a foot, because large roots are not so generally esteemed for the table. The time for the first hoeing of field Turnips is very uncertain, depending on the soil and the season, and varying from three to eight and nine weeks from the time of sowing: the size of the plants is the only guide, and the best rule is, to begin hoeing as soon as they are about the size of the palm of the hand, or spread upon the ground from three to four inches: if the hoe be put in too soon, the plants which are set out are liable to be buried, and their roots disturbed in setting out others which are near them; and if the Turnips be suffered to grow too large, it is difficult to set out the plants, and they are liable to be drawn up by weeds; if these be numerous or luxuriant, it will be necessary to begin hoeing somewhat earlier, in order to check them in time: some persons remove the ground with a light harrow once in a place, as soon as the plants are stout enough, to assist the hoeing; and if any of the fields after the hoeing begin to get too forward, which in a wet season is often the case, they give them a second harrowing the contrary way. Nothing but practice can teach the method of hoeing Turnips; to be performed well, it requires a quickness of eye and a dexterity of hand which does not fall to the lot of very many. The hoe is generally drawn round the plant with a long sweeping stroke; and when the plants are small, then only that stroke ought to be used; but when the plants are out of danger of being buried, a short straight stroke is more expeditious, and in some hands makes tolerably good work. The general effect of hoeing ought to be, that the whole ground should be stirred, all the weeds effectually cut up, and the plants set out singly at proper distances: the common practice is, to set out the plants at fourteen or fifteen, and sometimes at eighteen inches distance; this, however, is not always necessary, and is frequently injurious. The proper distance depends upon the soil, and the time of sowing; the richest soil will admit of the greatest distance, because the plants in that will be more luxuriant than in a soil of inferior quality; and early-sown Turnips will come to a greater size than such as are sown late, and therefore should be allowed more room to spread themselves: the best general rule in this case is, to give the plants room to keep themselves in a state of vigour and full growth, without leaving any space unoccupied by, or even thinly filled with leaves. Since Turnips, therefore, commonly run from four to eight inches in diameter, twelve inches may be taken as a proper medium distance, except in land of an extraordinary goodness.—The main purpose of the second hoeing is to loosen the mould, and to draw it in some measure to the roots of the plants; to reduce the weeds effectually; and to single such plants as have been left double by the first hoeing, as well as to remove such as have been missed, or having been buried in the loose mould in moist weather, have struck root again in improper places. With respect to the time of the second hoeing, it ought to be given before the leaves become too large to prevent the plants from being properly singled and set out, or the weeds from being effectually cleared away; but the longer they stand before the last hoeing, the more effectually will the weeds be overcome. If when the

Turnips are so closed as to exclude all hoeing, any weeds still shew themselves, women and children should be sent in to pull them by hand. The second hoeing is sometimes omitted, but seldom without great detriment to the crop and the land; and, strange to tell, there are yet some parts of the kingdom wherein, it is said, hoeing of Turnips is altogether omitted. Upon the whole, the object of the first hoeing should be, not so much that of setting out the plants at exact and wide distances, as of checking the weeds, and thinning the plants, to prevent their crowding each other; the regulation of distances should be left in a great measure to the second hoeing: in the first, by reason of many accidents young Turnip plants are liable to, it is a work of hazard and uncertainty; in the second, not only proper distances, but proper plants, may be chosen with a degree of safety and certainty. The Norfolk hoes are from nine to eleven inches wide. It is the interest of the hoer to work with a wide hoe, because he performs his work sooner, and has fewer plants to set out; his interest, therefore, is, in this case, in direct opposition to that of his employer. The width of the hoe ought to be in proportion to the medium distance between the plants, and that, it has already been observed, should be in proportion to their expected size: for twelve inches, a seven-inch hoe is sufficient. By sowing at different seasons, six men will hoe a hundred acres twice over; such as do not vary the season, must of course proportionably increase the number. The price in Norfolk, is 6*s.* an acre for the two hoeings, when let jointly, as they commonly are; if let separately, the first is from 3*s.* 6*d.* to 4*s.*; the second from 2*s.* to 2*s.* 6*d.* In other counties, 8*s.*, 10*s.*, and even 12*s.* an acre, are given for the two hoeings; but the Norfolk men are more expert in the business, and the soil of that county is more friable, and free from obstructions. In crops of drilled Turnips, the work of hoeing may certainly be done cheaper, namely, from four to five shillings the acre; and cheaper still with the horse-hoe, when hand-hoeing will be required only in the rows.—When Turnips are sown in drills, it will be the best way to hoe between every other row first, and some time after to hoe the alternate intervals, by which method the plants will receive more benefit from the often stirring the ground, than they would do if all the intervals were hoed at one time, and the plants will be in less danger of suffering from the earth being thrown up too high on some rows, while others may be left too bare of earth; but when the earth has been thrown up on one side of the drill, it may be turned down again when the next interval is hoed, and this alternate moving of the earth will prepare the ground very well for the succeeding crop, as well as greatly improve the Turnips; but as this plough cannot be well drawn nearer to the drills than two or three inches, the remaining ground should be forked to loosen the parts, and make way for the fibres of the roots to strike out into the intervals; otherwise, if the land be strong, it will become so hard in those places which are not stirred, as to stint the growth of the Turnips, and this may be prevented at a small expense; a good hand will perform a great deal of this work in a day; and whoever will make the trial, will find their account in practising it, especially on all strong land, where the Turnips are much more liable to suffer from the binding of the ground, than on a loose soil; but yet in all sorts of ground it will be of great service to practise this. When the ground is thus stirred in every part, one ploughing will be sufficient, after the Turnips are eaten off the ground, to prepare it for the sowing of Barley or any other crop; so that there will be an advantage in this when the Turnips are kept late on the ground, as will often be the case, especially when they are cultivated for the feeding of ewes, because it is often the middle of April before the ground will be cleared; for late feed in the spring, before the grass comes up, is the most wanted, where numbers of sheep and ewes may be maintained, and one acre of Turnips will afford more feed than thirty acres of the best pasture at that season.——The chief consumption of field Turnips, is for feeding either neat cattle or sheep: the first is most common in Norfolk, and the second in most other counties. In feeding neat or black cattle, the most common practice is, to draw and cart off the whole crop; the time of drawing begins about Michaelmas, and continues until the plants are in blow. They are drawn by hand until the frost is in the ground, or has cut off the tops; they are then pulled by two-tined hooks, which in Norfolk they call crooms. When the roots are buried in a deep snow, it is removed by an implement called the snow-sledge; the head-lands and side-lands are first cleared, and then they begin on one side, and clear the ground progressively for the plough: some leave the small roots to increase in size, and to throw out tops for feed in the spring: but this can be done only on land that will bring Barley with one ploughing.—The most common method of giving Turnips to cattle, is by throwing them abroad on stubbles, grass-land, and fallows: the general practice is, to begin with the Wheat-stubbles, until they are broken up for fallow for Barley. The next throwing ground is frequently the Barley-stubbles, until they in their turn are broken up for Turnip-fallow. From about Christmas till the beginning of April, the Clover lays are thrown open; and after these are shut up, the Turnip-fallows sometimes become the throwing place. In throwing Turnips, the carts begin on one side of the land, and work regularly to the other, giving every part an equal share, and never throwing twice in the same place, until the whole is gone over. At the beginning of the season, whilst grass is still in plenty for the lean stock, the fatting cattle are kept constantly in the same piece, having a fresh supply of Turnips every day, or every two days at farthest: but when the Clover stubbles are cleared, and the store-beasts begin to want assistance from Turnips, the fatting cattle are followed by rearing cattle, lean bullocks, cows, or store-sheep, to pick up their leavings. In this case it is convenient to have three shifts or pieces of throwing ground, one for the head beasts, one for the followers, and the third empty, to throw in: two pieces or divisions are indispensably necessary. The Turnips should be thrown evenly and thinly, about a yard asunder, not in heaps or parcels; for whilst a bullock is breaking one Turnip, he should not have it in his power to tread or dung upon another. The bullocks, sometimes, when the distance is not too great, are driven into the straw-yard at night, otherwise they have a little clean straw given them under the hedge, merely to clean their mouths from the dirt of the Turnips; not one in ten of the highly-finished bullocks, that are annually sent to Smithfield market out of Norfolk, taste one handful of hay, or any other food beside Turnips and Barley-straw, except such as are finished with Ray-grass in the spring: and a few, that have a little hay and Turnips towards spring, when the Turnips are going off, before the Ray-grass lays are ready to receive them; which is an excellent practice, bullocks being otherwise liable to receive a check between Turnips and grass. It is evident that this method of throwing Turnips cannot be practised except on dry land, and not even on that in a wet season: in such cases, nothing but a sound old lay will answer the purpose; and, where it can be done, a farmer should contrive to have two such pieces in the neighbourhood of his Turnips.—Another method of fatting cattle is, to keep them loose in a straw-yard, giving them the Turnips in close bins, or small cow-cribs, with boards or bars

nearly close at the bottom; the Turnips are usually put in whole, being first tailed, that is, having their taproot cut off in the field, and also topped, unless the tops be fresh and palatable; these, if eatable, being given to store cattle. This method is somewhat more troublesome than that of throwing the Turnips abroad; which, if the soil be dry enough to bear stock, and so light as to be benefited by treading, is, upon the whole, the most eligible management. But in deep land, and in a wet or severe season, the yard, if it be kept dry and well littered, is the most comfortable place, especially if it be provided with open sheds for the cattle to take shelter under in inclement seasons. By this method the dung is lost abroad, which is highly serviceable to light land; but then a great quantity of manure is made in a yard well littered.—A third method of fatting beasts on Turnips is, to keep them tied up in hovels, or under open sheds, with troughs or mangers to receive the Turnips, which are frequently chopped into slices, or else quartered, which is not so eligible. The top, with the crown of the root, is thrown aside for the store-cattle, and the taproot with the bottom rind is suffered to drop on one side of the basket, so that the fatting cattle have only the prime part of the bulb. This accounts for the quick progress which shedding-bullocks sometimes make, especially in cold weather: but on account of the extraordinary attendance they require, not only in cutting the Turnips, but in littering and cleaning out the stalls, besides the check they are liable to receive in close weather, this practice is seldom followed by large farmers, unless to push forward a particular beast: much depending on care and management in this method, little farmers, who have leisure and inclination to tend their own sheds, may find their account in it. The cattle have a little Barley straw given them from time to time, to clean their mouths, and dry up the superfluous juice of the Turnips. If the Turnips could be boiled or baked at a moderate expense, a much smaller quantity would suffice to fatten the bullocks. In some places good hay is given with the Turnips; and in others, pollard or Barley meal.——The second great application of Turnips is, to feeding sheep. On the best Turnip land, that is sufficiently dry, there is no better preparation for Barley than feeding sheep with Turnips upon the land. Those however which are eaten early in the winter will not give Barley so good as those which are eaten later, provided they do not run to flower; for then they are supposed to exhaust the land, and injure the succeeding crop. Carting off from such land, besides the expense, is not advisable, the crop of Barley depending on the manure and treading of the sheep. When the Turnips are fed off the ground, the sheep should not be suffered to run over too much of it at one time; for if they are not confined by hurdles to as much as is sufficient for them one day, the sheep will spoil three times the quantity of Turnips they can eat, so that it is very bad husbandry to give them too much room; therefore the hurdles should be once or twice every day removed forward; and if the Turnips be drawn out of the ground before the sheep are turned into the new enclosure, there will be less waste made, for they will then eat up the whole roots: whereas if they are turned upon the Turnips growing, they will scoop the roots and leave the rinds, which being hollow, the urine of the sheep will lodge in them; so that when they are forked out of the ground, the sheep will not eat any of those roots which are thus tainted. When a flock of sheep are turned into a piece of standing Turnips, the first thing they do is to run over the whole, and then to eat such of the tops as they have not trampled down. Whilst they are doing this, they stand upon the roots, which being firm in the ground, and flat in the top, are not inconvenient to stand upon; and if one of their feet happen to fall near the edge of the Turnip, it frequently barks and fouls the root. Whereas, if sheep be put upon drawn Turnips, their tops may be injured, but their roots cannot; for being round, and lying loose on the ground, they afford no foothold, but become stumbling-blocks to the sheep, which therefore carefully avoid them, and stand upon the ground. But the better to avoid waste, it is frequently the practice, instead of hurdling the sheep upon the crop, to keep them back upon the cleared ground, and to throw the Turnips upon it. But in this case the Turnips must either be thrown in part over the ground already fouled by the sheep, or must be confined to the space from which they are drawn, by which means the principal intention of drawing is frustrated. Some farmers therefore, who fat large quantities both of neat cattle and sheep, pursue the following method in the consumption of their crop. The head-lands and side-lands being cleared, the area is drawn, and carried in alternate stripes about ten paces wide. The first drawing is expended on the bullocks in one or other of the ways already described; whilst the remaining stripes are drawn, and scattered over the whole ground for the sheep. The principal intention of drawing, which is, to distribute the Turnips evenly and thinly, so that whilst one is eaten another may not be soiled,) is thus obtained. It is a common error, that has generally prevailed among most persons, who are ill informed upon the subject, that the mutton fattened upon Turnips is rank and ill-tasted; whereas it is a known fact, that the best mutton this country affords is all fattened on Turnips; and that rank mutton, the fat of which is yellow, is what the low marshy lands of Lincolnshire, and other rank pastures, produce.—Turnips are sometimes used for feeding milch cows; but this is a bad practice when the milk is used for making butter, which acquires a disagreeable taste from this root; but it answers very well in suckling, as it keeps the cow in heart, and furnishes abundance of milk.—Field Turnips are sometimes sold, but it is not the general practice to raise Turnips for this purpose; nevertheless every year some are sold. Little farmers who want conveniency or skill, and larger ones who want money to lay in a proper stock, or who from the comparative prices of stock and Turnips judge it more eligible to sell them to feed, sell their Turnips to those who have judgment, money, and spirit, to buy stocks. Sale Turnips are usually consumed on the premises. Sometimes the buyer and sometimes the seller draws the crop and tends the cattle, for which sometimes the one and sometimes the other finds straw. The medium price of a middling crop of Turnips, is about fifty shillings an acre; but the price is subject to great and sudden fluctuations.——Raising of seed, is the third purpose to which Turnips are applied. In order to sow good Turnip-seed, transplant some of the fairest roots in February, place them at least two feet asunder each way, observing to keep the ground clear from weeds, until the Turnips have spread so as to cover the ground, when they will prevent the weeds from growing; and when the seed-pods are formed, you should carefully guard them against birds, otherwise they will devour them, especially when they are nearly ripe. When the seed is ripe, it should be cut up, and spread to dry in the sun: after which it may be threshed out, and preserved for use. It is generally understood that no Turnip-seed is fit to be sown that has not been raised from transplanted roots; but in Norfolk it is thought that if the seed be gathered from untransplanted roots, the Turnips will become coarse-necked and foul-rooted, and the flesh of the root rigid and unpalatable; and that if they be gathered year after year from transplanted roots,

the necks will become too fine, and the fibres too few, the plants acquiring a weak delicate habit, and the produce, though sweet, being small: sweetens therefore, and not size, being the quality requisite for the table, it is a good rule for the gardener to raise his seed generally from transplanted roots. But it is the farmer's interest to avoid the two extremes of coarseness and delicacy, which can be accomplished only by sometimes transplanting his seed-plants, and sometimes letting them run up in the seed-bed: and it is found by experience, that transplanting two, three, or four years, and letting the plants run up in the third, fourth, or fifth, will keep the stock in the desired state. The time of transplanting is from Old Christmas to Old Candlemas. The cleanest plants are the best, without much respect to size: a piece of good ground near a habitation is most proper for the purpose, because the plants can there be most easily defended from the depredations of the birds. It is of great consequence to secure seed of a good sort and quality, which cannot always be obtained from dealers; without care it will degenerate, and a mixed seed is too frequently sold: such persons therefore as are curious, should either raise it themselves, or have it raised by a neighbouring labourer, or at least procured from those on whom they can depend. The large green-topped Turnip is the most productive, the sweetest, and most juicy; but the red or purple-topped is the hardiest. Admirably as the Turnip is calculated for cleaning land, and feeding cattle and sheep, it is to be lamented that it is so liable to accidents and failures as not to be absolutely depended upon for these purposes. It has the fly, and many other enemies of the insect tribe, to contend with, in the early stage of its growth; second and third sowings, which are frequent, seldom produce much more than the good spring-feed for sheep; alternate frosts and thaws rot the Turnips before the season of greatest necessity arrives, or if they are not absolutely rolled, beasts fatten but ill on frozen Turnips; if, on the contrary, the winter be mild, the Turnips run to flower, and then the root has little substance in it. The Turnip crop is precarious, principally because the farmer is obliged to depart from the common course of nature in accommodating it to his wants. Instead of putting the seed into the ground in the spring months, when there would be as great a certainty of a crop as of any other vegetable, he is obliged to defer sowing till the hottest season of the year comes on, when, unless he is so fortunate as to have a few rainy days, or cloudy weather with frequent showers, he can have little hopes of success.——The first enemy of the Turnip is the *fly*, as it is commonly called; or, as others name it, the *flea*; or, as it is provincially termed, the *black dolphin*. It is in fact a small insect of the coleopterous or beetle tribe, and is named by naturalists *Chrysomela saltatoria*. In hot summers it abounds to an amazing degree, and may be heard in a field or garden among the leaves of Turnips, or any of the Cabbage kind, making a pattering like rain from its continual skipping. This mischievous insect is not more than from one-twelfth to one-tenth of an inch in length; it attacks the plant as soon as it appears above ground, whilst in the seed-leaf; but as soon as the rough leaves are put out strong, the plant is supposed to be safe from this enemy, which is calculated to destroy an entire crop once in five or six years, besides the partial damage which it does in most years. It has however a rival in mischief, the *Turnip bug*, which becomes a small fly, about one-twentieth of an inch long, and not larger than a grain of Turnip seed. It is the same with the *black bug*, *collier*, or *negro*, with which beans are frequently infested, in some places termed *smother fly*. The bugs, or fly in a larva state, frequently cover the under sides of the seed-leaves, and are of different colours, yellow, green, and black. When the seedling plants are infested with them, they make no progress, nor any visible effort to get into rough leaf; fifty of these vermin have been counted under one pair of seed-leaves, sucking the juices through their long probosces. The smallest of the flies, or *aphides*, are of a cream colour, the next green, the next to these reddish-green, and the largest black. The destruction, however, which is imputed to the fly, or (to speak more properly) to the Turnip-beetle, sometimes seems to originate in the season. When the soil is fully and permanently moistened by a steeping rain, the seed will vegetate, the plants will push into rough leaf, and rise without a check, though the beetle and their other insect enemies be in full force: but if the Turnips have only showers to depend upon in hot dry weather, the seed will vegetate, but by the time the seed-leaves are formed, the moisture is wholly drawn off by the intervening days of drought; and the plants, deprived of nourishment, pass away, parched up as in an oven. The injury, however, which is done by the fly being confessedly great, many remedies have been proposed for it, although it is much to be feared that they are by no means effectual. Some good, it is said, may be done by running a light roller over the crop, with a bundle of Blackthorn fastened behind it. Branches of elder are recommended to be drawn over the Turnips in the same manner; and the seed is directed to be soaked in the juice of the bruised leaves. But these are palliatives at best, and have been found to be utterly ineffectual. Some recommend the land to be fumigated, by burning heaps of quick, and other weeds, to windward, when it is ready for sowing, and after the seed is come up; whilst others prescribe a steep for the seed, of train or other oil, in which it is to be immersed twenty-four hours or more: when the seed is drained from the oil, it is to be mixed with good earth finely sifted, and sown immediately; when the plants begin to appear, the ground is to be sown with soot, from eight to sixteen bushels the acre. Soot is very generally recommended as a specific against the fly; so also is tobacco dust, but this can be applied only in small crops, such as are grown in gardens. We are told to shake the seed in a bottle with flower of brimstone, and to sow them together; or to steep it in water strongly impregnated with brimstone or horse-aloes. A much more likely way than any of these to secure a good plant of Turnips, is, after having made the land clean and fine, as soon as the weather will permit, to sow two, three, and even four pints of seed upon an acre, in suspicious seasons: thus having a sufficient quantity of plants for the fly and the crop. In case the fly does not take them, it may be said that the plants will be so thick that they cannot easily be hoed; they may however be made fit for the hoe by harrowing them first; and, at any rate, it is a less evil to have too much work for the hoe, than little or no crop. Another method of securing a crop, is sowing seed that will germinate at different times. This may be done by mixing new and old seed together, and by soaking half of each in water, or the drainings of a dunghill, for half an hour, and then spreading it on a floor until it is dry enough for sowing. Thus there will be four chances for a crop, as the seed thus mixed and prepared will come up at four different times. Or, sow immediately after the plough without harrowing, and then the seed, lying at different depths, will come up at several times, and consequently have several chances of escaping the fly or Turnip-beetle. It is very sensibly remarked by Mr. Miller, that whatever will add vigour to the young plants will prevent their being destroyed by the fly, for these never

attack them until they are stinted in their growth. Good tillage therefore, and having the land in heart, is of more consequence to prevent the ravages of the fly, than all the nostrums that have been published. The provident farmer will, as far as he can, watch for favourable opportunities to sow his seed; and he had better defer sowing, than do it when the weather is hot and dry. He will have his land in proper order; he will be at the pains of procuring good seed, new, if he can get it; and he will sow a sufficient quantity: but, above all, he will lay in a proper quantity of manure, to promote the growth of the young plants, and to push them forward as fast as possible. It is this purpose which is answered by dressings of ashes, soot, composts of lime and dung, &c. in sufficient quantities; either sown with the seed, or rather immediately before, well harrowed in, and completely incorporated with the soil. There is some doubt, however, respecting the expediency of dunging largely for Turnips. One says, the only available precaution against the fly, consists in ploughing the land till it is very fine, and filling it with muck; whilst others are of opinion that the flies are increased by the dung, which certainly is a nest for a great variety of insects. Folding may perhaps be better than the dunging, the treading of the sheep both destroying the insects, and rendering light land more firm. In seasons wherein apprehensions of the fly are entertained, it is recommended to plough for sowing, as soon as it is light in the morning, only so much land as can be sown and harrowed by six o'clock; and about six in the evening again to plough as much as can be sown and harrowed before dark. The seed being thus sown while there is some moisture in the newly-ploughed ground, will vegetate sooner, and come up more regularly, than it would do if the ground were dry. If the season should prove dry, the ground should be well looked over; and when the young plants begin to be attacked by the fly, the land should be strewed all over with vegetable ashes, and the night following it should be rolled. If rain come on in a day or two after, the Turnips will soon be out of danger, by the rain washing the salts of the ashes to their roots; if not, in a week's time a fresh dressing of ashes, with rolling, should again be applied. Where wood or peat ashes are not to be had in plenty, the farmer ought to raise a quantity for the purpose, from burning quick and other weeds, or turf, litter, furze, heath, fern, &c. Or if he has only a small quantity of ashes, he may have recourse to a compost of these with soaper's ashes, coal-ashes, quick lime, and soot, mixed well by burning them two or three times, and passing them through a sieve; it is scarcely necessary to add, that the ashes should be kept in a dry place. When large patches are irrecoverably gone, it is best to plough immediately, and sow again, harrowing in the seed. The early stone Turnip is recommended for this purpose, because it comes to maturity sooner than the common sort, and may be sown twenty days after the first sowing.—The *bug fly*, or *aphis*, is by no means so tremendous an enemy as the beetle: being extremely soft and tender, and therefore easily crushed, a light roller, especially if it were muffled in some soft elastic covering, so as to press in between the clods, might perhaps be effectual in destroying these insects without injuring the plants.—Another danger of the crops being destroyed is from the *caterpillars*, which very often attack them when they are grown so large as to have six or eight leaves on a plant: the surest method of destroying these insects, is to turn a large parcel of poultry into the field, which should be kept hungry, and turned in early in the morning; these fowls will soon devour the insects, and clear the Turnips. The Turnips sown in drills are not so much exposed to this evil, for as the ground between the rows will be kept stirred, the plants will be kept growing, and will not be in danger of suffering from these insects; for the parent insects never deposit their eggs upon any plants which are in health, but as soon as they become stinty, they are immediately covered with their eggs; so that it is the disease which occasions the vermin, and not the vermin the disease, as is commonly imagined; therefore as the plants will always be in greater health when the ground is well stirred about them, there will be less danger of their suffering from these enemies when they are cultivated by the horse-hoe, than by the common way. These caterpillars are provincially called *black cankers*; they are not so universal as the fly or Turnip-beetle, but their ravages, though partial, are in some seasons very great, especially near the sea coast. Many remedies have been proposed against this destructive insect: as, drawing a rope over the ridges, two persons holding the ends; this will brush the caterpillars off, and perhaps may save a few acres, where it can be frequently repeated, and the insects are not very numerous. It is an improvement upon this expedient to fasten twigs upon the rope, for which purpose elder twigs have been preferred, but certainly without sufficient reason. Stiff crooked boughs will injure and tear the plants. Others draw a brush made of furze over the Turnips: the branches are fixed to a long pole or axle-tree, with a wheel at each end, of such a height that the furze will brush the plants without pulling them up by the roots. This mischief might be prevented, if the inhabitants of the sea-coast would burn the flies on their arrival, when they are spent with their flight, and frequently may be taken up by shovels-full. Another enemy to Turnips, and to the garden in general, as well as to Flax, Wheat, &c. is the naked snail, or *slug*. This, however, is a trifling evil in comparison with the others. Slugs abound most in wet seasons, when the fly is least prevalent, and chiefly on fresh ground and bad fallows. The only remedy prescribed, is night-rolling, when the dew is upon the ground. The wire or red worm, is also complained of as injurious to Turnips, as well as to the gardens in general, particularly by those who pursue the drill culture. The grub is perhaps in itself not fatal, did not the rooks, in order to come at it, pull up not only the plants which are attacked, but those also which are free from it, and thus clear them as they go.—There is a disease to which Turnips are subject, called the *anbury* or *hanberry*. It is a large excrescence, which forms itself below the bulb or apple, grows to the size of both the hands, and when brought to maturity becomes putrid, and smells very offensively: it is irregular in its form, with excrescences, like races of ginger, hanging to it. The tops of those Turnips which are much affected, turn yellow, and flag with the heat of the sun. It is a common notion that this disease is caused by the soil's being tired of Turnips; that is, by their being sown too often on the same land. Now this is erroneous, for the anbury appears on land, which has never borne Turnips before. It is more probable, that it is caused by some grub or insect, that diverts the course of the sap by wounding the vessels of the tap-root. In Norfolk, marl is esteemed a certain preventive of the anbury.—The last enemy to be mentioned, is severe frost, which usually destroys the sown Turnips, and much injuries the late ones. The only method of counteracting this evil, is to preserve or store up a certain quantity of Turnips, in case of frost or a deep snow. This may be done by drawing them in dry weather, when they have attained their full growth; topping and tailing them; and carting the roots into an adjoining new-made dry

ditch, first covering them with straw, and then with hurdles or fagots, from the cattle; or still better, by stacking them in the field with layers of straw between, covered and thatched with straw; either on the ground, or, if the land will bear it, in beds or pits dug one or two feet deep, or more, three yards wide, and of what length you want them. If straw be scarce, old haulm or stubble will answer the purpose. Or else, to carry them home, and pile them in small stacks in a clean home pasture, or near the yard; or, to house them where there is room, always screening them with straw, and putting some between the layers to absorb the moisture. This practice not only preserves some Turnips from the rot, and furnishes cattle and sheep with feed, in time of the greatest distress; but prevents the crop from exhausting and impoverishing the land, and gives time for preparing it for the succeeding crop of Barley. After all, the provident farmer will not absolutely depend upon his Turnip crop, for feed late in the spring; but have in reserve some Cabbages, Coleworts, Rye, or Winter Tares, according to his convenience and the nature of his land; not only to guard against failures in his Turnip crop from frost, &c. but to have some provision for the couples, by the time the lambs begin to feed, which will put them on much faster than the best Turnips.—A square perch of Turnips, which is sixteen feet and a half, drilled in rows three feet apart, has been found to contain eighty-four roots, weighing seven hundred two quarters; which is sixty tons to a statute acre; eighty-four Turnips picked within fifteen yards of the above perch, weighed eighteen hundred three quarters seventeen pounds; which is one hundred and twenty-six tons nine hundred and twenty pounds to an acre.

8. Brassica Oleracea; *Common Cabbage.* Root caulescent, columnar, fleshy. The Cabbage, as it is found wild on the shores of Britain, has the stem-leaves very much waved, and variously indented, the colour sea-green, frequently with a mixture of purple; the lower leaves somewhat ovate and sessile, the uppermost almost linear; the flowers are large. Early in the spring, the Sea-Cabbage is preferable to the cultivated sorts; but when it is gathered on the coast, it must be boiled in two waters, to take away the saltness. When old, it is said to occasion giddiness. The roots may also be eaten, but they are not so tender as those of the Turnip and Navew. The varieties of garden Cabbage, which all originate from this, may be reduced to three general divisions: the first comprehending those which grow in the natural way, without forming the leaves or stalks into a head. This division, besides the Sea Cabbage, or Wild Colewort, would comprehend the Green Colewort, the Borecoles, and Turnip-cabbage. Secondly, those which form the leaves into a head, as the White Cabbage, the Red, the Savoy, &c. Thirdly, those which form their stalks into a head, as the Cauliflower, and the different varieties of Broccoli. The first division might be subdivided into the Wild, with broad leaves, and an even stem; the Turnip-cabbage, with broad leaves and a protuberant stem; and the Borecoles, with fine cut leaves and an even stem. The second division contains the Cabbages commonly so called: as, the Red, the numerous varieties of the White, such as the Sugar-loaf, the early, the foreign musk, the small Russia, the large-sided, the flat-topped, the Yorkshire, Scotch, American, &c. &c. and those with wrinkled leaves, as the common Savoy, the green Savoy, &c. Of the Borecoles in the first, and the Broccoli in the third section, there is also a variation in colour; the purple, and the white. The common Colewort, or Dorsetshire Kale, is now almost lost near London, where the markets are usually supplied with Cabbage plants, which are more tender and delicate, instead of them. The common Colewort is indeed better able to resist the cold in severe winters; but it is not good till it has been pinched by frost, and our winters being generally temperate, Cabbage plants are now constantly brought to market, which, if they be of the sugar-loaf kind, are the sweetest greens from December to April yet known. Indeed, where farmers sow Coleworts to feed their milch-cattle in the spring, in case of a scarcity of herbage, the common Colewort is to be preferred, because no frost will destroy it. The curled Colewort, or Borecoles, are more generally esteemed than the common one, being, like that, so hardy as never to be injured by cold, and at the same time much more tender and delicate; these, however, are always sweeter in severe winters than in mild seasons. Of the heading Cabbages, the red is chiefly cultivated for pickling; the common white, flat, long-sided, and Savoy, for winter use. The Musk Cabbage is almost lost, although for eating it is one of the best we have; but, being tenderer than many other sorts, it is not so profitable for market gardeners; such, however, as cultivate for their own tables, should make choice of this rather than any of the common Cabbages, for it is always looser, the leaves are more crisp and tender, and it has a most agreeable musky scent when cut. The early and sugar-loaf Cabbages are generally sown for summer use, and are commonly called Michaelmas Cabbages. The Russian Cabbage was formerly in much greater esteem than at present, it being now only to be found in particular gentlemen's gardens, and rarely brought to market. The other varieties are chiefly cultivated for feeding cattle; for which they are certainly well adapted on strong lands, but they are undoubtedly a very exhausting crop.—The Germans cut Cabbages in pieces, and, with some aromatic herbs and salt, press them close in a tub, where they soon ferment, and are then eaten under the name of *sour crout.* In this state they are much recommended against the sea-scurvy; indeed Cabbages in general are esteemed a salubrious aliment in the putrid scurvy: they are laxative, and produce flatulencies; but the laxative matter is extracted by long boiling. The white Cabbage is the most putrescible, and the red most emollient.—The Cauliflower was first brought to England from the island of Cyprus, since which it has been greatly improved. Purple and white Broccoli are only varieties of the Cauliflower.—The following are the methods of propagating and cultivating the different kinds of Cabbages. Colewort seeds should be sown in July, in an open spot of ground, and transplanted, as soon as the leaves are two or three inches broad, into rows a foot asunder, and six inches distant in the rows; the rows may be drawn alternately for Coleworts, and the remainder left to Cabbage. To continue them for spring drawing, they should be sown again at the beginning of August.—In the *field culture* of Coleworts, the best method is to sow the seeds, nine pounds to an acre, about the beginning of July, choosing a moist season, which will bring up the plants in about ten days or a fortnight: when they have got five or six leaves they should be hoed, as is practised for Turnips, cutting down all the weeds from among the plants, and thinning them where they are too thick; but they should be kept thicker than Turnips, because they are more in danger of being destroyed by the fly: this work should be performed in dry weather, that the weeds may be killed, for if it should prove moist soon after, the weeds will take root again, and render the work of little use. About six weeks after, the plants should have a second hoeing, which, if carefully performed in dry weather, will entirely destroy the weeds, and make the ground clean, so that they will require no further culture. In the spring, they may either be drawn

up and carried out to feed the cattle, or the cattle may be turned in to feed upon them as they stand; but the former method is to be preferred, because there will be little waste: whereas, when the cattle are turned in amongst the plants, they will tread down and destroy more than they eat, especially if they are not fenced off by hurdles. The perennial Colewort is also little cultivated in the gardens near London at present: this is very hardy, and may be cultivated in the same manner as the former sort; this will continue two years before it runs up to seed, and will afterwards produce many side-shoots, and in poor land will continue three or four years, but in rich soils it will not last so long. This may be used as the former sort, to feed cattle, for it is not so good for the table (unless in very severe frost) as the plants which are now cultivated for that purpose.—The early and sugar-loaf Cabbages, are commonly sown for summer use, and are called by the gardeners about London, Michaelmas Cabbages: the season for sowing these, is about the end of July, or beginning of August, in an open spot of ground; and when the plants have got eight leaves, you must prick them into beds at about three inches' distance every way, that they may grow strong, and short-shanked: and in the middle of October, you should plant them out for good; the distance that these require, is three feet from row to row, and two feet and a half asunder in the rows; the gardeners near London commonly plant these Cabbages upon the same spot of ground where their winter Spinach is sown, so that when the Spinach is cleared off in the spring, the ground will have a crop of Cabbages upon it; you must therefore clear off the Spinach just round each plant early in the spring, that with a hoe you may draw the earth up to the stem, and when all your Spinach is cleared off, which is commonly in the beginning of April, you must hoe down all the weeds, and draw up the earth again about your Cabbage plants. In May, if your plants were of the early kind, they will turn in their leaves for cabbaging, at which time the gardeners near London, in order to obtain them a little sooner, tie in their leaves close, with a slender ozier twig, to blanch their middle; by which means they have them at least a fortnight sooner than they could have if they were left united. Fewest of the early kind should be planted, for they will not supply the kitchen long, generally cabbaging apace when they begin, and soon grow hard and burst open; but the sugar-loaf kind is longer before it comes, and is as slow in its cabbaging, and being of a hollow kind, will continue good for a long time. It has been known, that a large quarter of ground, which was planted with this sort of Cabbage for market use, has afforded a supply for nearly three months together. It may be planted out in February, and will succeed as well if planted earlier, with this difference only, that the plants will be later before they cabbage. Some plants of the early sort should also be reserved in some well-sheltered spot, as a supply in case of failure; for in mild winters many of the plants run to seed, especially when sown too early, and in severe winters they are often destroyed.—The Russian Cabbage must be sown late in the spring, and managed as above directed; with this difference only, that it must be finally planted out sooner, must have an open clear spot of ground, and requires much less room, being a very small hard cabbage; it will be fit for use in July or August, but will not continue long before it breaks and runs up to seed: the way to have this sort good, is to procure fresh seeds every year from abroad, for it soon degenerates in England.—The common-white, red, flat, and long-sided Cabbages, are chiefly cultivated for winter use: the seeds of these sorts must be sown at the end of March, or beginning of April, in beds of good fresh earth; and in May, when the young plants will have about eight leaves, they should be pricked out into shady borders, about three inches square, that they may acquire strength, and to prevent their growing long-shanked; about the beginning of June, you must transplant them out where they are altogether to remain, which, in the kitchen-gardens near London, is commonly between Cauliflowers or Artichokes, at about two feet and a half distance in the rows; but if they are planted for a full crop in a clear spot of ground, the distance from row to row should be three feet and a half, and in the rows two feet and a half asunder; if the season should prove dry when they are transplanted out, they must be watered every other evening, until they have taken fresh root; and afterwards, as the plants advance in height, the earth should be drawn about their stems with a hoe, which will keep the earth moist about their roots, and greatly strengthen the plants. Weeds, if suffered to grow among them, will draw them up tall, and often spoil them. Some of these Cabbages will be fit for use soon after Michaelmas, and will continue until the end of February, if they are not destroyed by bad weather; to prevent which, the gardeners near London pull up their Cabbages in November, and trench their ground up in ridges, laying their Cabbages as closely as possible against one side of their ridges, burying their stems in the ground: in this manner they let them remain till after Christmas, when they cut them for the market; and, although the outer part of the Cabbage be decayed, yet, if the Cabbages were large and hard when laid, the inside will remain sound.—The Savoy Cabbage is also cultivated for winter use, being best when pinched by frost: it must be sown about the middle of April, and treated as the common White Cabbage, except that it may be planted closer, two feet and a half square being sufficient. This sort should have an open situation, clear of trees and hedges; for in close places it is very subject to be eaten by caterpillars and other vermin, especially if the autumn prove dry. If early Savoys are desired, some seed must be sown sooner, as in March, February, or autumn. The autumn-raised plants will be very large, and in order for the table from the end of August, through September and October.—The Musk Cabbage may be cultivated in the same manner as the common Cabbage, and the plants set out at the same distance; it is in use from the beginning of October until Christmas, and is apt to suffer in very severe winters.——With respect to the *field culture* of *Cabbages*, the sorts most commonly cultivated for feeding cattle, are, the *Scotch*, the *drum-head*, and the *American*. The first, if it be the true flat-topped firm sort, is never affected by frost, a few of the outside leaves excepted. The true drum-head is said to be hardy, and the heaviest of any for the size; it may be planted closer than the large American: it is called the *tallow-loaf* in some places, and being too tender to bear very sharp frost, a mixed stock has been procured by planting this and the common Red Cabbage together, and when the seed-pods were formed, cutting down the red, and leaving the other for seed; this mongrel is of a deep-green colour, with purple veins, retains the size of the drum-head, and has acquired the hardness of the red Cabbage. The American comes to a great size, and lasts good very late in the spring: there are many varieties, as, the flat, Dutch, Yorkshire, &c. and the same variety is known under several names in different parts of the country. The Cabbage culture is best adapted to strong land, and comes peculiarly in aid to the farmer, who cannot to much purpose avail himself of Turnips. It succeeds admirably on a rich, moist, friable loam. The tillage for Cabbages differs very little from that which is given for Turnips; they are commonly

planted on stubbles, after Wheat, Barley, Oats, or Beans; the land is ploughed up at Michaelmas, lies till spring, is then ploughed again three or four times; is manured with from fifteen to twenty three loads of dung, or else with from twenty to thirty loads of compost, to an acre, before the last ploughing, which lays the land in three-feet ridges, towards the end of May or the beginning of June, in which state it must be left for rain, to enable the farmer to plant. Some persons spread the dung upon the stubble, and bury it with the first ploughing; because, if the weather should set in dry at the time of planting, the dung opens the soil too much, lets in the drought, and thus destroys, or at least stunts, the plants. The best method of raising, is to sow the seeds as early in the spring as the weather will permit, (the end of February, or beginning of March,) upon good land, well sheltered, digged, and dunged, on beds from four to five feet wide, for the conveniency of cleaning them, and destroying the fly. Plants may be thus obtained, of sufficient strength to plant out by the third or fourth week in May, at the latest; and these plants will be in perfection by the third week in October, and will continue to the end of March, or the middle of April. The best seed, sown upon a poor soil without dung, will produce many runaway plants; these are also frequently spoiled by being sown too thick. An ounce and half of seed on a bed fourteen yards long, and five feet wide, will, allowing for all accidents, produce two thousand good plants: half a pound of seed is fully sufficient to produce plants for an acre; or a pound of seed, sown on ten rods of land, may do for three acres, according to the goodness of the land, and the season: seven thousand plants are fully sufficient for an acre. Though spring plants are most commonly reputed the best for general use, not so much on account of their size as their duration; (because the slugs are apt to destroy much of the autumn sowing in winter; and because, by good management, as large and heavy a Cabbage may be produced from spring sowing;) yet some persons are attached to sowing in autumn, about the middle of August; and pricking the plants out into a warm place, where they may be sheltered from very severe frost; they may be thus planted out in May, whereas the spring-sown ones can hardly ever be planted out till near Midsummer, perhaps in a dry time, when they will be scorched up, and are scarcely ever so large: it is to be considered, however, that the great use of Cabbages is for feed late in the spring, when the early-sown will be run up to seed. Some persons prick out the young spring-sown plants from the seed-bed, which is certainly an advantage to them, but is attended with too much expense and trouble to those who cultivate this crop on a large scale. As to planting, that operation depends upon the weather, and may be performed as soon after the middle of May as that will admit; but it is vain to attempt it until there has been a ground-rain, and then it must be done as quickly as possible: the plants are commonly set in one row on each ridge, at the distance of two or three feet, or, according to some, of four; most persons plant them two feet and a half asunder in the rows: some are for small distances, as two feet, or eighteen inches; others are for larger, as three feet; the distance ought, however, to be regulated by the size of the Cabbage, and the strength of the soil: they should be planted wide enough to admit of being cleared with the plough, and yet so near as to afford a full crop. It must be a great advantage, on land that will admit of it, to plant them at equal distances every way, so that the plough may pass crosswise as well as longwise, between the rows, in cleaning them. In the common practice, the rows are kept clean by hand-hoeing; and at the same time, any clods that may have rolled on the plants, in ploughing between the rows, are removed. About three weeks after planting, taking the opportunity of rain, replant whatever vacancies may have arisen from failures. Cabbages are applied to feeding milch cows, to fattening bullocks, sheep, and swine; we have not heard of their being given to horses: and yet it is probable, that either alone, or mixed with chaff, or cut-meat, they may be a valuable horse feed. They are very generally and successfully applied to feeding milch cows, in the great dairy farms of High Suffolk; where they have eight or ten acres of the great Scotch and American Cabbage, to forty cows; and in some parts they are of opinion, that one good acre of Cabbages will do for seven or eight cows, yielding as much food as three acres of Turnips, and making the cows give more and better butter. A more common proportion, however, is, four cows to an acre, without hay or straw, and six or seven with straw and some hay: one acre and one rood, producing forty-five tons of Cabbages, fed nine cows and a bull thirteen weeks and two days. The report concerning the effect of Cabbages upon milk, is different; some asserting that the butter is as bad as from Turnips; others, that they yield not only more milk, but better butter. Cabbages are also reputed excellent for weaning calves; Turnips being apt to give them the garget, which Cabbages never do. In fattening beasts, three quarters of an acre of a middling crop, will do for two beasts of fifty stone each, that have had the summer grass. A middling bullock will eat two hundred pounds of Cabbages in twenty-four hours, and therefore a score may be kept on an acre for nearly a month, if the crop be tolerably good. Fifteen fatting oxen, nine hundred weight each when fat, were kept from the fifth of November to the thirty-first of December, that is, eight weeks, on two acres of autumn-sown Cabbages, with the addition of four tons of hay: upon the whole, an acre of Cabbages is supposed to fatten one beast in four more than Turnips, and all in two-thirds of the time. Another circumstance of consequence to the grazier, is, that they are said to have a remarkable effect in laying on the fat on the grazier's points. With respect to sheep, one of twenty pounds a quarter, will eat fifteen pound of Cabbage in twenty-four hours; one acre, therefore, will nearly maintain two hundred sheep a month, if it be a good crop. Thirteen fat wethers, who had nothing else to eat, except what they picked up, in open weather, on a bare grass-field, consumed one load in a week, that is, in the proportion of an acre to twenty-six sheep, for one hundred and twenty days, or more than sixteen weeks. When the autumn-sown plants run up to seed in April, sheep will eat every morsel of them clean up, when they will not touch a Turnip. When the plants are suffered to run up, that part of the land should have a light dressing of pigeon dung, soot, or malt-dust, to make it amends for supporting the Cabbage-stalks so much longer. Hogs do very well on Cabbages, and prefer them to Turnips; for when they get into a field containing both, they constantly take to the former, and will scarcely touch the latter: by sowing early in the spring, or by sowing some in autumn, a succession of Cabbages may be obtained, from the third week in October, or a month after Michaelmas, to the end of March; or, if desired, even to the middle or end of April: they ought, however, in the general opinion, to be off by the middle of March, because they then shoot, and exhaust the land. How valuable, therefore, must this crop be, thus adapted as it is to feeding milch kine, bullocks, sheep, &c. and which is in perfection during the months of February, March, and part of April; when the anxiety of farmers, particularly of those who keep large flocks for a supply of food, is at the height! On moist soils, Turnips,

however valuable they may be, are so much affected by the vicissitudes of the season, as to be a very uncertain provision; for how often does it happen, that after a year's fallow, an ample and expensive manuring, great care to prevent the ravages of the fly, slug, caterpillar, &c. unremitting attention to the hoers, and altogether an expense of from three to five pounds an acre, one sharp frost succeeding a wet season, in the months of January or February, destroys all the farmer's hopes, and leaves his flocks or bullocks destitute of food when they want it most; or reduces him to the necessity of feeding them on hay, which perhaps is so dear as to devour all his profits. Now, Cabbages are by no means so liable to these accidents, for unless a long-continued drought succeed the planting out, they are in a manner a certain crop, neither frost nor snow will materially injure it; and, as a farther recommendation, it is more grateful to the consumers. The dung of the cattle fed upon Cabbages is better, and more in quantity, than when they are fed on Turnips. They are an excellent preparation for Barley and Oats, as well as Turnips; or if they be, as some think, in a small degree inferior in that respect, it ought to be considered, that the crop in itself is more valuable, being worth from four to seven pounds an acre.—The accidents to which Cabbages are liable, are, first, to be destroyed in the seed-bed by the beetle or fly, as well as Turnips: but in this situation, these insects are easily destroyed, by sowing wood-ashes, soot, &c. the moment they appear; and at the same time the plants are invigorated by the dressing. They are, secondly, attacked both in the seed-bed and by the caterpillar of the *papilio brassicæ*, or Cabbage-butterfly; this insect, though destructive to the plants in general, is of little consequence in field-culture, because it comes too late to injure the seed-bed; and if the plants prosper after they are set out, they become so strong and numerous as to set it at defiance. An easy method of arresting their progress, is to turn up the leaves, wherever the white butterflies are observed to be busy about the plants, and rub off the eggs, which they deposit along the ribs of them, with the back of a knife, which operation is performed in a very short time, whereas this picking of the caterpillars, after they are hatched and dispersed, is very tedious. The slug, that common enemy to all crops, attacks the Cabbage, but is by no means so injurious to it as to the Turnip, because it stands up above his reach. From frost Cabbages sustain little or no damage, if they be of a hardy sort, a few of the outside leaves excepted. There is a disease to which Cabbages are subject, which is, the roots becoming swollen or knobbed, and the plant at the same time smaller. It is occasioned by grubs, which are the *larvæ* of flies, and is incident chiefly to such Cabbages as are sown or planted for several years together on the same land. It does not, therefore, affect the field-culture, unless the seed-bed should be continued on the same piece.—The two principal objections to the field-culture of Cabbages are, the impoverishment of the land, and the difficulty of carting them off. That it is an exhausting crop, is generally allowed, and that it is much more so than Turnips; a gentleman, however, who has given it repeated trials for twelve years, on a wet clayey loam, declares himself fully assured, that it does not impoverish the soil, but, on the contrary, meliorates and cleans the land to which it is adapted, better than Turnips. One acre of his Cabbages is often worth three, and sometimes four, acres of adjoining Turnips, on land five shillings an acre better than his. The average crop of Cabbage is twenty-six tons; of Barley after it, thirty-seven bushels; of Wheat, thirty bushels; of Oats, sixty bushels; of Clover, when mown, twice three tons from an acre: this course of crops is worth remarking. The Cabbages being disposed of, by carrying the best to the cows and other cattle in the straw-yard, and folding ewes and lambs upon the remainder in March and April; the land is sown with Barley and Clover: the autumn following, the Clover is broken up, and set with Wheat; the year after, Oats are sown upon the Wheat Stubble; and at Michaelmas following, from twelve to fourteen loads of compost being ploughed in the May or June after, Cabbages are again planted. Another great advantage of Cabbages is: by their being planted on four-furrow work, the land lies drier, and works better for Barley or Oats, than Turnip-land; there is always mould to sow in spring, after feeding off with sheep, which is by no means the case in the same sort of land with Turnips; if the season be wet when they are feeding, and sets in dry in seed-time, it is not possible to get the seed in properly. Many are inclined to attribute the exhausting of land by Cabbages, to the practice of leaving the stalks in the ground, which throw out sprouts, and thus draw the land, when the effect of the crops ought entirely to have ceased; but if we should allow, (what, however, some dispute,) that Barley after Turnips is better, by eight bushels an acre, than after Cabbages; yet, if one acre of Cabbages be more valuable, as is commonly thought, than two acres of Turnips, there will be a gain upon the whole; it is found, however, that to ensure a good crop of Barley, the Cabbages should not be taken off too late. As the crop cannot be fed upon the land by heavy cattle, this occasions an expense to cart it off, which also damages the land, by cutting it up and poaching it in a dreadful manner. The Turnips, however, are most damaged, because they are on straches nearly flat; whereas the Cabbages being on three feet ridges, the poaching is chiefly in the furrows, and no part of the crop which is left for the sheep is injured; the carting also is done at half the expense, and the food is cleaner for the stock. If broad-arched ridges were used, all the carting being in the furrows alone, the productive part of the field would be secure from injury, in the case both of Cabbages and Turnips.—The manner of cultivating the Turnip-cabbage, and the Turnip-rooted Cabbage, is, to sow the seeds in April, on a bed of light fresh earth, and when the plants are an inch high, they should be transplanted into a shady border, at two inches distance every way; kept clean from weeds, and watered till they have taken root; if the season should prove extremely dry, they should be watered afterwards, every four or five days, to prevent the mildew. In the beginning of June, they should be transplanted where they are to remain, at two feet distance every way, and watered till they have taken root. As their stems advance, draw the earth up to them with a hoe, but not too high, so as to cover the globular part, which is eaten. To cultivate these plants in the field, sow a pound of seed early in March, for every three acres intended to be planted; prepare the land by three or four earths, the first given at Michaelmas; before the last earth, manure as for Turnips: finish the whole ready for planting by the first week in June. The first ground-rain after that, set all hands to planting, the rows two feet asunder, and the plants twelve inches apart in good land, and eighteen in poorer soils; plough the intervals three times, and keep the rows perfectly clear by hand-hoeing. When the plants are to be taken up, plough the rows without a coulter, and a round share with a blunt edge. Every farmer should cultivate so much of this root, as will ensure him provision for his cattle and sheep three or four weeks in the latter end of the spring, unless he be otherwise provided. The Swedish Turnip, or *roota baga*, is of the same nature with those, and equally hardy; the root is sweet and firm, being nearly twice as heavy as one of

.our Turnips of the same size: when dressed for the table, it is preferred to ours; and is particularly grateful to all sorts of cattle; hares and pheasants will take it, and leave Cabbages and common Turnips untouched. The culture and application of it are the same as that of the latter.——The *Borecole*, or *Fringed Cabbage*: of this sort the varieties are; 1. Green-curled. 2. Red-curled. 3. Thick-leaved curled. 4. Finely-fringed. 5. Siberian or Scotch Kale. All these plants bear our severest winters; are a useful reserve for the table in such seasons, and then eat very sweet and tender, for before they are frost-bitten they are tough and bitter. They may be cultivated in the same manner ns winter Cabbages, but they need not be planted above one foot asunder in the rows, and these need not be more than at two feet distance. The seeds of the Siberian Borecole may be sown in the beginning of July, and when the plants are strong enough, they should be set in rows eighteen inches asunder, and ten inches distant in the rows: this work must be done in a moist time; they will be fit for use after Christmas, and continue good till April. Green Borecole is a very useful green food for sheep, because it is not only hardy, but growing three feet high, it may at all times be got at by the animals in deep snows, which frequently cause them to suffer much for want of food: it may be cultivated exactly as above directed for the Turnip-cabbage.——*Cauliflower*. This kind of Cabbage is continued for several months together, but the most common season for the crop is in May, June, and July. Having procured a parcel of good seed of an early kind, you must sow it about the middle of August, upon an old Cucumber or Melon bed, sifting a little earth over the seeds, about a quarter of an inch thick; and, if the weather should prove extremely hot and dry, you should shade the bed with mats, to prevent them from drying too fast, which would endanger the spoiling of your seed; and give it gentle waterings, as you may see occasion. In about a week's time, your plants will appear above ground, when you must take off your coverings by degrees, but do not expose them too much to the open sun at first; in about a month's time after sowing, your plants will be fit to prick out; you should therefore put some fresh earth upon your old Cucumber or Melon beds; or where these are not to be had, some beds should be made with a little new dung, which should be trodden down close. to prevent the worms from getting through it; but it should not be hot dung, which would be hurtful to the plants at this season, especially if it prove very hot: into this bed you should prick your young plants, at about two inches square, observing to shade and water them at first planting; but do not water them too much after they are growing, nor suffer them to receive too much rain, if the season should prove wet, which would be apt to make them black-shanked, as the gardeners term it, which is no less than a fatal rottenness in their stems. In this bed they should continue till the end of October, when they must be removed into the places where they are to remain during the winter season, which, for the first sowing, is commonly under bell or hand glasses, to have early Cauliflowers, and these should be of an early kind: but, in order to have a succession during the season, you should also be provided with another more late kind, which should be sown four or five days after the other, and managed in the same way.——*Broccoli*. The seeds of the Broccoli, of which there are several kinds, viz. the Roman or purple, the Neapolitan or white, and the black Broccoli, with some others, of which the Roman is chiefly preferred, should be sown about the latter end of May or beginning of June, in a moist soil; and when the plants are grown to have eight leaves, transplant them into beds, as was directed for the common Cabbage, and towards the middle of July they will be fit to plant out finally, which should be in some well-sheltered spot of ground, but not under the drip of trees: the distance these require, is about a foot and a half in the rows, and two feet row from row: the soil in which they should be planted, ought to be rather light than heavy, such as that of the kitchen-gardens near London; if the plants succeed well, as they generally do unless the winter be extremely severe, they will begin to show their small heads, which are somewhat like a Cauliflower, but of a purple colour, about the end of December, and will continue eatable till the middle of April: In order to have Broccoli produce well, transplant it into the alleys of your Onion, Carrot, &c. beds, the beginning of July; preserving it from snails, and hilling it up, it will produce most noble heads in January and February, and will furnish the table until it is quite over. By sowing very early in the spring, the most forward will succeed the autumnal-sown crops, and keep up by that means a constant succession.

9. Brassica Chinensis; *Chinese Cabbage*. Leaves oval, almost quite entire, the floral ones stem-clasping, lanceolate; calices longer than the claws or the petals.—Native of China.

10. Brassica Violacea. Leaves lanceolate-ovate, smooth, undivided, toothed.—Native of China.

11. Brassica Polymorpha. Inferior Leaves linear-lanceolate, pinnatifid-toothed, upper subulate, entire.—Annual; a native of Siberia.

**** Erucæ. Siliques with a sword-shaped Style.*

12. Brassica Erucastrum; *Wild Rocket*. Leaves runcinate; stem hispid; siliques smooth and even; root annual, fusiform.—Native of the southern countries of Europe, in sandy fields, by way-sides, and on walls; flowering from June till August.

13. Brassica Eruca; *Garden Rocket*. Leaves lyrate. stem hirsute; siliques smooth; root annual.—Native of Switzerland, Austria, and Piedmont. It was formerly much cultivated in the gardens as a salad herb, but at present is little known, having been long rejected on account of its strong ungrateful smell. It is esteemed as a strong diuretic.—When this is propagated for salads, the seeds should be sown in drills, in the same manner as is practised for other small salad herbs, but if it be not eaten young, it will be too strong for most palates. When sown in summer, the plants soon run up to seed, and are too rank: when cultivated for the seed, which is sometimes used in medicine, it should be sown in March, on an open spot of ground; and when the plants have put out four leaves, they should be hoed to three or four inches' distance, and have a second hoeing in five or six weeks afterwards. When the seeds are ripe, the plants should be drawn up. They require no other culture, but to thin them, and keep them clear from weeds.

14. Brassica Vesicaria. Leaves runcinate; siliques hispid, covered with a swelling calix; root annual, spindle-shaped.—Native of Spain and Aleppo.

15. Brassica Muralis; *Wall Rocket*. Leaves lanceolate, sinuate-serrate, smoothish; stem erect, smooth; root perennial.—It grows on old buildings and walls, in many parts of England; as, at Yarmouth, Chester, Taunton Castle, Litchfield Close, Bristol, Exeter, Berwick, and plentifully in and about London: it flowers during the greatest part of the summer.

16. Brassica Richerii. Root caulescent; leaves petiolate, subserrate, upper linear-lanceolate, entire; siliques four-cornered.—Native of the South of France, and the mountains of Piedmont.

Brathys; a genus of the class Polyandria, order Pentagynia.—Generic Character. *Calix*: perianth five-

leaved; leaflets lanceolate, acute, permanent. *Corolla*: petals five, lanceolate, twice as long as the calix. *Stamina*: filamenta many, more than twenty, capillary, the length of the calix; antheræ twin. *Pistil*: germen superior, ovate; styles five, patulous, filiform; stigmas capitate. *Pericarp*: capsule ovate, with five little swellings, one-celled. *Seeds*: very many, roundish. Essential Character. *Calix*. five-leaved. *Petals*: five. *Nectary*: none. *Capsule*: one-celled, many-seeded.——The only known species is,

1. Brathys Juniperina. This shrub is of a habit between Heath and Juniper, very branching and upright, the branches covered with leaves; which are opposite, much crowded, acerose, an inch long, acute, unarmed, evergreen; flowers terminating the branches, several together, sessile.—Found by Mutis in New Granada.

Bread-fruit Tree. See *Artocarpus.*

Bread-nut Tree. See *Brosimum.*

Breynia; a genus of the class Polygamia, order Dioœcia.—Generic Character. *Hermaphrodite flowers. Calix*: perianth one-leafed, turbinate, minute, six-parted; parts concave, blunt, closely converging, depressed flat at the end, so that it is pervious only by a small hole. *Corolla*: none. *Pistil*: filamenta none; antheræ five, linear, upright, fastened longitudinally to the style, approximating. *Pistil*: germen very small; style cylindric, the length of the calix; stigma blunt. *Pericarp*: berry dry, globular, three-celled, propped on the perianth, now become three times its former size, and spreading very much; the segments orbiculate, and nearly equal. *Seeds*: two, convex at the back, flat on the sides. *Male Flowers. Calix*: perianth one-leafed, five-parted; leaflets roundish, concave, almost equal. *Corolla*: none. Nectary five glands, subpedicelled, alternate with the stamens. *Stamina*: filamenta five, very short; antheræ roundish, the length of the calix. *Female Flowers. Calix* and *Corolla*: as in the male. *Pistil*: germen globose; style none; stigmas five, obcordate, resembling petals. *Pericarp*: capsule five-celled. *Seeds*: solitary, subtriquetrous. Essential Character. *Calix*: one-leafed. *Corolla*: none. *Hermaphrodite. Calix*: six-parted; antheræ five, linear, fastened to the style; berry three-celled; seeds two. *Male. Calix*: five-parted; filamenta five; antheræ roundish. *Female.* Stigmas five, obcordate, petaloid, without any style. Capsule five-celled; seed solitary.—The only known species is,

1. Breynia Disticha.—Native of New Caledonia, and the isle of Tanna in the South Seas.

Briony. See *Bryonia.*

Britannica. See *Rumex.*

Briza; a genus of the class Triandria, order Dygynia.—Generic Character. *Calix*: glume many-flowered, bivalve, spreading, collecting the flowers into a heart-shaped distich spike; valves heart-shaped, concave, equal, obtuse. *Corolla*: bivalve; lower valve the size and figure of the calix, upper very small, flat, roundish, inclosing the body of the other; nectary two-leaved; leaflets linear, crenulate. *Stamina*: filamenta three, capillary; antheræ oblong. *Pistil*: germen roundish; styles two, capillary, recurved; stigmas plumose. *Pericarp*: none. *Corolla*: unchanged, contains the seed, gapes, and drops it. *Seed*: one, roundish, compressed, very small. Essential Character. *Calix*: bivalve, many-flowered; spikelet distich, with heart-shaped obtuse valves, the lower of which is minute. If the seeds of this genus be sown in the autumn, or be suffered to scatter themselves, the plants will come up much stronger, and flower much earlier, than when they are sown in the spring. ——The species are,

1. Briza Minor; *Small Quaking-grass.* Spikelets triangular; calix longer than the seven floscules.—This is annual. Native of Germany, Switzerland, the south of France, Italy, and Britain; flowers from June till August.

2. Briza Virens; *Green Quaking-grass.* Spikelets ovate; calix equal to the seven floscules. It is an annual; native of the Levant, Spain, and the county of Nice; flowering in July.

3. Briza Media; *Middle* or *Common Quaking-grass, Cow-quakes, Shakers, Ladies' Hair, Bird's Eyes.* Spikelets ovate; calix shorter than the seven floscules.—This beautiful grass is very common in pastures, especially dry ones, in most parts of Europe, and is easily distinguished by the continual shaking of the spikelets, from which it derives most of its common English names. It flowers from May to July. Cattle eat it, both green and made into hay with other grasses, but it has no peculiar excellence that we are acquainted with, nor has it ever been cultivated separately; indeed it furnishes very little food, and generally occasions a poverty of soil.

4. Briza Maxima; *Greatest Quaking-grass.* Spikelets heart-shaped; floscules seventeen. Annual.—Native of the south of Europe.

5. Briza Eragrostis; *Branched Quaking-grass,* or *Love Grass.* Spikelets lanceolate; floscules twenty, more or less; root annual. This grass varies much, being commonly small and decumbent, but sometimes rising to the height of seven feet; at others of a middling size, with longer and more contracted spikelets.—Native of the south of Europe; it flowers in July and August.

6. Briza Monspessulana. Spike nodding, simple; spikelets alternate, peduncled, subsolitary, ovate; calix five-flowered.

Broccoli. See *Brassica.*

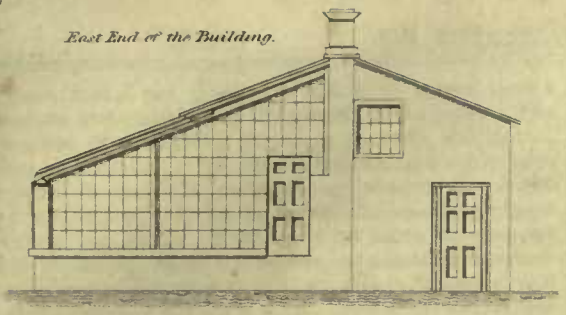
Brome Grass. See *Bromus.*

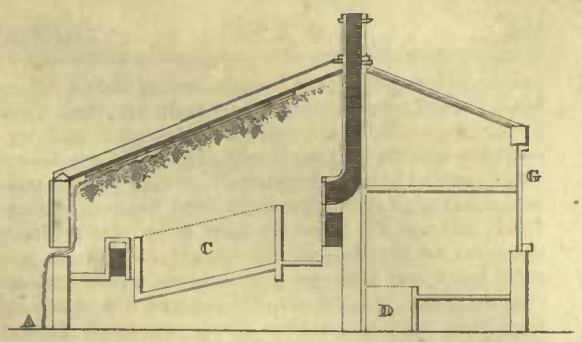
Bromelia: a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix*: perianth three-cornered, small, superior, permanent; divisions three, ovate. *Corolla*: petals three, narrow, lanceolate, erect, longer than the calix; nectary fastened to each petal above the base, converging. *Stamina*: filamenta six, subulate, shorter than the corolla, inserted into the receptacle; antheræ erect, sagittate. *Pistil*: germen inferior; style simple, filiform, the length of the stamina; stigma obtuse, trifid. *Pericarp*: berry roundish, umbilicate, one or three celled. *Seeds*: numerous, incumbent, somewhat oblong, obtuse. Essential Character. *Calix*: trifid, superior. *Petals*: three, and a nectareous scale at the base of each. *Berry*: three-celled. ——The species are,

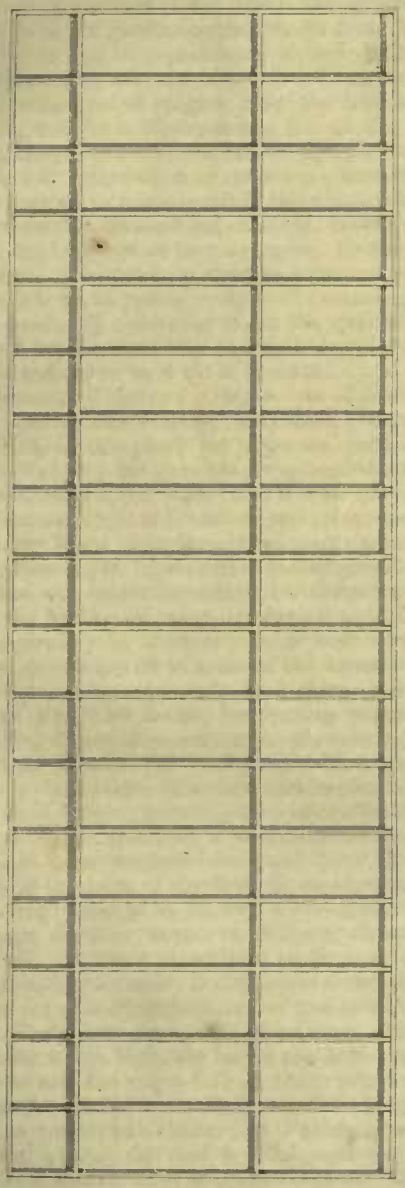
1. Bromelia Ananas; *Ananas,* or *Pine Apple.* Leaves ciliate-spinous, sharp-pointed; spike comose; root perennial, fibrous.—The fruit now so well known in Europe by the name of Ananas, or *Pine Apple,* and so much esteemed for the richness of its flavour, is produced from an herbaceous plant, which has leaves somewhat resembling those of the Aloe, and for the most part serrate on their edges, but much thinner, and not so succulent as those of the aloe. The fruit resembling in shape the cone of some species of the Pine-tree, derives its vulgar name of Pine-apple from that circumstance. It is difficult to determine of what country this plant is a native; but it is probably indigenous in Africa, where it grows plentifully in uncultivated places. There are many varieties of this fruit, and if the seeds were sown frequently in their native country, they might be as numerous as those of Apples or Pears in Europe. The *Queen Pine* is the most common variety in Europe, but the *Sugar-loaf* is much preferable to it, being larger and much better flavoured; the juice also is not so astringent as that of the former, so that it may be eaten in greater quantities with less danger

The *Sugar-loaf Pine* is easily distinguished from all the others, by its leaves having purple stripes on their inside the whole length: the fruit is of a paler colour when ripe, inclining to a straw-colour. This was brought from Brazil to Jamaica, where it is esteemed far beyond the others. The next in goodness to this, is what the inhabitants of the islands in America call the *Montserrat Pine*: the seeds have been imported from the island of St. Thomas, where this fruit is in greater perfection than in any of the British islands. The *King Pine* was raised from seed taken out of a rotten fruit which came from the West Indies, and produced large fruit. The *Smooth Pine* is preserved by some curious persons for the sake of variety, but the fruit is not worth any thing. The *Green Pine* is at present the most rare in Europe; this has been esteemed the best sort known, by some of the most curious persons in America, many of whom have thrown out all the others from their gardens to cultivate this only. The fruit, if suffered to ripen well, is of an olive colour; to have it green, it must be cut before it is ripe, when it is unfit to be eaten: plants of this sort may be procured from Barbadoes and Montserrat. The other varieties, most known among the growers of Pines, are the following; the *Black Antigua* or *Ripley*: *Granada, Pine*, with marbled leaves, and very large fruit; *Bog warp Pine*, with broad green leaves; *Smooth, Long, Narrow-leaved Pine*; *Montserrat* and *Surinam Pine*: with silver-striped, and also with gold-striped, leaves: but it is unnecessary to go beyond naming such varieties, because they are not permanent; new ones may be produced every day; and, after all, the oval Whitish-fleshed or Queen Pine, and particularly the Pyramidal Yellow-fleshed or Sugar-loaf Pine, are confessedly superior in flavour to all the rest.—They are propagated by planting the crowns which grow on the fruit, or the suckers which are produced from the sides of the plants, or under the fruit, both of which have been found to be equally good; although some persons think the crown preferable to the suckers, supposing it will produce fruit sooner than them, which is certainly a mistake; for by constant experience, we find the suckers, if equally strong, will fruit as soon, and produce as large fruit, as the crowns. The suckers and crowns must be laid to dry, in a warm place, for four or five days or more, according to the moisture of the part which adhered to the old fruit; for if immediately planted they will rot, especially the crowns. The certain rule of judging when they are fit to plant, is by observing if the bottom be healed over and become hard, for if the suckers be drawn off carefully from the old plants, they will have a hard skin over the lower part, and need not lie so long as the crowns, or those whose bottoms are moist: but whenever a crown is taken from the fruit, or the suckers from old plants, they should be immediately deprived of their bottom leaves, so as to allow depth for their planting; so that they may be thoroughly dry and healed in every part. If they are taken off late in the autumn, or during the winter, or early in the spring, they should be laid in a dry place in the stove, for a fortnight or three weeks; but in the summer season they will be fit for planting in a few days. As to the earth in which these should be planted, if you have a rich good kitchen-garden mould, not too heavy, so as to detain the moisture too long, nor over light and sandy, it will be very proper for them without any mixture; but where this is wanting, you should procure some fresh earth from a good pasture, which should be mixed with about a third part of rotten cow-dung, or the dung of an old Melon or Cucumber bed which is well consumed. These should be mixed six or eight months at least before they are used, but if it be a year, it will be the better; and should be often turned, that their parts may be the better united, and the clods well broken: this earth should not be sieved very fine, but only cleared of the great stones. Always avoid mixing any sand with the earth, unless it be extremely stiff, and then it will be necessary to have it mixed six months or a year before it be used, during which time it must be frequently turned, that the sand may be incorporated in the earth, so as to divide its parts; but you should not put more than a sixth part of sand, for too much is very injurious to these plants. In the summer season, when the weather is warm, the plants must be frequently watered, but not with large quantities at a time: care must be taken to see that the moisture be not detained in the pots, by the holes being stopped, for that will soon destroy the plants. In very warm weather they should be watered twice or three times a week; but in a cool season once a week will be often enough: during the summer season their leaves also should be washed gently once a week all over, which will remove the filth from them, and greatly promote the growth of the plants. Some persons shift these plants from pot to pot, but this is by no means to be practised by those who propose to have large well-flavoured fruit; for unless the pots be filled with the roots by the time the plants begin to show their fruit, they commonly produce small fruit, which generally have large crowns on them; therefore the plants will not require to be potted oftener than twice in a season: the first time should be about the end of April, when the suckers and crowns of the former year's fruit (which remained all the winter in those pots in which they were first planted) should be shifted into larger pots, according to the size of the plants, nothing being more injurious than over-potting them. The second time for shifting them is in the beginning of August, when those plants which are of a proper size for fruiting in the following spring, should be removed into two-penny pots, which are full large enough for any of these plants. At each of these shifting times, the bark-bed should be stirred up, and some new bark added, to raise the bed to the height it was at first made; and when the pots are again plunged into the bark-bed, the plants should be watered gently all over their leaves, to wash off the filth, and to settle the earth to the roots of the plants. If the bark-bed be well stirred, and a quantity of good fresh bark added to it at this latter shifting, it will be of great service to the plants, and they may remain in the same tan until the beginning of November, or sometimes later, according to the mildness of the season, and will require but little fire before that time. They will not require watering more than once a week during winter, and then it must be sparingly given, as it is much better to give them a little water often, than to run the risk of over-watering them at that season. You must observe never to shift those plants which show their fruit, into other pots; for if they be removed after the fruit appears, it will stop their growth, and retard its ripening, so that many times it will be October or November before the fruit is ripe; therefore you should be very careful to keep the plants in a vigorous growing state, from the first appearance of the fruit, because upon this its goodness and size depends; for the fruit is generally small and ill-tasted, if it receive a check after this. When the fruit is cut off from the plants which you desire to propagate, trim the leaves, and plunge the pots into a moderate hot-bed, observing to refresh them frequently with water, which will cause them to put out suckers in plenty; so that a person may soon be supplied with plants enough of any of the kinds, who will but observe to keep the plants in health. The plants are sometimes attacked by small white insects, which appear at first like a white mildew, but soon after have the appearance of lice, which attack both root and leaves at the

East End of the Building.

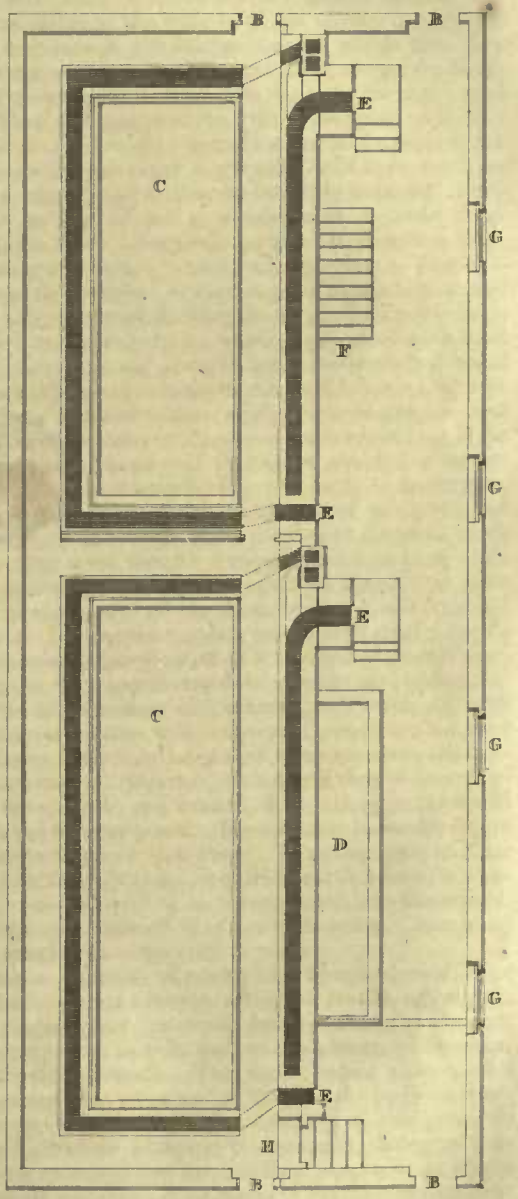






A Raising Pine Stove.

A Succession Pine Stove.



Bromelia.— Pine Stove.

A. *The Vine Border.*
B. *Doors into the Steve and Shed.*
C. *Pits for the Pines.*
D. *Pit in the Shed for early Mushrooms.*
E. *The Fire Grates.*
F. *Stairs into the Chamber over the Shed.*
G. *Windows of the Shed and Chamber.*
H. *Door into Stove from the Shed.*

Published by Henry Fisher, Caxton, Liverpool, Feb. 1819.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

same time, and if not destroyed will soon spread over a whole stove, and entirely stop the growth of the plants. The best method of destroying them, is to wash the leaves, branches, and stems, of the plant attacked, frequently with water in which there has been a strong infusion of tobacco stalks; which has been found to kill the insects, without prejudicing the plants. Care must be taken to examine between the leaves, or the evil will be but partially removed. —Those plants which shew their fruit early in February, will ripen about June; some sorts are at least a month or five weeks longer in ripening their fruit than others, from the time of the appearance of the fruit; but the season in which the fruit is in the greatest perfection, is from the beginning of July to the end of September; though in March, April, and October, they are sometimes found in tolerable perfection. The method of judging when the fruit is ripe, is by the smell, and from observation; for, as the several sorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; nor should they remain so long as to become soft to the touch, before they are cut, for then they become flat and dead, as they do also when they are cut long before they are eaten: therefore the surest way to have this fruit in perfection is, to cut it on the same day that it is to be eaten, early in the morning, before the sun has heated it, observing to cut the stalk as long as possible, and lay the fruit in a cool but dry place, preserving the stalk and crown to it till it is eaten.

2. Bromelia Pinguin; *Pinguin* or *Broad-leaved Wild Ananas.* Leaves ciliate-spiny, mucronate; raceme terminal. —The fruits of this plant are separate, each nearly of the size of a Walnut; the pulp has an agreeable sweetness, but joined with such a sharpness, that if it be suffered to lie any time in the mouth, it will corrode the palate and gums, so as to make the blood issue from those tender parts. It resembles the Pine-apple, by its tuft of leaves growing above the fruits: but on a closer inspection, the difference is easily discerned, the fruits not being coadunate as in that, but produced separately in clusters: it is now very common in Jamaica, growing wild in some of the savannas, and on the rocky hills. It is commonly used there, and in the other islands of the West Indies, for fencing pasture lands, its leaves being formidable to cattle; the edges being very prickly, and the prickles arched backwards.—The leaves, stripped of their pulp, soaked in water, and beaten with a wooden mallet, yield a strong thread, which is twisted into ropes and whips, and by the Spaniards is manufactured into hammocks; it has also been worked into good linen cloth. A small quantity of the juice of the fruit in water, makes an admirable cooling draught in fevers; a tea-spoonful, corrected with sugar, destroys worms in children, cleanses and heals the thrush, and other ulcerations in the mouth and throat, and is extremely diuretic; it also makes a very fine vinegar.— Dampier says, the Pinguin-fruit is of two sorts, the *yellow* and the *red.* The yellow grows on a green stem, as big as a man's arm, above a foot high, the leaves are half a foot long, and an inch broad, the edges full of sharp prickles. The fruit grows at the head of the stalk, in two or three great clusters, sixteen or twenty in a cluster; it is as big as a pullet's egg, round and yellow, the rind is thick, and the inside full of small black seeds. It is sharp and pleasant. The red sort is the size and colour of a small dry Onion, in shape much like a nine-pin; it grows not on a stem, as the other, but one end on the ground, the other standing upright: sixty or seventy grow close together on the same cluster of roots. The leaves are a foot and a half or two feet long, prickly like the former. Both are wholesome, and grow plentifully in the Bay of Campeachy.—This and the next species are propagated by seeds; for, though there are often suckers sent forth from the old plants, yet they come out from between the leaves, and are so long, slender, and ill-shapen, that if they be planted they seldom make regular plants. These seeds should be sown early in the spring, in small pots, filled with rich light earth, and plunged into a hot-bed of tanner's bark. When the plants are strong enough to transplant, they should be carefully taken up, and each planted into a separate pot, filled with light rich earth, and plunged into the hot-bed, again observing to refresh them frequently with water until they have taken new root, after which time they should have air and water in proportion to the warmth of the season. In this bed the plants may remain till Michaelmas, at which time they should be removed into the stove, and plunged into the bark-bed, where they should be treated in the same manner as the Ananas. They will not produce fruit in England until they are three or four years old; therefore should be shifted into larger pots, as they advance in growth, for if their roots are too much confined, they will make but little progress. They should also be placed at a considerable distance from each other, for their leaves will be three or four feet long, which turning downward, occupy a large space.—The Bromelias, properly so called, are propagated by seeds procured from their native country, for they do not produce any in England. These must be sown in small pots, filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanner's bark; the earth in these pots should be sprinkled over with water two or three times a week, according to the heat of the weather, but must not have too much moisture. If the seeds be good, the plants will appear in about five or six weeks, and in about a month after will be fit to transplant, when they should be carefully shaken out of the pots, and each placed in a separate small pot filled with the same earth as before; they must then be plunged again into a moderate hot-bed, observing frequently to sprinkle them over with water, but be cautious of giving them too much, lest it should rot the roots. During the summer season they should have a moderate share of air, in proportion to the heat of the weather; and in autumn, they must be removed into the bark-stove, and treated in the same manner as the Ananas or Pine-apple, with which management they will make good progress; but after the first winter, they may be placed upon stands in the dry-stove, though they will thrive much better if they be kept constantly in the tan-bed, and treated like the Ananas, and will flower in three or four years, whereas those in the dry-stove will not flower in twice that time. The other part of their culture is only to shift them into fresh earth when they require it; but they should by no means be put into large pots, for they will not thrive if they are over-potted; nor must they have much wet, especially in winter.

3. Bromelia Karatas; *Karatas,* or *Upright-leaved Wild Ananas.* Leaves erect; flowers stemless, sessile, aggregate. This is an elegant plant, generally found growing at the root of some shady tree, in hilly and woody places, in America, and the Caribbee islands. The fruits, when ripe, are far from unpleasant; but when unripe, they set the teeth on edge, and excoriate the mouth. The economy of this plant, in preserving its fruit to maturity, is wonderful; being so protected by the spines of the surrounding leaves, as to be secured from all injuries. It propagates itself by mucus produced among the leaves, which become procumbent after the fruit is ripened.—For its culture and propagation in England, see the preceding species.

4. Bromelia Lingulata; *Tongue-leaved Bromelia.* Leaves serrate-spiny, obtuse; spikes alternate; root perennial, fibrous,

stem four feet high; berries round, with a small point, in simple racemes, of a bright coral red.—Native of the West Indies.

5. Bromelia Nudicaulis; *Naked-stalked Bromelia.* Radical leaves tooth-spiny; stem-leaves quite entire.—Native of the West Indies: for its culture and propagation, see the second species.

6. Bromelia Humilis; *Dwarf Bromelia.* Almost stemless: flowers aggregate, sessile; axillas stoloniferous; flowers blue, about thirty in number. This plant readily propagates itself by runners, which proceed from the axilla of the lower leaves, and which produce a young plant from their extremity.

7. Bromelia Acanga. Panicle diffused; leaves ciliate.—spiny, mucronate, recurved.—Native of Brazil: for its propagation and culture, see the second species.

8. Bromelia Bracteata. Leaves serrate-spiny; bractes ovate-lanceolate; scape elongated; raceme compound; racemules subdivided; flowers sessile.—For its propagation and culture, see the second species.

9. Bromelia Paniculigera. Leaves serrate-spiny; bractes lanceolate; raceme compound; racemules subdivided; flowers peduncled.—See the second species.

Bromus; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume many-flowered, bivalve, spreading, collecting the floscules into a spike; valve ovate-oblong, acuminate, awnless, the lowest smallest. *Corolla:* bivalve; lower valve, larger, the size and form of the calix, concave, obtuse, bifid, putting out a straight awn below the top; upper valve lanceolate, small, awnless. Nectary, two-leaved; leaflets ovate, acute, gibbous at the base. *Stamina:* filamenta three, capillary, shorter than the corolla; antheræ oblong. *Pistil:* germen turbinate; styles two, short, reflex, villose; stigmas simple. *Pericarp:* corolla very straitly closed, adhering, not gaping. *Seed:* one, oblong, covered, convex on one side, furrowed on the other. Essential Character. *Calix:* two-valved; spikelet oblong, columnar, distich; awn below the top.—For the culture and propagation of this genus, see *Grass.*——The species are,

1. Bromus Secalinus; *Field Brome-grass.* Panicle expanding; spikelets ovate; awns straight; seeds distinct. It has an annual root, and is chiefly a native of barren pastures: it abounds among corn, particularly Rye. When ground among flour, it is said to render the Rye-bread bitter and unpleasant, and to have the same narcotic quality with Lolium Temulentum, or annual Ray-grass, or Darnel. It has been a popular notion in England, that the several species of corn degenerates into grasses which bear some resemblance to them: and that they were only these grasses improved by cultivation.

2. Bromus Japonicus; *Japan Brome-grass* Panicle spreading, branching; spikelets oblong, smooth; awns divaricate; root annual.—Native of Japan.

3. Bromus Mollis; *Soft Brome-grass.* Panicle rather erect; spikelets ovate, pubescent; awns straight; leaves very softly villose. In corn-fields the root is annual; in uncultivated places, biennial. There are many varieties of this grass, both in degrees of pubescence, from universal hoariness, to almost perfect smoothness; and in size, from three and even four feet in height, to that of a few inches, not to mention other concomitant and less striking circumstances.—It is a native of most parts of Europe, by way-sides, on banks in uncultivated parts, on walls, in corn-fields, particularly among Barley, in meadows and pastures, especially in a dry sandy soil, flowering in May and June. With us it forms a principal part of many mowing-grounds, and abounds in most of our best meadows. It springs early, and ripens its seeds about the time of hay-making. The seed is large, each panicle containing as much as a common Oat, and although cattle are not fond of the leaves and green panicle, it perhaps contributes to render the hay more nutritive: it has, however, a bad property, for the panicle is so heavy, that it is very apt to be laid by rain; it is also so much earlier than many other grasses, that by the ordinary time of mowing, it is in a manner withered away, and what seeds have not fallen are lost in the making and carting; finally, the seeds are said to bring on a temporary giddiness in the human species and in quadrupeds, and even to be fatal to poultry; if this be in any degree true, it is an objection to the cultivation of this grass, which in other respects does not rank among the best kinds. It is recommended for subduing or consolidating shifting sands; but surely a perennial grass, with creeping roots, would answer this purpose much better.

4. Bromus Squarrosus; *Open-awned Brome-grass.* Panicle nodding; spikelets ovate; awns divaricate. This is a robust annual grass, flowering in July.—Native of England, France, Germany, Switzerland, and Siberia; with us in corn-fields near Glastonbury, in Somersetshire, and at Maresfield, in Sussex.

5. Bromus Purgans; *Purging Brome-grass.* Panicle nodding, curled; leaves naked on both sides; sheaths hairy; glumes villose.—Native place uncertain.

6. Bromus Inermis; *Awnless Brome-grass.* Panicle erect; spicules subcolumnar, subulate, naked, almost awnless.—Native of Germany and Switzerland.

7. Bromus Bifidus; *Bifid Brome-grass.* Panicle erect, branching; spicules ovate, subtriflorous; glumes bifid, setaceous; awn divaricated.—Native of Japan.

8. Bromus Asper; *Rough Brome-grass.* Panicle branched, nodding, scabrous; spikelets linear, roundish, ten-flowered, hairy, awned; culm and leaves rough with hairs. It is the tallest of our English grasses, often exceeding six feet in height.—It grows in hedges and woods, in Britain, Germany, Switzerland, &c. and flowers with us from June till August: it appears to be too coarse a grass to be cultivated for cattle.

9. Bromus Ciliatus; *Ciliate Brome-grass.* Panicle nodding; leaves on both sides, and sheaths somewhat hairy; glumes ciliate; flowers eight, awned under the tip; calices naked; glumes of the corolla lanceolate.—Native of Canada.

10. Bromus Sterilis; *Barren Brome-grass.* Panicle spreading; spikelets oblong, distich; glumes subulate, awned; root annual.—Very common under hedges, flowering in May and June.

11. Bromus Arvensis; *Corn Brome-grass.* Panicle nodding; spikelets ovate-oblong; root annual.—Found by way-sides, and on the borders of corn-fields, flowering in July.

12. Bromus Geniculatus; *Kneed Brome-grass.* Panicle erect; floscules distant; peduncles angular; culm with a procumbent knee—Native of Portugal, and Naples.

13. Bromus Tectorum; *Wall Brome-grass.* Panicle nodding; spikelets linear; root annual, or at most biennial.—Native of most parts of Europe, on walls, buildings, and in dry pastures; but not of England: it flowers from May to July, and when approaching to a state of maturity, may be useful in dyeing, where it can be obtained in sufficient quantities.

14. Bromus Giganteus; *Tall Brome-grass.* Panicle nodding; spikelets four-flowered; awns shorter; root perennial.—Native of most parts of Europe, in woods, and under moist hedges, flowering from July till September. It is a productive grass, and cattle are said to be fond of it, but there is not much probability of its being good grass for meadows and pastures.

15. Bromus Rubens; *Red* or *Spanish Brome-grass.* Pa-

nicle fascicled, ovate; spikelets subsessile, villose, seven-flowered; awns erect; root annual.—Native of the neighbourhood of Madrid, on the borders of corn-fields, flowering in May.

16. Bromus Scoparius. Panicle fascicled; spikelets subsessile, smooth; awns spreading. The awns in the same plant are sometimes upright, sometimes spreading; the corollas are smooth, especially the outer glume; the colour is sometimes green, often blood-red, but more frequently paler.

17. Bromus Rigens; *Stiff Brome-grass.* Panicle spiked; spikelets subsessile, erect, pubescent, subquadriflorous; culms six or seven inches high, clothed with leaves, which are nerved, and slightly haired on the upper surface, the sheaths covering the whole culm.—Native of Portugal.

18. Bromus Racemosus; *Racemed Brome-grass.* Raceme entirely simple; peduncles one-flowered; spikelets six-flowered, even-awned.—It is found in calcareous pastures in the neighbourhood of Oxford, flowering in June and July.

19. Bromus Triflorous; *Three-flowered Brome-grass.* Panicle spreading; spikelets subtriflorous; stem five feet high.—Native of Germany, and of Denmark, in woods; flowering in June and July.

20. Bromus Madritensis; *Madrid Brome-grass.* Panicle thinner, expanding, erect; spicules linear; the intermediate ones in pairs; pedicles thicker upwards.—Native of Spain, Italy, and England, on old walls, about London, Oxford, and Severnstoke in Worcestershire: very common in dry meadows; flowering in May.

21. Bromus Ramosus; *Branched Brome-grass.* Culm much branching; spicules sessile; leaves involute-subulate; root perennial.—Found in the Levant, and observed also in Dauphiny.

22. Bromus Pinnatus; *Pinnated* or *Spiked Brome-grass.* Culm undivided; spikelets alternate, subsessile, columnar, subawned; root perennial; leaves flat; the flat side of the spikelets is turned to the culm; awns terminating. Whilst it flowers, the spikelets separate horizontally from the culm; before and after flowering, they are pressed to it. The Meadow Spiked Brome-grass, according to Mr. Hudson, is smooth, of a yellowish green, the lower leaves sometimes a little hairy, the awn shorter than the floscules.—Found in pastures, especially in a calcareous soil, in many parts of Europe.

23. Bromus Crista; *Crested Brome-grass.* Spikelets imbricate, in a double row, sessile, depressed.—Native of Siberia and Tartary.

24. Bromus Distachyos; *Two-spiked Brome-grass.* Spikes two, erect, alternate.—Native of the south of Europe, and the Levant: it is an annual plant.

25. Bromus Stipoides. Panicle somewhat erect: peduncles ensiform.—Native of Majorca.

Brooklime. See *Veronica.*

Broom. See *Genista, Spartium,* and *Aspalathus.*

Brosimum; a genus of the class Dicœcia, order Monandria,—Generic Character. *Male. Calix:* ament common, globular, covered on all sides with imbricate, orbicular, peltate, membranaceous, deciduous scales; three larger surrounding the base of the ament; and others smaller, of an irregular shape, between each of which the stamens break out. *Corolla:* none. *Stamina:* filamenta solitary, very short, cylindric; antheræ bilamellate; lamellas orbicular, peltate; lower gaping from the upper, dispersing a globular pollen. *Pistil:* germen at top included in a spongy ament, very small, ovate, abortive; style single, upright, bifid at the tip; stigmas reflex, simple. *Female on a different tree. Calix:* ament like the male. *Corolla:* none. *Pistil:* germen globular, (the scaly body of the ament itself;) style springing from the middle of the germen at top, long, bifid; stigmas simple, sharp, a little reflex. *Pericarp:* berry pedicelled, corticose, spherical, one-celled. *Seeds:* solitary, with a two-lobed kernel, surrounded by a thin membrane, and bipartite. Essential Character. *Male. Ament:* globular, covered all round with orbiculate peltate scales. *Corolla:* none. *Filamenta:* solitary, between the scales. *Female. Ament* as in the male. *Corolla:* none. *Style:* bifid. *Berry:* one-seeded.——The species are,

1. Brosimum Alicastrum. Leaves ovate-lanceolate, perennial; aments globular, pedicelled, solitary, axillary: fruit corticose.—This tree is frequent in the parishes of St. Elizabeth and St. James, in the island of Jamaica; and in both is computed to make up a third part of the woods. The timber is not despicable; but the leaves and younger branches are more useful, and a hearty fattening fodder for all sorts of cattle. The fruit, boiled with salt fish, pork, beef, or pickle, has been frequently the support of the negroes and poorer sort of white people, in times of scarcity, and proved a wholesome and not unpleasant food: when roasted, it eats something like our European Chestnut, and is called *bread-nut.* The leaves and younger shoots are full of gum, which renders them disagreeable to most cattle at first, but they soon grow very fond of them.

2. Brosimum Spurium. Leaves lanceolate, ovate, acuminate; aments pedicelled, ovate, axillary in pairs; fruits soft.—This is pretty common in St. Mary's parish, Jamaica, where it is called *milk-wood.* It rises to a considerable height in the woods, is reckoned among the timber-trees, and is sometimes used as such, though not generally valued.

Brossæa; a genus of the class Pentandria, order Monogynia.—Generic Character.—*Calix:* perianth one-leafed, five-parted; divisions ending in erect points, the length of the corolla. *Corolla:* monopetalous, conic, truncated at the end, entire. *Stamina:* five. *Pistil:* germen pentagonal; style subulate, shorter than the corolla; stigma simple. *Pericarp:* capsule roundish, divided with five furrows, five-celled, covered with a large, converging, fleshy, succulent calix, bursting at the sides. *Seeds:* very many, extremely minute. Essential Character. *Calix:* fleshy. *Corolla:* truncate. *Capsule:* five-celled, many-seeded.——The only known species is,

1. Brossæa Coccinea. Branches alternate; leaves alternate, ovate, serrate, petiolate; flowers few, terminating the branches, alternate. An obscure plant, and the character doubtful.—Native of South America.

Browallia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, short, five-toothed, permament; toothlets a little unequal. *Corolla:* monopetalous, funnel-form; tube cylindric, twice as long as the calix; border flat, equal, five-cleft; divisions rounded, emarginate; the upper somewhat large, constituting the upper lip; the four others equal. *Stamina:* filamenta four, in the throat of the corolla; the two upper shortest; the lower broader, higher coloured, reflex, closing the throat of the corolla. Antheræ simple, bent in, converging; the inner ones twin, the outer opening at the top with a little hole, and closing the throat of the corolla. *Pistil:* germen ovate, retuse; style filiform, the length of the tube of the corolla; stigma thick, four lobed. *Pericarp:* capsule ovate, obtuse, one-celled, covered, bursting into four parts at the top; partition thin, parallel. *Seeds:* numerous, small; receptacle nearly columnar, compressed. Essential Character. *Calix:* five-toothed. *Corolla:* border five-cleft, equal, spreading, with the navel closed. *Antheræ:* two larger. *Capsule:* one-celled.—These plants being

annual, their seeds must be sown every year upon a hot-bed in the spring: and the plants must be brought forward on another, to perfect seeds in England. Some of them may be transplanted, in June, into the borders of the flower-garden; where, if the season prove warm, they will flower, and perfect seeds; but lest these should fail, there should be two or three plants kept in the stove for that purpose.——The species are,

1. Browallia Demissa; *Spreading Browallia.* Peduncles one-flowered. This usually grows about two feet high, and spreads out into lateral branches.—Native of South America, flowering from July till September.

2. Browallia Elata; *Upright Browallia.* Peduncles one-flowered and many-flowered; flowers of a dark blue colour. This also rises about two feet in height.—It is a native of Peru, and flowers from July till September.

Brownea; a genus of the class Monadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, turbinate, unequally bifid, acute. *Corolla:* outer monopetalous, funnel-form; border five-cleft; divisions oblong, concave, obtuse, erect; inner five-petalled. Petals obovate, flat, obtuse, patulous, sitting on the tube of the outer corolla; claws long. *Stamina:* filamenta ten or eleven, subulate, alternately shorter, fastened to the tubes of the outer corolla, united into a cylinder, divided above; antheræ oblong, incumbent. *Pistil:* germen oblong, acute, sitting on a pedicle fastened to the wall of the outer corolla; styles subulate, erect, longer than the corolla; stigma obtuse. *Pericarp:* legume oblong, compressed, narrowed about the partition, two-celled; partition membranaceous. *Seed:* solitary, ovate, compressed, somewhat wrinkled, involved in fungose fibres. Essential Character. *Calix:* unequally bifid. *Corolla:* double; outer five-cleft, inner five-petalled; legume two celled.——The species are,

1. Brownea Coccinea. Flowers disjoined, umbelled. This is a shrub, or small tree, growing to the height of about eighteen feet. The wood is covered by an ash-coloured bark: when in flower, it has a beautiful appearance. The leaves are oval, entire, smooth, opposite, with short foot-stalks; they grow two or three pairs on a spray. The flowers grow about ten together, and are pendulous. The calix is ferruginous, the corollas scarlet, and the stamina yellowish. —Grows on hills and woody places in America.

2. Brownea Rosa. Flowers aggregate in heads, sessile; stamina very long. This is also an American shrub, or small tree, with an ash-coloured bark, and opposite leaves, which are entire, and smooth on both sides. The flowers are borne in a kind of aggregate manner, so as to form heads or bunches of the size of one's fist; they are red, and make a very beautiful appearance. The stamina are extremely long. —It grows principally in hilly situations.

Brucea; so named in honour of the celebrated traveller into Abyssinia, James Bruce, Esq. who first brought the seeds into England,) a genus of the class Dicœcia, order Tetrandria. —Generic Character. *Male. Calix:* perianth four-parted, flat, villose; parts lanceolate, acute, spreading. *Corolla:* petals four, lanceolate, acute, ciliate, spreading, scarcely larger than the calix; nectary, a body placed on the receptacle, flat, four-lobed; lobes obscurely emarginate, opposite to the petals. *Stamina:* filamenta four, upright, short, opposite to the calix, inserted into the receptacle between the lobes of the nectary; antheræ, roundish. *Female. Calix* and *Corolla* as in the male. Nectary, the inner margin of the receptacle thickened, four-lobed; lobes emarginate. *Stamina:* filamenta four, inserted in the receptacle on the outside of the divisions of the nectary, filiform, but thicker towards the tip, sharpish, a little shorter than the petals; without any antheræ. *Pistil:* germina four, superior, ovate, compressed on the inner side; styles subulate, reflex, lying on the germina; stigmas acute. *Pericarps:* four, one-seeded *Seeds:* solitary. Essential Character. *Calix:* four-leaved. *Corolla:* four-petalled. *Female. Pericarps:* four, one-seeded.——The only known species is,

1. Brucea Ferruginea. Mr. Bruce thus imperfectly describes it: leaf pinnate; leaflets oblong, pointed, smooth, and without collateral ribs that are visible; the upper side of a deep green, the reverse very little lighter, opposite, with a single one at the end. The flowers come chiefly from the point of the stalk, on each side of a long branch. According to Mons. L'Heritier, who has described it more completely, it is a shrub of the middling size; stem upright, the bark ash-coloured, becoming yellowish; branches few, alternate, patulous, round, thick, with broad scars from the fallen leaves continuing long on them; shoots angular, with the petioles tomentose, rufous; leaves alternate, spreading, unequally pinnate, consisting of six pairs of opposite lobes, one foot in length; petiole round, thickened at the base, tomentose, rufous; leaflets on short petioles, oblong-ovate, entire, acuminate, veined, villose, somewhat fetid when rubbed; the two lower ones smaller, the upper one on a longer petiolule, three inches long, and one inch broad; the midrib raised on both sides, especially beneath; the veins concentrically retuse towards the edges; spikes of the male flowers solitary, axillary, upright at first, then spreading, finally nodding; peduncled, almost simple, or scarcely compounded of many-flowered very short spikelets, remote at bottom, but gradually approximating towards the top, tomentose, rufous, from six to eight inches in length; the flowers are crowded together, either sessile or on very short pedicels, of an herbaceous colour, tinged with red or russet. The male plant began to flower in the stove of the Paris botanic garden, when it was between two and three feet high, in May and June, 1780 or 1781. The female plant has flowered in the royal garden, at Kew, in April and May.—Native of Abyssinia, where it is known by the name of *Wooginoos.* The root is a specific in the dysentery. It is a plain simple bitter, without an aromatic or resinous taste, leaving in the throat and palate something of roughness resembling ipecacuanha.

Brunella. See *Prunella.*

Brunfelsia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-toothed, obtuse, very small, permanent. *Corolla:* one-petalled, funnel-form; tube very long, slightly curved inwards; border flat, five-cleft, blunt. *Stamina:* filamenta four, very short; antheræ oblong, upright; two a little higher than the others, prominent from the mouth of the tube. *Pistil:* germen roundish, small; style filiform, the length of the tube; stigma thickish. *Pericarp:* capsule berried on the outside, globular, one-celled, two valved. *Seeds:* very many, compressed, convex on one side, angular on the other, rugged with dots. *Receptacle:* fastened to the bottom of the capsule, chaffy; chaffs coadunate, subulate at the tip, separating the seeds. Essential Character. *Calix:* five-toothed, narrow. *Corolla:* with a very long tube. *Capsule:* one-celled, many-seeded, with a very large fleshy conceptacle.—The plants of this genus may be propagated from seeds, which should be sown early in the spring, in pots of light earth, and plunged into a hot-bed of tanner's bark, observing to water the earth as often as you find it necessary. When the plants are come up, they should be transplanted each into a separate small pot, filled with fresh light earth, and plunged into the hot-bed again, observ-

P. 195.

BROMELIA — *Sugar-loaf Pine-apple.*

P. 201.

BRYONIA — *Red-berried White Bryony.*

P. 208.

BUPHTHALMUM — *Sunflower-leaved Ox-Eye.*

P. 210.

BUPLEURUM — *Shrubby Hare's Ear*

ing to water and shade them until they have taken root; after which they must have air admitted to them every day, in proportion to the warmth of the season. When the plants have risen too high to be continued in the frames, they should be removed to the bark-stove, where, during the summer months, they should have a large share of free air; but in winter they must be kept very close; with this management the plants will be very strong, and produce their flowers every season. They may also be increased by planting cuttings in the spring, before they begin to make new shoots, in pots filled with fresh light earth, and plunged into a hot-bed of tanner's bark, observing to water and shade them until they have taken root; after which, they must be managed as has been directed for other tender exotic plants from the same countries.——The species are,

1. Brunfelsia Americana. Leaves elliptic, acuminate, on longer petioles; tube of the corolla erect; border entire.—Fruit green, with a red receptacle. This is a tree, with a smooth and even trunk; growing from ten to fifteen feet in height; native of Jamaica, and most of the sugar islands in the West Indies, where they call it Trumpet-flower.

2. Brunfelsia Undulata. Leaves lanceolate-ovate, drawn to a point at both ends; petioles very short; tube of the corolla curved; border waved.—Native also of Jamaica.

Brunia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth common, roundish, imbricate, many-flowered; leaflets ovate-oblong. Proper five-leaved, inferior; leaflets oblong, villose. *Corolla:* petals five; claws slender; borders roundish, spreading. *Stamina:* filamenta five, capillary, inserted into the claws of the petals; antheræ ovate-oblong. *Pistil:* germen very small, superior; style simple, cylindric; stigma obtuse. *Pericarp* and *Seed:* not ascertained. *Receptacle:* common, hairy. Essential Character. *Flowers*: aggregate. *Filamenta:* inserted into the claws of the petals. *Stigma:* bifid. *Seeds:* solitary, two-celled.——The species are,

1. Brunia Lanuginosa; *Heath-leaved Brunia.* Leaves linear, spreading, callous at the end; stem a foot high, shrubby. Flowers white, borne in heads.—Native of the Cape.

2. Brunia Ciliata; *Ciliate-leaved Brunia.* Leaves ovate, acuminate, ciliate; the germen is superior, and the style bifid.—Native of the Cape.

3. Brunia Verticillata; *Whorled Brunia.* Leaves three-cornered; branchlets in whorls, fastigiate; heads terminating, smooth, small, not globular.—Found at the Cape of Good Hope by Thunberg.

Bryonia; a genus of the class Monœcia, order Syngenesia, (Pentandria, *Smith.*)—Generic Character. *Male Flowers. Calix:* perianth one-leafed, bell-shaped, five-toothed; toothlets subulate. *Corolla:* five-parted, bell-shaped, fastened to the calix; divisions ovate. *Stamina:* filamenta three, very short; antheræ five, two connate on each of two filamenta, and a single one on the third. *Female Flowers. Calix:* perianth as in the males, superior, deciduous. *Corolla:* as in the males. *Pistil:* germen inferior; style trifid, the length of the corolla, expanded; stigmas emarginate, patulous. *Pericarp:* berry subglobular, smooth, and even. *Seeds:* a few, fastened to the coat, subovate. Essential Character. *Calix:* five-toothed. *Corolla:* five-parted. *Male.* Filamenta three. *Female.* Style quadrifid. Berry subglobular, many-seeded.——The species are,

1. Bryonia Alba; *Black-berried White Bryony.* Leaves palmate, callous-scabrous on both sides; flowers monœcous; berries black.—Native of Sweden, Denmark, Carniola, England, and other parts of Europe, in hedges. The root is said to be one of the best diuretics known in medicine: it is an excellent remedy in the gravel, and all other obstructions of urine, and in disorders of the urinary passages in females. For propagation and culture, see the next species.

2. Bryonia Dioica; *Red-berried White Bryony.* Leaves palmate, callous-scabrous on both sides; flowers diœcous; berries red. It is easily distinguished by its prodigious root; its stems climbing by tendrils; leaves resembling those of the vine in shape, not smooth however as they are, but harsh and rugged, and of a paler colour; and by its bunches of small berries, which are red when ripe, and produced on a different plant from the male flowers. It is called in English, Bryony, White Bryony, White Wild Vine, Wild Hops, Wild Nep, and Tetter-berry; in German, *zaunrube, stickwurz;* in Dutch, *witte bryone, wild wyngaard;* in Swedish, *hundrosva;* in Danish, *valskrove, galdebær, hundebær:* in French, *bryone, couleuvrée;* in Italian, *brionia, rite bianca;* in Spanish, *nueza alba.* It is common in the hedges of these countries, and flowers in May with us. Goats alone are said to eat this plant. The roots of Bryony grow to a vast size, and have been formerly, by impostors, brought into a human shape, carried about the country, and shown for Mandrakes to the common people. The method which these knaves practised, was, to open the earth round a young thriving Bryony plant, being careful not to disturb the lower fibres of the root; to fix a mould, such as is used by those who make plaster figures, close to the root, fastening it with wire to keep it in its proper situation; and then to fill in the earth about the root, leaving it to grow to the shape of the mould, which is effected in one summer: see *Atropa Mandragora.* Bryony is a famous hydragogue, and highly purgative, and acrid: a drachm of it in substance, or half an ounce infused in wine, is a full dose; others give two drachms in dropsical cases, and have used half an ounce of the fresh root, or three drachms of it dry, in decoction, without purging: some it purges moderately, others violently, and it frequently becomes diuretic and diaphoretic. A cold infusion of water is used externally in sciatic pains: a cataplasm of it is a most powerful discutient: a decoction, made with one pound of the fresh root, is the best purge for horned cattle. The active virtues of this plant seem to give it a claim to more attention than is now bestowed upon it. Small doses of the juice, given with white wine, promote the menses, and hasten delivery; and in larger doses, it is an excellent medicine in the jaundice, dropsy, and other complaints of a like nature. Made into syrup with honey, and a small quantity of vinegar, it is beneficial in asthmatic complaints: it likewise kills worms in the stomach and intestines, and is good in hysteric cases, but for this purpose it must be given in very small quantities, and the use of it continued for some time.—This, and the first species, or common European Bryony, may be cultivated in a garden for use, by sowing the berries in the spring, on a dry poor soil: in two years' time, the roots will grow to a large size, if the plants be not placed too close together. It may, however, be in general easily procured on dry banks and in hedges, in most parts of England.

3. Bryonia Palmata; *Palmated Bryony.* Leaves palmate, smooth, and even, five-parted; divisions lanceolate, repand-serrate.—Native of Ceylon. This, and the fourth, fifth, sixth, and seventh species, require the protection of the bark-stove, according to the climate they come from. They are also propagated by seeds sown upon a hot-bed: when they are fit to transplant, they should be put into pots filled with light fresh earth, and must have as much air as possible, and may be frequently refreshed with water in dry weather: several of them will endure the open air in the summer season, but in winter they must all be sheltered, and then they

should have very little water: they mostly flower in July, and in favourable summers will perfect their seeds.

4. Bryonia Granadis; *Great-flowered Bryony.* Leaves cordate, angular, smoothish, glandular at the base underneath; stem shrubby; tendrils simple.—Native of India, and Cochin-china. See the preceding species.

5. Bryonia Cordifolia; *Heart-leaved Bryony.* Leaves cordate, oblong, five-lobed, toothed, scabrous; petioles two-toothed.—Native of Ceylon. See the third species.

6. Bryonia Laciniosa; *Laciniated Bryony.* Leaves palmate; divisions lanceolate, serrate; petioles muricate.—Native of Ceylon. See the third species.

7. Bryonia Africana; *African Bryony.* Leaves palmate, five-parted, smooth, and even on both sides; divisions pinnatifid.—Native of the Cape. See the third species.

8. Bryonia Cretica; *Cretan Bryony.* Leaves palmate, callous dotted on the upper surface; root long, running deep, but not so large as the common sort, covered with brown bark.—Native of Crete or Candia, as its name imports. This, and the tenth, fifteenth, and sixteenth species, must be raised on a hot-bed early in the spring, and when the plants are about three inches high, they should be each transplanted into a small pot filled with fresh light earth, and plunged into a hot-bed of tanner's bark, observing to water and shade them until they have taken root. When the plants are grown so large as to ramble about on the surface of the bed, and begin to entangle with other plants, they should be shifted into larger pots, or placed in the bark-stove, where their branches may be trained to the wall, or against an espalier, that they may have sun and air, which is absolutely necessary for their producing fruit. When they are full of fruit, they make a pretty variety in the stove among other exotic plants.

9. Bryonia Scabra; *Rough* or *Globe-fruited Bryony.* Leaves cordate, angled, villose underneath, callous-scabrous on the upper surface; tendrils simple; berries globular; seeds smooth.—Native of the Cape of Good Hope, and flowers in September and October.

10. Bryonia Scabrella; *Roughish* or *Bristly Bryony.* Leaves cordate, angular, and lobed, callous-hispid; tendrils simple; berries globular; seeds muricate; corollas small, yellow.—Native of the East Indies. For its propagation, see the eighth species.

11. Bryonia Japonica; *Japan Bryony.* Leaves cordate, undivided, and angular, toothed, unarmed, hispid. It creeps on walls.—Native of Japan. For its culture and propagation, see the eighth species.

12. Bryonia Latebrosa; *Hairy Bryony.* Leaves subtrilobate, hairy, drawn to a point at the base. This is easily distinguished from the rest, by the leaves not being in the least cordate at the base, but subdecurrent along the petioles.—It is a native of the Canary Islands.

13. Bryonia Verrucosa; *Warted Bryony.* Leaves cordate, angled; the upper surface, and the veins underneath, callous-scabrous, the callosities remote; tendrils simple; berries globular.—It is a native of the Canary Islands.

14. Bryonia Racemosa. Leaves cordate, three-lobed, the upper ones ovate, and somewhat rugged; flowers in racemes; berries nodding, oval.—Native of Jamaica.

15. Bryonia Variegata. Leaves palmate, with lanceolate segments, spotted on the upper, but smooth on the under side; fruit ovate, scattered.—For the propagation and culture of this plant, see the eighth species.

16. Bryonia Bonariensis. Leaves palmate, five-parted, hairy, with obtuse segments. Root and stems like those of the common Briony; the latter the thickness of a quill at bottom and angular, towards the top deeply streaked, dark green.—Native of Buenos Ayres. For the propagation and culture, see the eighth species.

17. Bryonia Hastata. Leaves hastate, toothletted, smooth; peduncles many-flowered; stem herbaceous, slender, scandent, cirrhose; flowers androgynous, white, axillary.—Native of China, about Canton.

18. Bryonia Triloba. Leaves three-lobed, five-nerved; stipules roundish, concave; peduncles one-flowered; stem shrubby, grooved, climbing by trifid tendrils. Native of Cochin-china.

19. Bryonia Cochin-chinensis. Leaves five-cornered, rough, berries three-celled, ten-cornered. It differs from the other Bryonies, but cannot be so well placed in any other genus.—Native of Cochin-china, in hedges.

Bryum; a genus of Moss, distinguished by a capsule covered with a lid, and over that a smooth veil; but these characters it has in common with the *Mnium* and *Hypnum*, two other genera much resembling this. The peculiar note of the Bryum is, that the thread, or little stem supporting the fructification, grows from a tubercle at the ends of the stem and branches. The character of this genus, as given by Hedwig and Schrœber, is as follows:—*Capsule:* ovate, oblong. *Peristeum:* double, outer with sixteen broadish sharp teeth; inner membranaceous, plaited and keeled, jagged; jags broadish, capillary, alternate. *Males:* capitate or discoid, or gemmaceous, on the same or a different plant. Linneus has thirty-seven species; Hudson has forty-five, besides many varieties; Lightfoot has twenty-nine, described particularly, with many good observations; Withering has sixty-five, besides many varieties, well distinguished; Allioni has only twenty-eight species; and Haller enumerates thirty-three. Many of the figures of these Mosses have been given by Curtis, Dillenius, Vaillant, in *Flora Danica*; also by Dickson, Hedwig, &c.

Bubon; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, of about ten rays, the middle ones shorter; partial of fifteen to twenty rays; involucre universal, five-leaved; leaflets lanceolate, acuminate, patulous, equal, much shorter than the umbel, permanent. Partial with rather more leaflets, of the same shape, the length of the umbellule; perianth proper five-toothed, very small, permanent. *Corolla:* universal uniform, all the floscules fertile; proper of five, lanceolate, inflex petals. *Stamina:* filamenta five, simple, the length of the corollule; antheræ simple. *Pistil:* germen ovate, inferior; styles two, setaceous, permanent, hardly the length of the corollule, spreading and reflex; stigmas obtuse. *Pericarp:* none; fruit ovate, striated, villose, bipartite, crowned. *Seeds:* two, ovate, flat on one side, and convex on the other, striated villose. Essential Character. Fruit ovate, striated villose.—These plants make a pretty variety in the green-house in winter, and when they are placed abroad in the summer, with other green-house plants, they have a good effect, especially when they are grown to a large size. They generally flower the third year from seeds, but their flowers are produced so late in summer, that the seeds have seldom time to form before the cold comes on in the autumn.——The species are,

1. Bubon Macedonicum; *Macedonian Parsley.* Leaflets rhomb-ovate, gash-toothed; teeth acuminate, umbels very numerous; seeds rough with hairs.—Native of Greece and Barbary, and probably of the East Indies; it flowers with us in July, or from June to August. In warm countries it is biennial, but in England the plants seldom flower till the third or fourth year from seed; but whenever they flower, they always die. In some parts of the east, this plant is used

to scent clothes; the smell is very strong, and in general disagreeable to Europeans. The plant, but especially the seed, is esteemed to be diuretic, emmenagogue, and carminative; the seeds are an ingredient in Theriaca.—It is propagated by seeds, which should be sown on a bed of light sandy earth, either early in the autumn, or in April; and if the season prove warm and dry, the ground should be shaded in the heat of the day, and frequently refreshed with water, which is a sure method to bring up the plants: but where this is not practised, the seeds often fail, or remain long in the ground. When the plants come up, they will require no other care but to be kept clean from weeds, till the beginning of October, when they should be carefully taken up, and planted in a warm border of dry ground. A few of them should be put into pots, that they may be sheltered under a frame in winter; for in severe frosts, those which are exposed to the open air are frequently killed, though in moderate winters they will live abroad without covering.

2. Bubon Galbanum; *Lovage-leaved Bubon.* Leaflets ovate, wedge form, acute, finely serrated; umbels few: seeds smooth; stem shrubby, glaucous. It rises with an upright stalk to the height of eight or ten feet. It flowers in August, but has not produced seed in England. When any part of the plant is broken, there issues out a little thin milk of a cream colour, which has a strong scent of Galbanum. The drug called Galbanum is obtained from this, partly by spontaneous exudation from the stem, but more commonly by incision in the stalk a little above the root, from which it immediately flows, and soon becomes sufficiently concreted for gathering. This gum-resin, medically considered, may be said to hold a middle place between assafœtida and ammoniacum, but is far less disagreeable than the former. It has the credit of being highly useful in hysterical cases, and of promoting and correcting various secretions and uterine evacuations. Externally, it has been applied to expedite the suppuration of indolent tumors, and especially as a warm stimulating plaster.—It is a native of the Cape of Good Hope; and to propagate it, the seeds should be sown in pots, filled with light loamy earth, as soon as they arrive; if it happen towards autumn, they should be plunged into a bed of tanner's bark, where the heat is gone, and screened from frost in winter. In the spring the plants will come up, and by the middle of April be fit to remove, when they should be gently shaken out of the pots, taking care not to tear off their roots, and replanted each into a separate small pot, filled with the same earth as before; then plunge the pots into the tan again, and water them to settle the earth to the roots of the plants, and shade them from the sun in the day-time, until they have taken new root; after this they must be inured gradually to bear the open air; into which they should be removed in June, and placed with other exotic plants in a sheltered situation, where they may remain till autumn, when they must be removed into the green-house, and placed where they may enjoy as much of the sun and air as possible, but defended from frost. They should have but little water given them in winter, for much wet is very injurious to them: in summer, when they are exposed to the open air, they must be often watered in dry weather; but too much watering must be guarded against, as that will rot their roots.

3. Bubon Gummiferum; *Gum-bearing Bubon.* Leaflets gashed, acuminate, the lower ones broader; seeds smooth; stem shrubby. It rises with a woody stalk about two feet high, with leaves at each joint, branching out like those of the preceding species, but the leaflets are narrow, and indented like those of Bastard Hemlock. The stalk is terminated by a large umbel of small white flowers.—It is a native of the Cape of Good Hope, and must be propagated in the same manner as the preceding species; which see. In hot summers it will perfect its seeds, if it stand in a warm sheltered situation.

4. Bubon Rigidus; *Stiff-leaved Bubon.* Leaflets linear. This is a low perennial plant, having short stiff leaves, which are very narrow. Stem about a foot and a half high, cylindrical, striated, but little branched; flowers yellow, in loose umbels.—Native of Sicily.

5. Bubon Lævigatum; *Smooth Bubon.* Leaflets lanceolate, very obtusely and obscurely crenated; seeds smooth; stem shrubby.—Native of the Cape of Good Hope: it flowers from December to February.

Bubroma; a genus of the class Polyadelphia, order Dodecandria.—Generic Character. *Calix:* perianth three-leaved; leaflets ovate, concave, acute, spreading, deciduous, two a little larger than the rest. *Corolla:* petals five; claws large, narrow at the base, vaulted, helmet-concave, inflex at the tip, beaked, emarginate, converging, inserted into the nectary at the base; borders semibifid, with linear spreading segments; nectary, a bell-shaped pitcher, divided into five, equal, lanceolate-sharp, minute, upright segments, spreading a little at the tip. *Stamina:* filamenta five, filiform, upright, bent outwards at the tip, outwardly fastened to the nectary, alternate with its segments and a little shorter, trifid at the tip; the divisions very short; antheræ, on each filamenta three, two at the tip on each side, the third a little lower, each placed on one of the divisions of the filamenta; the cells margined. *Pistil:* germen superior, roundish, hispid; style filiform, almost the length of the stamina; stigma simple. *Pericarp:* capsule subglobular, woody, muricated all round with club-shaped tubercles, terminated by a five-rayed leafy star, punched with a tenfold row of little transverse dots, five-celled, valveless, not opening; partitions woody, fibrous; cells covered on the inside with a thin membrane. *Seed:* very many, angular, fixed in a double row to a central subglobular receptacle. Essential Character. *Calix:* three-leaved. *Petals:* five, arched, semibifid. *Antheræ:* on each filament three. *Stigma:* simple. *Capsule:* muricate, ending in a five-rayed star, punched with holes, five-celled, valveless, not opening.——The only known species is,

1. Bubroma Guazuma; *Elm-leaved Bubroma*, or *Bastard Cedar.* This tree rises to the height of forty or fifty feet in the West Indies; having a trunk as large as a middling-sized man's body, covered with a dark-brown furrowed bark, sending out many branches towards the top, which spread out wide every way. According to Linneus, this tree sleeps with the leaves hanging quite down, whilst the petioles remain entirely stiff and straight. From its similitude to the Elm, the French call it *orme d'Amerique*, and *bois d'orme*. In Jamaica it is known by the name of *Bastard Cedar*, and is peculiar to the low lands there, forming a very agreeable shade for the cattle, and supplying them with food in dry seasons, when all the herbage is burned up, or exhausted. The seeds are very mucilaginous, but otherwise agreeable to the palate. The wood is light, and so easily wrought, that it is generally used by coach-makers in Jamaica in all the side-pieces. It is also frequently cut into staves for casks. A decoction of the inner bark is very glutinous, and very like that of the Elm; it is said to be excellent in the elephantiasis, a disorder to which the poor negroes are greatly subject. It flowers here in August and September.—To propagate this tree, sow the seed on a good hot-bed in the spring, and when the plants are fit to remove, plant them each in a separate small pot, and plunge them into a hot-bed of tanner's bark, observing to shade them from the sun till they have taken new root; they then should be

treated in the same way as the Coffee-tree, keeping them always in the tan-bed in the stove.

Buchnera; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth, one-leafed, obscurely five-toothed, scabrous, permanent. *Corolla:* monopetalous: tube very long, filiform, bowed; border flat, short, five-cleft, equal; the two upper divisions very short, reflex; the three lower cordate, nearly equal. *Stamina:* filamenta four, very short, in the throat of the corolla; the two upper ones prominent, outward, short; antheræ oblong, obtuse. *Pistil:* germen ovate-oblong; style filiform, the length of the tube; stigma obtuse. *Pericarp:* capsule acuminate, covered, two-celled, gaping at the top into two parts, partition contrary. *Seeds:* numerous, angular. *Receptacle:* fastened to the middle of the partition. Essential Character. *Calix:* obscurely five-toothed. *Corolla:* border five-cleft, equal; lobes cordate. *Capsule:* two-celled.——The species are,

1. Buchnera Americana; *North American Buchnera.* Leaves toothed, lanceolate, three-nerved; stem scarcely branching; flowers in a spike.—This herb grows black in drying. It is hardy, and a native of Virginia and Canada.

2. Buchnera Cernua; *Drooping Buchnera.* Leaves wedged, five-toothed, smooth; flowers spiked; stem shrubby.—Native of the Cape of Good Hope, requiring the protection of the dry stove, conservatory, or glass-case.

3. Buchnera Cuneifolia; *Wedge-leaved Buchnera.* Leaves wedge-form, smooth, seven-toothed at the end.—Native of the Cape of Good Hope; to be propagated in the same way as the other Cape plants.

4. Buchnera Cordifolia; *Heart-leaved Buchnera.* Stem four-cornered; leaves opposite, cordate, three-nerved, serrate; racemes terminal, subspiked.--Native of the East Indies.

5. Buchnera Grandiflora; *Great-flowered Buchnera.* Scabrous; leaves opposite, sessile, oblong, entire; peduncles axillary, one-flowered, two-leaved; calix funnel-form. This is a very beautiful plant, with an upright, smooth, and very simple stem.—It was found in South America by Mutis.

6. Buchnera Æthiopica. Leaves three-toothed; flowers peduncled; stem shrubby; calix somewhat hispid. Corolla yellow.—Native of the Cape of Good Hope.

7. Buchnera Capensis. Leaves toothed, linear; calices pubescent. Native of the Cape of Good Hope.

8. Buchnera Asiatica; *Eastern Buchnera.* Leaves quite entire, linear; calices scabrous. The corolla has a bifid purple border; one of the segments almost upright, and trifid; the other, spreading and widely cordate.—Native of Ceylon and China.

9. Buchnera Pinnatifida; *Pinnatifid-leaved Buchnera.* Leaves pinnatifid, smooth.—Found at the Cape of Good Hope by Thunberg.

10. Buchnera Viscosa; *Clammy Buchnera.* Leaves linear-lanceolate, loosely toothed, somewhat glutinous; flowers peduncled; stem shrubby. The flowers are purple, with a yellow eye. It does not boast much beauty, but nevertheless occupies little room, and flowers during most of the summer.—Found at the Cape of Good Hope.

11. Buchnera Elongata. Leaves entire, opposite; calices somewhat hairy, longer than the fruit.—Native of South America and Jamaica. It must be kept in the bark-stove, if cultivated in England.

Bucida; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-form, obscurely five-toothed, superior, permanent. *Corolla:* none. *Stamina:* filamenta ten, capillary, inserted into the base of the calix, and longer than it; antheræ cordate, erect. *Pistil:* germen inferior, ovate; style filiform the length of the stamina; stigma obtuse. *Pericarp:* berry dry, ovate, one celled, crowned with the calix. *Seed:* one, ovate. Essential Character. *Calix:* five-toothed, superior. *Corolla:* none. *Berry:* one-seeded.——The only known species is,

1. Bucida Buceras; *Olive Bark Tree.* Brown observes, that this tree is remarkable for its slender crooked branches, and the tufted disposition of the leaves; that it grows to a considerable size, twenty to thirty feet in height, and one in diameter; is reckoned an excellent timber tree, and the bark is greatly esteemed by the tanners. It is a native of the West Indies, in low swampey clayey lands near the coast, flowering in spring: in Jamaica it is called *Black Olive*; in Antigua, *French Oak*; and in the French islands, *Grignon.*

Buckbean. See *Menyanthes.*

Buckler Mustard. See *Biscutella* and *Clypeola.*

Buckthorn. See *Rhamnus.*

Buckwheat. See *Polygonum.*

Budding. See *Inoculating.*

Buddlea; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth very small, four-cleft, acute, erect, permanent. *Corolla:* monopetalous, bell-form, four cleft half way, erect, three times greater than the calix; divisions ovate, straight, acute. *Stamina:* filamenta four, very short, placed at the divisions of the corolla; antheræ very short, simple. *Pistil:* germen ovate, style simple, shorter by half than the corolla; stigma obtuse. *Pericarp:* capsule ovate, oblong, two-furrowed, two-celled. *Seeds:* numerous, extremely minute, adhering to a fungous receptacle. Essential Character. *Calix:* four-cleft. *Corolla:* four-cleft. *Stamina:* from the divisions. *Capsule:* two-furrowed, two-celled, many-seeded.——The species are,

1. Buddlea Americana; *Long-spiked Buddlea.* This is a shrub, about the height of a man, branched, and all over hoary; the leaves ovate, lanceolate, opposite, serrate; the flowers in long slender spikes, axillary and terminating.—Native of the West Indies. Brown informs us, that it is used in emollient baths and fomentations, and is thought to have all the properties of the Mullein.—It is propagated by seeds, which should be brought over in their capsules or pods; for those which are taken out before they are sent, seldom grow. They must be sown in small pots filled with light rich earth, and very lightly covered; for as these seeds are very small, if they are buried deep, they perish. The pots should be plunged into a moderate hot-bed, and every third or fourth day must be gently watered, being very careful not to wash the seeds out of the ground by too hastily watering them. If the seeds be fresh and good, the plants will come up in about six weeks, provided they are sown in the spring; and if they grow kindly, will be large enough to transplant in four months after; they then should be carefully separated, and each planted into a small pot filled with light rich earth, and plunged into the hot-bed again, observing to shade them from the sun until they have taken new root, as also to refresh them with water when they require it. After the plants have again struck root in these pots, there should be fresh air admitted to them every day, in proportion to the warmth of the season; they must also be frequently but moderately refreshed with water. If the plants thrive well, they will have filled these small pots with their roots by the middle of August, at which time it will be proper to shift them into pots one size larger, that they may have time to take good root again before the cold weather comes on. When these are potted, the tan should be turned over, to

renew the heat; and if it is wanted, some fresh tan must be added to the bed, to encourage the roots of the plants. In this bed they may remain, till autumn, when they must be removed into the stove, and plunged into the tan-bed, where they must constantly remain, for they are too tender to thrive in this country if they are not so treated. During the winter they must have but little water, and should be kept warm; but in summer they should have fresh air admitted to them constantly when the weather is warm, and frequently sprinkled all over with water: with this management the plants will flower the fourth year from seeds, and continue to do so every year after, and will make a good appearance in the stove.

2. Buddlea Occidentalis; *Spear-leaved Buddlea.* Leaves lanceolate. This sort rises much taller than the first, and divides into a great number of branches, covered with a russet hairy bark.—Grows naturally in gullies, or other low sheltered spots, in the West Indies, the branches, being too tender to resist the force of strong winds, are rarely seen in open situations. For its culture, see the first species.

3. Buddlea Virgata. Leaves linear, oblong, obtuse, entire; racemes terminal; branches wand-like, erect; branches and leaves hoary with a fine down. This has the habit of Hyssop.—Native of the Cape of Good Hope.

4. Buddlea Incompta. Leaves fascicled, ovate, hoary; branches flexuose, rigid; racemes terminal.—Native of the Cape of Good Hope.

5. Buddlea Globosa; *Round-headed Buddlea.* Leaves lanceolate; heads solitary. A branched evergreen shrub, eight to ten feet high.—Native of Chili; flowering in May and June. This, and the sixth species, may be propagated by cuttings, on an old hot-bed, in July, covered with a bell or hand glass, and shaded from the sun; in a month they will have taken root, and may then be planted in pots, placed in the shade, till they have taken fresh root, when they should be removed to a sheltered situation till the winter; and then they must be preserved in the conservatory or dry stove. The fifth will flower well, and live through a mild winter in an open border, provided it be in a warm sheltered situation.

6. Buddlea Salvifolia; *Sage-leaved Buddlea.* Leaves lanceolate, ovate, cordate, wrinkled. A shrub, five or six feet high, with tomentose four-cornered branches.—Native of the Cape, flowering in August and September. See the fifth species.

7. Buddlea Asiatica. Leaves lanceolate-linear wrinkled smooth; spikes full; stem suffruticose, three feet high.—Native of Cochin-china.

8. Buddlea Ternata. Leaves ternate, acuminate; peduncles one-flowered; stem suffruticose, two feet high, upright, round, branched.—Native of Cochin-china.

Buffonia; a genus of the class Tetrandria, order Digynia.—Generic Character. *Calix:* perianth four-leaved, erect, permanent; leaflets subulate, keeled, with membranaceous edges. *Corolla:* petals four, oval, emarginate, erect, equal, shorter than the calix. *Stamina:* filamenta four, equal, the length of the germen; antheræ twin. *Pistil:* germen ovate, compressed; styles two, the length of the stamina; stigmas simple. *Pericarp:* capsule oval, compressed, one-celled, two-valved. *Seeds:* two, oval, compressed, with a swelling, convex on one side. Essen. Char. *Calix:* four-leaved. *Corolla:* four-petalled. *Capsule:* one-celled, two-seeded.——The only species is,

1. Buffonia Tenuifolia; *Small Buffonia,* or *Bastard Chickweed.* Root annual, long, slender, firmly fixed, but having few, almost naked, filiform fibres; stem half a foot to a foot in height, upright, round, commonly branched at the base; branches diffused, procumbent; there are also smaller branches higher up, which are straight, contracted, subdivided; the swelling joints more frequent at bottom, and become very distant towards the top; the internodes are round, where there are no branches, but somewhat angular about the origin of the branches, which are ancipital at the base: they are smooth, and slightly streaked.—Ray first noticed this little plant in England: he also found it near Montpellier. It is found wild in France, Italy, and Spain, and was observed by Mr. Ray on the sea-coast of Lincolnshire, about Boston, and by Mr. Doody on Hounslow Heath. It flowers in May and June.

Bugle. See *Ajuga.*

Bugloss, Buglossa, and *Buglossum.* See *Anchusa, Asperugo, Borago, Lythospermum, Lycopsis.*

Bugloss, Viper's. See *Echium.*

Bulbocodium; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* hexapetalous, funnel-form; claws very long, linear; throat connecting the petals; border erect; petals lanceolate, concave. *Stamina:* filamenta six, subulate, inserted into the claws of the petals; antheræ incumbent. *Pistil:* germen ovate subulate, obtusely three-cornered, superior; style filiform, the length of the stamina; stigmas three, oblong, erect, channelled. *Pericarp:* capsule triangular, acuminate; angles obscure, three-celled. *Seeds:* numerous. Essen. Char. *Corolla:* funnel-form, hexapetalous, with narrow claws bearing the stamina. *Capsule:* inferior.——The only known species is,

1. Bulbocodium Vernum; *Spring-flowering Bulbocodium.* Leaves lanceolate. The bulb or hybernacle, commonly called the root, resembles that of the common *Colchicum* in shape, but is much smaller: it is covered with a dark brown skin. Some time in January, or not later than the middle of February, according to the season, the flower springs up, inclosed within three brownish green leaves, which, opening themselves almost as soon as they are out of the ground, show their buds for flowers within them very white oftentimes before they open far, and also purplish at first appearing. There is frequently only one flower, but never more than two flowers, on a root; they never rise above the leaves, nor the leaves much higher than they, whilst they last; they are smaller than the flowers of Colchicum, and are at first of a pale red or deep blue colour, but afterwards change to a bright purple, and continue long in beauty, if the weather be not severe. After the flowers are past, the leaves grow to the length of a man's longest finger, and in the middle of them rises up the seed-vessel, which is smaller, shorter, and harder than that of Colchicum, and contains many small round brown seeds.—It is a native of Spain, and also of mountainous situations in Russia. At present it is a rare plant among us, the bulbs not admitting of much increase, and being liable to damage from frost. It is propagated by offsets, like other bulbous-rooted flowers. The time to remove them, is soon after the leaves decay, but the roots may be kept out of the ground two months without prejudice at that season: they should not be removed oftener than every third year, for the roots do not multiply very fast; by suffering them, therefore, to remain, they will flower much stronger, and make a greater increase, than if they are often taken up. It should have a warm situation, and may be planted in a south border, in a fresh loamy soil but not dunged. It may also be propagated by seeds, which should be sown in pots filled with fresh loamy earth, in September; and the latter end of October the pots should be placed under a frame, to protect them from severe frost; in the spring the plants will appear, when they may be removed out of the frame, and placed where they may have the morning sun, but screened from the south. In very

dry weather, they should be refreshed now and then with a little water, while their leaves continue green; but when these decay, the pots should be removed to a shady situation, where they may remain till autumn, observing to keep them clean from weeds. In October, there should be a little fresh earth laid on the surface of the other, and the pots placed in shelter again till the following spring, when they must be treated in the same manner as in the former year until their leaves decay; then the roots should be carefully taken up, and transplanted into the borders of the flower-garden, treating them as the old roots, and in the spring following they will produce their flowers.

Bulrush. See *Scirpus.*

Bumalda; a genus of the class Pentandria, order Digynia. —GENERIC CHARACTER. *Calix:* perianth one-leafed, five-parted almost to the base; divisions ovate, obtuse, concave, a little shorter than the corolla. *Corolla:* five-petalled, petals linear-obovate, inserted into the germen. *Stamina:* filamenta five, inserted into the claws of the petals, filiform, erect, rough with hairs, almost the length of the corolla; antheræ inserted into the back, ovate, twin. *Pistil:* germen superior, conic, villose; styles two, erect, villose, the length of the filamenta; stigmas simple, headed, truncate. *Pericarp:* seems to be a two-celled capsule. *Seeds:* not ascertained. ESSENTIAL CHARACTER. *Corolla:* five-petalled. *Styles:* villose; capsule two-celled, two-beaked.——The only known species is,

1. Bumalda Trifolia. Stem shrubby; branches close, in all parts smooth, obscurely angular, jointed, purple; divisions opposite, filiform, much spreading, leafy; leaves opposite, petioled, ternate; leaves ovate, acuminate, finely serrate, pale underneath, on very short capillary petioles, spreading very much, or reflex; flowers terminating the branches in racemes, on capillary peduncles.—Native of Japan.

Bumelia; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets roundish-ovate, incumbent, concave. *Corolla:* one-petalled, five-cleft, or five-parted; tube very short, round; border five-parted; parts ovate, entire, spreading, concave, with two little scales at the base of each; nectary five-leaved; segments smaller than the corolla, at the base of the filamenta, surrounding the germen, acute. *Stamina:* filamenta five, inserted into the corolla, at the bottom of the tube, between the lower segments, the length of the tube; antheræ ovate, erect. *Pistil:* germen superior, ovate; style thick, erect, shorter than the stamina; stigma obtuse. *Pericarp:* drupe oval. *Seed:* kernel single, oblong, smooth, with a lateral scar. ESSENTIAL CHARACTER. *Corolla:* five-cleft, with a five-leaved nectary. *Drupe:* one-seeded.——The species are,

1. Bumelia Nigra; *Bastard Bully-tree.* Branches wand-like, spreading; leaves terminating, oblong-lanceolate, smooth, waved about the edge; branchlets flower-bearing; fruit small, smooth.—Native of Jamaica.

2. Bumelia Pallida; *Pale Bumelia.* Branches upright; leaves terminating, elliptic, obtuse; flowers crowded, lateral.—Native of Jamaica.

3. Bumelia Retusa; *Mountain Bastard Bully-tree.* Leaves opposite, wedge-ovate, obtuse, rigid; flowers crowded, axillary; fruit small, smooth.—Native of the West Indies.

4. Bumelia Montana; *Mountain Bumelia.* Leaves scattered, alternate, oblong, obtuse; flowers axillary, peduncled. —Native of Jamaica.

5. Bumelia Salicifolia; *Willow-leaved Bumelia.* Leaves lanceolate-ovate, acuminate; flowers crowded, axillary, and lateral. See *Achras Salicifolia.*

6. Bumelia Rotundifolia; *Round-leaved Bumelia.* Leaves suborbiculate, margined, veined, coriaceous, smooth on both sides.—Native of the West Indies.

7. Bumelia Pentagona; *Pentagon-fruited Bumelia.* Leaves lanceolate, acuminate, shining; flowers axillary; drupes five-cornered.—Native of the island of St. Vincent.

Bunias; a genus of the class Tetradynamia, order Siliquosa.—GENERIC CHARACTER. *Calix:* perianth four-leaved; leaflets ovate-oblong, spreading deciduous. *Corolla:* tetrapetalous, cruciform; petals obovate, twice as long as the calix; claws attenuated, erect. *Stamina:* filamenta six, the length of the calix; of which two opposite a little shorter. Antheræ erect, bifid at the base. *Pistil:* germen oblong; style none; stigma obtuse. *Pericarp:* silicle irregular, ovate-oblong, four-sided, the angles with an acumen or two, not bursting, deciduous. *Seeds:* few, one under each acumen of the silicle, roundish. ESSENTIAL CHARACTER. *Silicle:* deciduous, four-sided, muricated with unequal acuminate angles.—These plants are all propagated by seed, to be sown where they are designed to remain, either in April or in autumn. When the plants come up, they should be thinned to the distance of one foot from each other; and after that they will require no other care, but to keep them clean from weeds. They are all hardy enough to flower in the open air, but some of them will scarcely perfect their seeds unless they be sown in the autumn.——The species are,

1. Bunias Cornuta; *Horned Bunias.* Silicles divaricate, two-horned, spiny at the base. This is a very singular plant: it has a silicle transversely oval, finishing on each side in a horn, or very long and strong spine, so that the silicle resembles a pair of horns; in the middle of the silicle are four small spines, directed different ways.—Native of the Levant and Siberia.

2. Bunias Spinosa; *Thorny Bunias.* Raceme spinescent. This is an annual plant. Stems a foot high, upright, branching, subdivided, round, rushy, very smooth and even, green; leaves ovate-oblong, blunt, petioled.—Native of the Levant.

3. Bunias Erucago; *Prickly-podded Bunias.* Silicles four-cornered; angles two-crested. This is also an annual plant, sending out many branches, which spread, and incline towards the ground. The leaves are glaucous, and deeply divided into many segments, almost like those of Swine's cress. The flowers are produced singly from the axils of the leaves, towards the extremity of the branches, they are small, and of a pale yellowish colour.—Native of the south of France, Switzerland, Austria, and Italy.

4. Bunias Orientalis; *Oriental Bunias.* Silicles ovate, gibbose, warted; root perennial, with an annual stalk.—It grows naturally in the Levant, and flowers from May to July.

5. Bunias Cochlearioides; *Scurvy-grass Bunias.* Silicles cordate-ovate, even, inflected. It is about two feet high; the root slender, and fibrose at the sides. The corolla is white and veiny.—Found in low meadows near the river Jaik.

6. Bunias Cakile; *Sea Rocket.* Silicles ovate, even, ancipital. It is a smooth, annual, glaucous plant, with a saltish taste; root slender, woody, running deep into the sand; stem woody, about a foot high, with widely divaricating branches; leaves oblong-wedge-shaped, deeply cut, thick and succulent; flowers in short spikes or clusters, pale red, or purple; pods short, but large and fleshy, two-celled, with one or two roundish seeds in each.—It is a native of the sea-coast, in many parts of Europe, and North America: with us, on the coast of Norfolk, Suffolk, Scotland, and Ireland, in deep sand, frequently near high-water mark: flowering in June and July.

7. Bunias Myagroides; *Myagrum-like Bunias.* Silicles two-jointed, ancipital, torulose above; leaves pinnate, with

reflected sinuses; root annual; stem straight, two feet high, even, irregularly branched; racemes terminal, long, straight; flowers subsessile; calix oblong, closed; petals quite entire, pale purple, antheræ yellow; style ensiform.—Native of Siberia.

8. Bunias Ægyptiaca; *Egyptian Bunias.* Silicles four-cornered, wart-muricate on every side; leaves runcinate; root annual; stem a foot high, hispid at bottom, smooth at the top; flowers pedicelled; calix yellowish.—Native of Egypt. Flowering in August.

9. Bunias Balearica: *Minorca Bunias.* Silicles hispid; leaves pinnate; leaflets slightly toothed; root annual; stem a foot high, very much branched, spreading, angular, even; corolla yellow; petals oblong, obtuse, the length of the calix.—Native of Majorca and Minorca.

Bunium; a genus of the class Pentandria, order Digynia. —Generic Character. *Calix*: umbel universal, manifold, with rays fewer than twenty; partial, very short, crowded; involucre universal, many-leaved, linear, short; partial setaceous, the length of the umbellule; perianth proper scarcely apparent. *Corolla:* universal uniform; floscules all fertile; proper of five, inflex cordate, equal petals. *Stamina:* filamenta five, shorter than the corolla, simple; antheræ simple. *Pistil:* germen oblong, inferior; styles two, reflex; stigmas obtuse. *Pericarp:* none; fruit ovate, bipartite. *Seeds:* two, ovate, convex on one side, flat on the other. Essential Character. *Corolla:* uniform; umbel crowded; fruits ovate.——The only known species is,

1. Bunium Bulbocastanum; *Earth Nut*, or *Pig Nut.* Root perennial, tuberous, on the outside of a Chestnut colour, within white, solid, putting forth slender fibres from the sides and bottom, of an agreeable sweetish taste, lying deep in the ground; stem from one to two feet high, upright, round, stiffish, the thickness of a crow-quill, slightly striated, smooth throughout of a green colour and branched; radical leaves on long petioles; stem leaves sessile, all very finely divided, deep green, the folioles edged with prickly hairs, visible only by a glass; sheath short, grooved, smooth, the edge membranous and whitish; umbels several; universal rays from seven to twelve; partial about twelve; universal and partial involucre, often wanting; filamenta longer than the corolla, deciduous; styles white, nearly upright; seeds oblong-ovate, smooth, and somewhat aromatic. The root commonly grows four or five inches deep in the earth.—This plant has several names in English besides the two given above: as, Kipper-nut, Hawk-nut, Jur-nut or Yer-nut, Earth chestnut, and Ground-nut. In German, it is called *erdnuss*; in Dutch, *aardnoot*; in Swedish, *jordnot*; in Danish, *jordolden*; in French, *suron, terre-noix*; in Italian, *castagna di terra*; in Spanish, *castano di tierra*; in Portuguese, *castanha de terra.* In England it grows on heaths, in pastures, woods, and among bushes, in a gravelly or sandy soil. Foreign authors, as Haller, Pollich, &c. say, that it grows among corn. It flowers in May and June. The roots are frequently dug up, and are eaten raw by the poorer sort of people. Swine are very fond of them, and will soon become fat by feeding upon them. When boiled, they are very pleasant and delicious, and are supposed to afford great nourishment. They are said to be thus prepared and eaten in Holland, in the Alps, and in some parts of England, in soup or broth. Roasted, they are little inferior to Chestnuts, and might be no disagreeable addition to our winter deserts. The knobbed root, and finely divided leaves, so distinguish this plant from all the poisonous species of the umbellate tribe, that it can hardly be mistaken, especially if the place of growth be attended to. *Oenanthe fistulosa*, indeed, when thrown out on ditch-banks, or cultivated in a garden, has roots so much resembling those of *Bunium*, that it may deceive even good judges: but this is a water plant, and it ought to be remembered, that all aquatics of this tribe are of a suspicious character.

Buphthalmum; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix*: common, various in the different species, imbricate. *Corolla:* compound radiated; corollules hermaphrodite, numerous, forming a flat disk; females more than ten in the ray: proper of the hermaphrodite funnel form, with a five-cleft patulous border: of the female, ligulate, longer, spreading, three-toothed. *Stamina:* of the hermaphrodite, filamenta five, capillary, very short; antheræ tubular, cylindric. *Pistil:* of the hermaphrodite; germen ovate, compressed; style filiform, the length of the stamina stigma thickish, either simple or bifid: of the female, germen, ancipital; style filiform, of the same length as in the hermaphrodite; stigmas two, oblong. *Pericarp:* none; calix unchanged. *Seeds:* of the hermaphrodite solitary, oblong, crowned with a gashed manifold edge: of the females, solitary, compressed, with each edge cutting, crowned like the others. *Receptacle*: chaffy, convex. Essential Character.—Stigma of the hermaphrodite, floscules undivided. *Seeds:* the sides, especially in the ray, edged. *Down*: an obscure edge. *Receptacle*: chaffy.——The species are,

† *Asterisci of Tournefort.*

1. Buphthalmum Frutescens; *Shrubby Ox-eye.* Leaves opposite, lanceolate; petioles two-toothed, stem shrubby. It rises with several woody stems from the root, and grows to the height of eight or ten feet, furnished with leaves very unequal in size, some of which are narrow and long, others are broad and obtuse; these are intermixed, sometimes coming out at the same joint, and often at the intermediate one; they are soft, hoary, and placed opposite. The footstalks of the larger leaves have, on their upper side, near their base, two sharp teeth standing upwards, and a little higher there are generally two or three more, growing on the edge of the leaves. The flowers are produced at the end of the branches, single; these are of a pale yellow colour, and have scaly calices.—It grows naturally in America; and is also a native of Jamaica, where it grows only near the sea-side, in a bushy tufted form, seldom rising above two or three feet in height.—Neither this, nor the second species, will perfect their seeds in this country; they are therefore propagated by cuttings. They should be planted in July, when the plants have been for some time exposed to the open air, whereby their shoots will be hardened, and better prepared to keep root than when they first come abroad. The cuttings should be planted in small pots filled with light loamy earth, and plunged into a very gentle warmth, observing to shade them from the sun in the heat of the day, and gently refresh them with water; but it must be given to them sparingly, for much wet will rot them. In about six weeks these will have taken root, when they must be gradually inured to bear the open air; and soon after they should be each planted in a separate small pot, filled with light loamy earth, and placed in the shade until they have taken fresh root; after which they may be removed to a sheltered situation, where they may remain until the middle of October, when they must be removed into the green-house. The first species being harder than the other, may be placed in a common green-house, but the other will thrive better in a warm glass-case, where it will receive more sun, and have a dryer air. During the winter, they should have but little moisture, and in very mild weather should have fresh air admitted to them. In the summer they must be placed abroad in a sheltered situation, and treated in the same manner as other exotic plants.

2. Buphthalmum Arborescens; *Tree Ox-eye.* Leaves opposite, lanceolate, tomentose on both sides, toothless, quite entire; stem shrubby. This seldom grows more than three feet high, sending out many succulent stalks from the root. The flowers are produced at the end of the branches upon footstalks two inches long, and are larger than those of the first species, and of a bright yellow colour. They appear in July, August, and September, but often continue till the end of October.—Native of the Bermudas. For its propagation and culture, see the first species.

3. Buphthalmum Sericeum; *Silky Ox-eye.* Leaves scattered, wedge-shaped, acute, quite entire, villose-silky; branches thick, woody, covered with scars left by the falling leaves; flowers terminating, large and yellow.—Found in Fuertaventura, one of the Canary Islands; flowering from May to July.

4. Buphthalmum Spinosum; *Prickly Ox-eye.* Calices acutely leafy; leaves alternate, lanceolate, stem-clasping, quite entire. This is an annual plant. The ray of the corolla is manifold, and very slender; it is of a bright yellow colour; the disk is of a gold colour. The flowers appear from June to August, and the seeds ripen in September.—It is a native of the south of France, Spain, and Italy, on the borders of fields, and on ditch-banks. The leaves were formerly used in medicine. In Arragon it is called *cevadilla*, from its quality of exciting sneezing.—The seeds of this, and of the fifth species, should be sown in the beginning of April, on open borders, where they are to remain, and will require no other care but to keep them clear of weeds, and thin them to the distance of a foot and a half, that their branches may have room to spread. If the seeds be sown in the autumn, or be permitted to scatter when ripe, the plants will come up soon after, and these will more certainly ripen than the spring plants.

5. Buphthalmum Aquaticum; *Sweet-scented Ox-eye.* Calices obtusely leafy, sessile, axillary; leaves alternate, oblong, obtuse; stem herbaceous. This is also an annual; seldom growing more than a foot high in gardens, and, where it is wild, not so high: it sends out many alternate spreading branches near the root; the leaves are hairy and sessile; the flowers, which are sessile in the forks of the stem, have an agreeable odour.—Native of the south of Europe. It flowers in July and August. For the mode of propagating it, see the fourth species.

6. Buphthalmum Maritimum; *Sea Ox-eye.* Calices obtusely leafy, peduncled; leaves alternate, spatulate; stem herbaceous. This is a low perennial plant, with a shrubby stalk, rarely rising a foot high, with many spreading branches; leaves hairy, narrow at their base, but broad and roundish at the extremity; flowers yellow. Native of Sicily, flowering from July to September.—This plant seldom produces seed in England, but is easily propagated by slips during the summer season; if the cuttings are planted in a bed of fresh loamy earth, and covered with a hand-glass, observing to shade them from the sun in the heat of the day, and frequently refreshed with water, they will take root in about six weeks, when they should be carefully taken up, and each planted with a separate small pot filled with fresh undunged earth, and placed in a shady situation till they have taken fresh root; after which they may be removed to a sheltered situation until the end of October, when they must be placed under a frame for the winter season; but as they only require protection from hard frost, they will thrive better when they have a great share of air in mild weather, than if confined in the greenhouse; therefore the best method is to place them in a common frame, where they may be fully exposed in mild weather, but screened from the frost.

7. Buphthalmum Durum. Leaves alternate, lanceolate, quite entire; stem undershrubby; flowers terminal, solitary.—Native of the Cape of Good Hope.

† *Asteroidea of Tournefort.*

8. Buphthalmum Salicifolium; *Willow-leaved Ox-eye.* Leaves alternate, lanceolate, subserrate, villose, calices naked; stem herbaceous. The root is perennial; the stem upright, round, a foot or eighteen inches in height, with upright one-flowered branches. It is thought to be the yellow *Aster* of the Italians, the juice of which, when applied to the wounds which a dog had received from the bites of a viper, enabled him to bear them without injury.—Native of Italy, the south of France, Switzerland, Austria, and Carniola. It flowers from June to October.—This, as well as the ninth and eleventh species, may be propagated by parting the roots towards the end of October, when the stalks begin to decay. Those of the eleventh should be removed every other year, to prevent their spreading too far. It is hardy, and will thrive in any situation, but as the roots are apt to extend, it is not proper for the borders of small flower-gardens; but in large borders, on the sides of rural walks, or in spaces between shrubs, it will be ornamental during the season of flowering.

9. Buphthalmum Grandiflorum; *Great-flowered Ox-eye.* Leaves alternate, lanceolate, subdenticulate, smooth; calices naked; stem herbaceous. This is also perennial, with an annual stalk: it grows near two feet high, with slender branching stalks, and oblong smooth leaves ending in a point; the flowers are produced at the extremity of the branches, and are of a bright yellow colour. It flowers in June and July, and the seeds ripen in autumn.—It is a native of Italy, Austria, and the south of France. There are two or three varieties, differing in the breadth of their leaves, and the size of their flowers, but they are all produced from the same seeds. For its propagation and culture, see the eighth species.

10. Buphthalmum Speciosissimum. Leaves alternate, stem-clasping, ovate, naked, serrate, subciliate; stem one-flowered; root fusiform, resembling a tuberous one. It grows wild in the mountains about Brixen in the Tyrol, and is perennial. The leaves of this, and those of the ninth species, have a taste somewhat like those of Tea, and may be used instead of them.

11. Buphthalmum Helianthoides; *Sunflower-leaved Ox-eye.* Leaves opposite, ovate, serrate, triply-nerved; calices leafy; stem herbaceous. This is a perennial plant, a fathom in height; root branched, whitish, fragrant.—It is a native of North America, and is said to be found wild every where between the tropics. It flowers from July till October.

12. Buphthalmum Oleraceum. Calicine leaflets acute, connected laterally; leaves opposite, lanceolate, curved back; stem herbaceous, two feet high, upright, round, whitish, smooth, branched; leaves linear, lanceolate, unequally toothed, smooth, juicy, thick, ash-coloured; flower large, solitary; calix hemispherical, with sharp leaflets, connected by a lateral membrane; disk of the corolla flat, with yellow florets; ray wide, spreading, with many white trifid florets; receptacle flattish, with very small chaffs; crown of the seeds margined; the stigma in the hermaphrodite flowers is simple.—It is an odorous plant, cultivated as a potherb in the gardens of China and Cochin-china.

Bupleurum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix*: umbel universal, with fewer than ten rays; partial with scarcely ten rays, erect-expanding; involucre universal, many-leaved; partial five-leaved, larger; leaflets expanding, ovate, acute. *Perianth proper*: obscure. *Corolla*: universal uniform; floscules all

fertile; proper, of five involuted, entire, very short petals. *Stamina:* filamenta five, simple; antheræ roundish. *Pistil:* germen inferior; styles two, reflected, small: stigmas very small. *Pericarp:* none; fruit roundish, compressed, striated, splitting in two. *Seeds:* two, ovate-oblong, convex and striated on one side, flat on the other. ESSENTIAL CHARACTER. *Involucres* of the umbellule larger, five-leaved. *Petals:* involuted. *Fruit:* roundish, compressed, striated. —The Bupleurums in general are cultivated only in botanic gardens. The seeds should be sown in Autumn, wherever the plants are designed to remain, for they do not bear transplanting well. To keep them clean from weeds, is all the culture they require.——The species are,

* *Herbaceous.*

1. Bupleurum Rotundifolium; *Common Thorough-wax.* Universal involucres, none; leaves, or rather stem, perfoliate; root annual, small, and fibrous; stem a foot high, upright, round, and alternately branched; leaves smooth, bluish-green, alternate, ovate, quite entire. Our common or round-leaved Hare's-ear, is known in England by the name of *Thorough-wax,* from the singular circumstance of the stalk waxing or growing *through* the leaf; which alone may serve to distinguish this plant, it being the only one, (as Ray observes,) among our indigenous herbs, which has a simple leaf perforated by the stem. Every part of the plant is remarkably hard and rigid, and has a slightly aromatic smell. It had the reputation formerly of being a vulnerary herb; but this is a quality which no medicine can have, any otherwise than as a tonic, strengthening the constitution; nor can any external application be specifically healing or consolidating, or be useful in any other way, except as a defence from the air. Country people make use of the leaves externally, against wounds and bruises; and the seeds inwardly, to prevent the bad effect of inward hurts. Culpeper says, the decoction of the herb, or powder of the dried herb, taken inwardly, and the same or the leaves bruised, and applied outwardly, is singularly good for all ruptures and burstings, especially in children before they be too old.—Native of most parts of Europe, from Britain southward, as a weed among corn. With us it is not very common. It has, however, been found near Lewisham and Dartford, between Queenhithe and Stone in Kent, and Harefield in Middlesex. It appears in tolerable plenty in several fields in Cambridgeshire, and was observed near Feversham by Mr. Ray, nearly a century and a half ago. Since that time, it has been remarked on the lower road to Gogmagog-hills, by Linton, and near Kingston wood. Mr. Crow has found it near Marham in Norfolk; Mr. Woodward at Carlby, between Stamford and Bourn in Lincolnshire. It is plentiful in many parts of Kent; and between Farningham and Ainsford, it grows in great quantity in the corn-fields. Dr. John Sibthorp marks it as growing about South Leigh and Middleton Stoney in Oxfordshire. It grows near Epsom, Sutton, and Leatherhead, in Surry. It has been noticed in the neighbourhood of Leeds in Yorkshire, but always among Beans. A dry calcareous soil suits it best. Martyn says, he has never observed it except among wheat. It flowers in June and July.

2. Bupleurum Stellatum; *Starry Hare's Ear.* Involucels united; universal involucre three-leaved; root perennial; stem a foot or eighteen inches high.—Native of the alps of Switzerland, and Dauphiny. It flowers from May to July.

3. Bupleurum Petræum; *Rock Hare's Ear.* Involucels united; universal involucre five-leaved; root perennial; root-leaves very numerous, long, narrow, and tender, like those of the most delicate grasses, spreading on the ground. It is a native of Switzerland, Monte Baldo, and the South of France; and flowers from May to July.

4. Bupleurum Angulosum; *Angular-leaved Hare's Ear.* Involucels five-leaved, orbiculate; universal involucre three-leaved, ovate; leaves stem-clasping, cordate, lanceolate.—This sort is large, being eighteen inches high, and is easily known by its horned involucres.—It is a native of Switzerland, and flowers from May to July.

5. Bupleurum Longifolium; *Long-leaved Hare's Ear.* Involucels five-leaved, ovate; universal involucre, with about five leaflets; leaves stem-clasping. This closely resembles the first species; but the root is perennial, and the root-leaves are permanent, and more lengthened out.—Native of Germany, Flanders, Switzerland, Dauphiny, and Savoy; flowering from May to July. The fresh-gathered leaves are a good application to green wounds, which they speedily heal without any other assistance; the method of using them is as follows: take three or four of the leaves, and, after closing the lips of the wound, lay them one over the other, and secure them with a linen bandage for the space of three or four days; at the end of which time, in most cases, the cure will be effected, and nothing but a scar will be found remaining. It is likewise supposed to possess considerable efficacy in scrofulous complaints, but is not altogether to be depended on for the cure of a disorder which frequently sets the most powerful medicines at defiance. This herb has always been included among the vulnerary plants.

6. Bupleurum Falcatum; *Twisted-stalk Hare's Ear.* Involucels five-leaved, acute; universal involucre, with about five leaflets; leaves lanceolate; stem flexuose; root perennial; flowers small, deep yellow.—Native of Germany, Switzerland, Austria, the south of France, and Italy. It flowers in our gardens from May to September.

7. Bupleurum Odontites; *Narrow-leaved Hare's Ear.* Involucels five-leaved, acute; universal involucre three-leaved, the central floscules higher; branches divaricated, root annual.—Native of the south of France, Switzerland, Carniola, Spain, and Italy. It flowers from June till August.

8. Bupleurum Semicompositum: *Dwarf Hare's Ear.* Umbels compound and simple. Stem scarcely a span high; branches divaricate; leaves lanceolate. The petals are purplish.—Native of Spain, Montpellier, Villa Franca. Annual: flowering in July and August.

9. Bupleurum Ranunculoides. Involucels five-leaved, lanceolate, longer; universal involucre three-leaved; stem-leaves lanceolate. This is commonly a very small plant, not more than a few inches in height; in some situations it is scarcely more than one inch high; in others, it rises to a foot. The root is perennial; the stem simple; the leaves grass-like and stiff.—Native of the south of France, Switzerland, and the Pyrenees.

10. Bupleurum Rigidum; *Stiff-leaved Hare's Ear.* Stem dichotomous, almost naked; involucres very small, acute; root perennial.—It grows naturally about Montpellier, and Frankfort-on-the-Maine.

11. Bupleurum Gerardi. Stem erect, panicled; leaves lanceolate, linear; involucres and involucels five-leaved; root annual, simple, naked.—Native of Provence and Austria.

12. Bupleurum Tenuissimum; *Least Hare's Ear.* Umbels simple, alternate, five-leaved, with about three flowers. This is an annual plant, with the stem a foot high, and much branching; the branches alternate, long, and many-flowered. —Native of Germany, Austria, Switzerland, France, Italy, and England, near Huntingdon, Ellesley, Cambridge, Lynn, Holkham, Malden, Hastings, Pett, in the isle of Thanet, and probably in many more places, being a plant of little appearance or colour, and in a manner lost in the grass among which it grows: it flowers in July and August.

13. Bupleurum Junceum; *Linear-leaved Hare's Ear.* Stem erect, panicled; leaves linear; involucres three-leaved; involucels five-leaved; root annual; stem two to six feet high, rushy, of an even surface, with alternate upright branches: the seeds are almost of the size and colour of Parsley.—It is a native of France, Italy, Switzerland, and Germany; it flowers in July and August, and was cultivated in the botanic garden at Chelsea.

14. Bupleurum Pyrenaicum. Partial involucres roundish, emarginate, united; universal three-leaved, cut at the base; leaves lanceolate, cordate, embracing the stem.—Native of the Pyrenees.

15. Bupleurum Nudum. Stem branched, leafless; root-leaves decompound, plain, gashed; involucres, universal and partial, lanceolate-oblong; root perennial.--Native of the Cape.

** *Shrubby.*

16. Bupleurum Fruticosum; *Common Shrubby Hare's Ear,* or *Shrubby Ethiopian Hartwort.* Leaves obovate, quite entire It is an evergreen shrub, rising to the height of five or six feet, and dividing into many branches, so as to form a large regular bush; the stem is covered with a purplish bark; the branches are well furnished with oblong, smooth, shining, stiff leaves, of a sea-green colour, placed alternately, four inches long, and one broad in the middle: at the ends of these the flowers are produced in umbels; they are yellow at first, but fade away to a brown; they appear in July or August, but seldom perfect seeds in England.—It is a native of the south of France, Spain, Italy, and the Levant. This is commonly known among gardeners by the name of Shrubby Ethiopian Hartwort, and is now propagated in the nursery gardens for sale: being hardy, it will thrive in the open air, and may be intermixed with other evergreen shrubs of the same growth in the front of taller trees, where their stems are designed to be excluded from sight. It is propagated by cuttings, which should be planted in pots filled with fresh loamy earth, and in winter sheltered under a hot-bed frame; in the spring the cuttings will put out roots, but they will not be fit to transplant till the autumn following; so the pots should be placed in a shady situation in summer, and in dry weather they must be refreshed with water the young plants may be placed in a nursery bed at two feet distance, for a year or two, to get strength, and then transplanted where they are to remain.

17. Bupleurum Fruticescens; *Grass-leaved Shrubby Hare's Ear.* Leaves linear; involucre universal and partial. The leaves of this are sharp and rather fleshy.—It is a native of Spain, and flowers in August and September. This may be cultivated in the same manner as the preceding species, but it is not so hardy.

18. Bupleurum Difforme; *Various-leaved Hare's Ear.* Vernal leaves decompound, flat, gashed; summer ones filiform, angular, trifid. This rises with a shrubby stalk to the height of five or six feet, sending out some side-branches, which in the spring have on their lower parts leaves composed of so many small flat leaflets, finely cut, like those of Coriander, and of a sea-green colour; these leaves soon fall off, and the upper part of the branches is closely covered with long rush-like leaves, having four angles, coming out in clusters from each joint.—It is a native of the Cape of Good Hope, and flowers from June till August. This is also propagated by cuttings, which readily take root, if they are planted in April, in pots filled with light earth, and plunged into a moderate hot-bed; when they have taken root, they should be inured to the open air by degrees, and after they have obtained strength, may be planted each into a separate pot filled with light loamy earth, placing them in the shade till they have taken fresh root, when they may be placed with other exotic plants in a sheltered situation, where they may remain till the autumn, and then they must be removed into the green-house or dry-stove. If this plant be propagated by seeds, they should be sown in autumn, soon after they are ripe, in pots filled with light earth, which must be sheltered under a frame in winter, and in the spring removed to a very gentle hot-bed; the plants must be inured to the open air by degrees, and then treated in the same manner as those raised from cuttings.

19. Bupleurum Spinosum. Branches of the panicle, when old, naked and spinescent; leaves linear; root perennial; stem low, shrubby, unequal, streaked, rigid, with very frequent joints; branches divaricate and bent back; root-leaves linear, lanceolate, three-nerved, acute; stem leaves very like them: those on the branches sharper and very short.—Native of Spain. This, as well as the eighteenth and nineteenth species, may be propagated by cuttings, and treated as the sixteenth; or by seeds, when they can be obtained. They will probably bear the open air in mild seasons, but are not yet sufficiently common to run that hazard.

20. Bupleurum Nudum; *Naked-stalked Hare's Ear.* Stem branched, leafless; root-leaves decompound, flat, gashed; involucres and involucels lanceolate-oblong.—Native of the Cape of Good Hope.

21. Bupleurum Coriaceum; *Thick-leaved Shrubby Hare's Ear.* Frutescent: leaves lanceolate, coriaceous, oblique; stems upright, sparingly branched, round, dark-coloured, annulated with the scars left by the falling leaves, from three to four feet in height; branches alternate, upright, marked with lines, fistulose, green; leaves alternate, approximating, half stem-clasping, quite entire, cultrate about the edges, with a sharp reflex point, attenuate at the base, having one whitish nerve, glaucous, permanent, five inches long, and nearly an inch broad, when held up to the light, appearing very finely netted. It differs from the common shrubby sort, in the oblique situation of the leaves, and the peduncles being branched. The whole plant is very fragrant when rubbed.—Native of Gibraltar.

Burcardia; a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, externally villose, acute, deciduous. *Corolla:* petals five, roundish, obtuse, spreading, almost the length of the calix. *Stamina:* filamenta five, capillary; antheræ ovate. *Pistil:* germen three-cornered; styles five or six long; stigmas flat, broadish, fleshy, with five prominent streaks. *Pericarp:* capsule three-sided, one-celled, three-valved. *Receptacle:* linear, fastened longitudinally to the middle of each valve. *Seed:* seven or eight, subovate, adhering to each receptacle. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Capsule:* angular, one-celled, three-valved, seven or eight seeded.——The only known species is,

1. Burcardia Villosa. This is an annual plant, with a branched stem, two feet high, hirsute, with reddish-brown hairs; leaves alternate, subsessile, ovate-oblong, wrinkled, toothed, covered with hairs of the same colour with those on the stem; flowers at the end of the stem and branches, axillary, solitary, on long hairy peduncles; the whole plant, indeed, is covered with stiff hairs. It is found on the sandy coasts of Cayenne and Guiana.

Burdock. See *Arctium* and *Xanthium.*

Burmannia; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth long, one-leafed, prismatic, coloured, with three longitudinal membranous angles; the mouth trifid, small. *Corolla:* petals

three, ovate, oblong, very small, placed in the mouth of the calix, extremely minute. *Stamina:* filamenta six, very short; antheræ in the mouth of the calix, very short, two always together, separated by a reflected point. *Pistil:* germen cylindric, shorter by half than the calix; style filiform, the length of the corolla; stigmas three, obtuse, concave. *Pericarp:* capsule covered by the calix, cylindric, three-cornered, three-celled, three-valved, gaping at the angles. *Seeds:* numerous, very small. ESSENTIAL CHARACTER. *Calix:* prismatic, coloured, trifid; angles membranous. *Petals:* three. *Capsule:* three-celled, straight. *Seeds:* minute.—These plants are very difficult to preserve in gardens; for, as they naturally grow in marshy places, which are covered with water great part of the year, they will not thrive when planted in dry ground, and, being too tender to live abroad in England, they must be planted in pots, plunged in troughs of water, so as to cover the surface of the mould about three inches.——The species are,

1. Burmannia Disticha. Spike double; root composed wholly of capillary fibres, and very small. The plant has the appearance or habit of an *Anthericum:* root-leaves six, eight, or nine, grass-like or ensiform, two inches long, quite entire; stem upright, straight, quite simple, a span or a span and a half in height, having six or seven very small, alternate, scale-like leaves, sheathing the base, an inch long, scarcely separating from the stem, but in a manner embracing it; two equal, simple, divaricating spikes, each composed of about nine flowers, terminate the stem. The flowers are sessile, in a single row, pointing upwards; they are blue, very elegant, and do not fall off.--Native of Ceylon, in open watery places; called in that country, *jawœl jawul*, or *dya-jawul*, that is, *water-jawul*.

2. Burmannia Biflora. Flowers two together; root strong and fibrous, with several oblong oval leaves arising from it, which are smooth and entire, four or five inches long; among these springs the flower-stem, six or eight inches high, terminated by blue flowers, growing two together in each sheath.—It grows naturally in watery places, in Virginia and Carolina.

Burnet. See *Poterium, Sanguisorba*, and *Pimpinella*.

Bur-reed. See *Sparganium*.

Bursera; a genus of the class Polygamia, order Dicœcia.—GENERIC CHARACTER. *Hermaphrodite. Calix:* perianth one leafed, minute, three-parted; parts ovate, acute. *Corolla:* petals three, ovate, acute, spreading, entire, deciduous. *Stamina:* filamenta six, subulate, erect, fixed round the base of the germen; antheræ ovate, erect. *Pistil:* germen ovate; style short, thick, trifid at the tip; stigmas very short, simple. *Pericarp:* capsule fleshy, obovate, three-cornered, three-celled, three-valved. *Seeds:* berried, solitary, (commonly only one,) compressed. *Male on a separate tree. Calix:* perianth five-toothed, minute. *Corolla:* petals five, lanceolate, acuminate, reflex, shrivelling. *Stamina:* filamenta five, eight, ten, placed round a slightly convex surface, scarcely shorter than the petals, subulate; antheræ oblong, two-celled. *Pistil:* a rudiment; germen none; style trifid, caducous, or none. ESSENTIAL CHARACTER. *Hermaphrodite. Calix:* three-leaved. *Corolla:* three-petalled; *Capsule:* fleshy, three-valved, one-seeded. *Male. Calix:* five-toothed. *Corolla:* five-petalled. *Stamina:* ten.——The species are,

1. Bursera Gummifera; *Jamaica Birch-tree.* This is a very lofty tree, with an upright, round, smooth trunk, covered with a livid shining bark, peeling off in round pieces, like the European Birch; branches terminating, smooth, horizontal; twigs ferruginous and villose; leaves pinnate; petioles round, villose; petiolules compressed, channelled, villose beneath; flowers small and white; capsule red, resembling a drupe. On the male trees the flowers are more copious and crowded in the racemes, but are scarcely larger. According to Sir Hans Sloane, the roots run very superficially; the trunk is as thick as a hogshead or pipe; there are four or eight pairs of leaflets, an inch and half long, and half as broad near the round base where broadest; the petals are five in number, thick, yellowish, and short; the berries three-sided, the size of a small pea, with a reddish-brown skin, very gummy, and smelling like turpentine, under which lies a white very hard triangular stone, containing a kernel. The tree having stood naked some time, has first its flowers come out, and its leaves begin to bud a little after.—This tree is common in all the sugar islands of the West Indies; the bark is very thick, and exudes a clear transparent resin, which soon hardens in the air, and looks like the mastic of the shops; but by incision, it yields a considerable quantity of a more fluid substance, which has much of the smell and appearance of turpentine, and may be used for the same purposes. The bark of the root is thought to be the *sima-rouba* of the shops, which is an effectual remedy in bloody fluxes; it is administered in decoctions, and one or two drachms is sufficient for a quart of water; for, if it be strong, it purges or vomits. In the French islands it is called *gommier blanc*; and an infusion of the buds and young leaves is recommended there in disorders of the breast: it flowers from May to July.

2. Bursera Paniculata. Racemes panicled, terminal; flowers purple, small, numerous, in panicled terminal racemes, about six inches long. It produces a resinous juice like the preceding.—Native of the isle of France.

3. Bursera Obtusifolia. Racemes panicled, subterminal; leaflets obtuse. This is a large tree, very resinous; flowers small, very numerous, whitish; fruit a drupaceous coriaceous berry, the size of a hazel-nut.—Native of the Isle of France.

Butcher's Broom. See *Ruscus Aculatus*.

Butomus; a genus of the class Enneandria, order Hexagynia. GENERIC CHARACTER. *Calix:* involucre simple, three-leaved, short. *Corolla:* petals six, roundish, concave, withering; three outer, alternate, smaller, more acute. *Stamina:* filamenta nine, subulate; antheræ bilamellate. *Pistil:* germina six, oblong, acuminate, ending in styles; stigmas simple. *Pericarp:* capsules six, oblong, gradually attenuated, erect, one-valved, gaping on the inside. *Seeds:* very many, oblong-cylindric, obtuse at both ends, fixed to the wall of the capsules. ESSENTIAL CHARACTER. *Calix:* none. *Petals:* six. *Capsule:* six, many-seeded.——The only species hitherto discovered is,

1. Butomus Umbellatus; *Flowering Rush*, or *Water Gladiole.* Root perennial; leaves ensiform, long, triangular, smooth, quite entire, spongy, at bottom sheathing, at top flat and twisted; scape upright, round, smooth, from one to three or five and six feet high; corolla handsome, nearly an inch in breadth, commonly of a bright or pale flesh-colour.—It is found in and by the sides of watery ditches, moats, lakes, ponds, and brooks, in most parts of Europe, from Lapland to Italy. It flowers with us from July to September: the corolla varies in different shades of red or purple, mixed with white, and is sometimes entirely white. This is the only plant of the Enneandria class, which grows wild in Britain.—This plant may be propagated in boggy places; or by planting it in cisterns kept filled with water, and having about a foot thickness of earth in the bottom, in which the roots should be planted, or the seeds sown as soon as they are ripe; or on the sides of ponds, or slow-flowing streams; where it will have a good effect in diversifying the scene.

Butterbur. See *Tussilago*.

Butterwort. See *Pinguicula.*

Büttneria; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, deciduous; divisions ovate, acute, spreading very much. *Corolla:* petals five, oblong, short, converging; above, broadish, concave, ending in a long subulate bristle, incumbent on the nectary at the base, then erect, expanding, longer than the calix, and in two other small, lateral, short reflex bristles. Nectary five-leaved, ventricose-campanulate, shorter than the calix; leaflets obovate, obtuse, flat, erect, semiconnate by the filamenta. *Stamina:* filamenta five, subulate, on the outside of the nectary, each springing from two adjoining leaflets of it; antheræ twin, distinct, bifid, roundish. *Pistil:* germen roundish, quinquangular; style subulate, short; stigma obtuse, obscurely quinquefid. *Pericarp:* capsule roundish, depressed, five-grained, five-valved, muricate. *Seeds:* solitary, ovate, compressed. Essential Character. *Corolla:* five-petalled. *Filamenta:* at the top, connate with the petals. *Capsule:* five-grained, muricate.——The species are,

1. Büttneria Scabra. Leaves lanceolate; rib and petioles prickly. This is a perennial plant, shrubby at bottom, from three to five feet high, with alternate long angular branches, armed with short, reflex, cartilaginous prickles.—Found by Aublet between Cayenne and Couron, in June.

2. Büttneria Carthaginensis. Leaves ovate; rib and petioles prickly; stems perennial, rather woody, five-cornered; the furrows and angles obtuse, armed with crooked reflex prickles; the tender branches round, prickly. alternate; flowers without smell, small, white, very numerous.—Native of Carthagena and St. Domingo, flowering in September and October.

3. Büttneria Microphylla. Branches flexuose, even; leaves ovate, obtuse, on short peduncles. A shrub, four or five feet high: prickles solitary, stipular, horizontal; flowers small, whitish-green, from three to five together.—Found in the island of St. Domingo.

Button-tree. See *Conocarpus.*

Button-weed. See *Spermacoce.*

Button-wood. See *Cephalanthus.*

Buxbaumia; a kind of Moss, of which there are only two species, both of which are to be found in the Dissertation of the younger Linneus on Mosses, p. 25 and 33.

Buxus; a genus of the class Monœcia, order Tetandria.—Generic Character. *Male flowers,* prominent from the the buds of the plant. *Calix:* perianth three-leaved; leaflets roundish, obtuse, concave, spreading. *Corolla:* petals two, roundish, concave, very like the calix, but larger. *Stamina:* filamenta four, subulate, erect, expanding, rather larger than the calix; antheræ erect, twin. *Pistil:* rudiment of a germen without style or stigma. *Females,* in the same bud with males. *Calix:* perianth four-leaved; leaflets roundish, obtuse, concave, spreading. *Corolla:* petals three, roundish, concave, very like the calix, but larger. *Pistil:* germen superior, roundish, obtusely three-cornered, ending in three very short permanent styles; stigmas obtuse, hispid. *Pericarp:* capsule coriaceous, roundish, three-beaked, three-celled, bursting elastically into three points. *Seeds:* twin, oblong, rounded on one side, flat on the other. Essential Character. *Male.* *Calix:* three-leaved; petals two; the rudiment of a germen. *Female.* *Calix:* four-leaved; petals three; styles three; capsule three-beaked, three-celled; seeds two.——The only known distinct species, of which there are several varieties, is,

1. Buxus Sempervirens; *Evergreen Box.*—Box is well known in its dwarf state, and is a shrub about three feet in height; it becomes, however, when left to itself, a tree twelve or fifteen feet high, with a trunk equalling the human thigh in thickness, covered with a rugged greyish bark, that of the branches being yellowish. The wood is of a yellow colour, of an even close grain, very hard and ponderous, and is the only kind of European timber which will not swim in water. It is ranked with the Ebony for closeness of grain. The leaves are ovate or oval in the common sort, hard, smooth, glossy, evergreen, very dark green above, pale green underneath, something resembling those of Myrtle, but blunt, and commonly emarginate at the end; the edges are revolute, they are commonly set on very short petioles, and on the twigs they come out regularly in pairs, so close as almost to conceal them. Mr. Miller insists that the Common Box tree, the Narrow-leaved, and the Dwarf or Dutch Box, are three certainly distinct species. The two sorts of Box-tree have been frequently raised from seeds, and constantly produced plants of the same kind as those the seeds were taken from; and the Dwarf Box will never rise to any considerable height with any culture, nor have I seen this sort flower, where the plants have been encouraged to grow many years in the greatest luxuriancy. There are two or three varieties of the first, which are propagated in the gardens: one with yellow, and another with white-striped leaves; the other has the tops of the leaves only marked with yellow, which is called Tipped Box.—The Box-tree is a native of most parts of Europe, from Britain southwards. There are whole mountains covered with it, between Lyons and Geneva, and in Savoy, but not of any size. It is also very common in many parts of Burgundy, Dauphiny, and Provence. It abounds in many countries of Asia, as about Mount Caucasus, in Persia, China, Cochin-china, &c.; also in America. In England it was formerly much more common than it is at present. Gerarde says, "it groweth upon sundry waste and barren hills in England;" and Parkinson, "that it is found with us in many woods, and wood-grounds; that it is also planted in divers orchards, or house back sides, where it never groweth high, but serveth as a bush to dry linen on," &c. Many of these bushes, however, have grown up to trees of a reasonable size, about old mansions and farm-houses, but are now for the most part destroyed. "These trees rise naturally," says Evelyn, "in Kent, at Boxley, and in Surry, giving name to Box-hill. He that in winter should behold some of our highest hills in Surry clad with whole woods of them, for divers miles in circuit, as in those delicious groves of them belonging to the late Sir Adam Brown, of Beechworth-castle, might easily fancy himself transported into some new or enchanted country." The enchantment, alas! has been long broken. In 1759, Mr. Miller lamented that the trees on Box-hill had been then pretty much destroyed, though many of a considerable size still remained: but the destruction since that time has been much greater. It has been conjectured, that Box-hill was planted with these trees by the Earl of Arundel; but there is the most authentic proof that they were there before his time; and the ground on which they grow was not his property. Not only this hill near Darking in Surry, and Boxley in Kent, but Boxwell in Coteswold, Gloucestershire, was named from this tree. Mr. Woodward remarks it "as plentiful on the chalk hills near Dunstable. It is fond of open dry situations, and a calcareous soil. In temperate climates and seasons, it flowers in February and March.—The wood of the Box sells at a high price, by weight. Being very hard and smooth, and not apt to warp, it is well adapted to a variety of nicer works." "It is of special use," says Evelyn, "for the turner, engraver, carver, mathematical-instrument maker, comb and pipe or flute-maker; the roots are also employed

by the inlayer and cabinet-maker. Of Box are made wheels and shivers, pins, pegs for musical instruments, nut-crackers button-moulds, weaver's shuttles, hollar-sticks, bump-sticks and dressers for shoe-makers, rulers, rolling-pins, pestles, mall-balls, beetles, tops, tables, chess-men, screws, bobbins for bone-lace, spoons, knife-handles, nay, the stoutest axle-trees, and especially combs;" which was the custom of the ancients, who also made of it musical instruments to be played upon by the mouth, according to Pliny and Martial. The Romans likewise clipped it into the shape of various animals, for which purpose it was second to the Yew with us in former times, but the Dwarf-box stood unrivalled for "bordering up a knot, and was esteemed a marvellous fine ornament to the flower-garden."—The branches were in request among our ancestors, for decking up houses; they are still seen among other evergreens in churches at Christmas, and in some countries they are borne by attendants at funerals. In our plantations, the Box still keeps its place deservedly among ornamental evergreens. It will flourish under the deepest shade, and thrive in any soil and exposure. Dr. Stokes affirms, that it is fit to cut down in about thirty years.—Box has been much celebrated as a medicine in the venereal disease, colics, intermittent fevers, &c. But our shrewd old Gerarde sensibly remarks, "that it is more fit for dagger-hafts, than to make medicines; though foolish empirics and women-leeches do minister it against the apoplexy and such diseases." He adds, "that the turners and cutlers call this wood dudgeon, because they make dudgeon-hafted daggers with it." Parkinson, in his first work, says, "it has no physical use among the most and best physicians, although some have reported it to stay fluxes, and to be as good as guaiacum for the French disease." Yet in his second work he sets it down as a medicine for the bite of a mad dog; as a cure for the bots in horses; and the leaves and saw-dust, boiled in lye, to change the hair to aborne (auburn) or abraham colour. According to Dr. Withering, "an empyreumatic oil, distilled from the shavings, is often used as a topical application for the piles, and seldom fails to procure ease; it will frequently relieve the tooth-ache, and has been given internally in epilepsies: the leaves powdered, destroy worms." Decoctions of the wood and bark are wholly disused, on account of their being very nauseous and disagreeable to the stomach. Meyrick observes, that Box-root is said to possess the same virtues with guaiacum wood, but in a much greater degree; consequently is a good medicine in a foul state of the blood and juices. A decoction of it is the best preparation; but the use of it must be continued for a long time, as it is one of those medicines which operate but slowly, though effectually. An oil distilled from the wood is frequently used to anoint the piles with, and seldom fails of giving ease; it likewise frequently relieves the tooth-ache, cleanses foul ulcers, and disposes them to heal, and is good to rub on such parts as are affected with old aches and pains. Hill assures us, "the wood of the Box-tree, and particularly the root, is an excellent medicine in all foulness of the blood; it has the same virtues with the guaiacum, but in a greater degree. It is to be given in a moderately strong decoction, and continued a long time. There have been instances of what were called leprosies cured entirely by this medicine. There is an oil made from it by distillation, which is good for the tooth-ache; it is to be dropped upon cotton, and put into the tooth." Pliny affirms, that no animal will touch the seed of Box. Gmelin states, that the branches are fatal to the camels that eat them. Not one of our animals will touch this tree. Corsican honey was supposed, by the ancients, to owe its infamy to the bees feeding on the Box.—The name of this tree varies little from the Greek and Latin, in the European languages; being *bucks* or *bucksbaum* in German; *buxbom*, in Swedish and Danish, *buis* or *bouis*, in French; *busso* or *bosso*, in Italian; *box*, in Spanish; *bucko* or *buxo*, in Portuguese: the Russians have adopted *samschit* from the Tartars; the Persians call it *schimschat;* in Turkey it is named *tschemtshir;* the Japanese call it *ko-tsuge*; the Chinese, *huynh-duong;* the Cochin-chinese, *hoam-tuon.—Propagation and Culture of the Common Box.* All the varieties of this tree may be propagated by cuttings, planted in autumn in a shady border, observing to keep them watered until they have taken root, when they may be transplanted into the nursery, until they are fit for the purpose intended. These cuttings may be planted as early as August, but the best time is during the fall of the autumnal rains. They should be a foot in length, and rather more than half should be planted in the ground, at the distance of four inches from each other. A slip of the last year's wood, stripped from an older branch, is an excellent set, and there is little fear of its growing. The cuttings or slips may stand three years, and then be transplanted into the nursery any time between August and April, choosing moist weather for the purpose, if this work be performed early or late. In the nursery, the rows may be two feet asunder, and the plants a foot from each other in the rows. The narrow-leaved Box-tree may be propagated by laying down the branches. This may be done between Michaelmas and March; and it is the natural way by which Box frequently propagates itself; for when it breaks down by its own weight, or by a fall of snow, soon after it comes into contact with the ground, it sends forth fibres. Box may be propagated by seeds sown soon after they are ripe, in a shady border, and duly watered in dry weather. This is the best method to raise large trees. The best soil for the seeds is a light loam or sand, and they should be sown half an inch deep. They will come up in the spring, though probably many will lie in the ground till a second season. They should stand two or three years in the seed-bed; and when they are strong enough to plant out, they may be removed into the nursery, and placed at the same distance as was prescribed for the cuttings. The best season for removing this tree is October, though it may be transplanted almost at any time, except in summer, if it be taken up with a good ball of earth. Dwarf-box is increased by parting the roots or planting the slips; but, as it makes so great an increase of itself, and so easily parts, it is hardly worth while to plant the slips that have no roots. It is so common, that it may be purchased from the nurseries at a cheap rate. The manner of planting it in edgings is understood by every working gardener.

Byssus; a genus of the Cryptogamia Algæ, and the last in the scale of vegetation in that class. According to Linneus there are fourteen species, but many more are certainly known. They appear in form of threads, or a kind of meal, on rotten wood, the bark of trees, rocks, damp banks, and walls, especially of damp cellars. Hudson and Withering enumerate nineteen British species, and Lightfoot fourteen. One sort is common on wine-casks: at first it is like flakes of snow, but turns yellow, and at last like a mouse's skin; in this state it has black grains at the base like gunpowder, rots the casks, and is excellent to staunch blood. The Green Paper Byssus is a farina concreting on the surface of the water, where it forms a wide thin film. Weis denies it to be a vegetable, but Withering believes it to be a Conferva.

Bystropogon; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, divided into five awl-shaped segments, closed by a beard at the opening. *Corolla:* monopetalous, ringent;

upper lip bifid, lower trifid, the outmost segment most produced. *Stamina:* filamenta four, didynamous, distant; antheræ incumbent. *Pistil:* germen superior, four-parted: style subulate; stigma bifid. *Pericarp:* none; calix closed with a beard, and cherishing the seeds. *Seeds:* four. ESSENTIAL CHARACTER. *Calix:* five-subulate, bearded at the opening. *Corolla:* upper lip bifid, lower trifid. *Stamina:* distant.—As to the culture and propagation of the plants of this genus, the three first sorts must be preserved in the bark-stove; and the four last, in the dry-stove or conservatory. They may all be propagated by cuttings during the summer months.——The species are,

1. Bystropogon Pectinatum; *Balm-leaved Bystropogon.* Panicles compact; flowers directed one way; leaves ovate.—Native of Jamaica, in all the low lands and dry savannas about Kingston and Spanish Town. It has also been found in Peru, by Dombey. It flowers in December and January.

2. Bystropogon Sidæfolium; *Sida-leaved Bystropogon.* Panicles very loose; peduncles in whorls, filiform; leaves cordate.—Native of Peru.

3. Bystropogon Suaveolens; *Sweet-scented Bystropogon.* Peduncles axillary, solitary; calices truncate, awned; leaves cordate. This is an annual plant, the whole of which has a very strong smell, like all the rest of this genus. On this account the Portuguese call it *erva cidreira,* or *citron herb;* and in Jamaica, where it is common about Kingston and Old Harbour, they call it *spikenard,* on account of its strong and pleasant smell. It is one of the most grateful cephalics and alexipharmics; and may be used in disorders of the nerves and viscera, where such warm medicines are required.—It is a native of the continent of South America, as well as the islands of the West Indies.

4. Bystropogon Plumosum; *Woolly-flowered Bystropogon.* Panicles dichotomous; calices feathered; leaves ovate, subserrate, tomentose beneath.—It flowers in June and July, and is a native of the Canary Islands.

5. Bystropogon Origanifolium; *Marjoram-leaved Bystropogon.* Panicles dichotomous; calices feathered; leaves ovate, quite entire, very white beneath. This is very nearly allied to the foregoing, but the leaves are quite entire, and snow-white underneath.—Found in the Canary Islands.

6. Bystropogon Canariense; *Canary Bystropogon.* Peduncles dichotomous; flowers in heads; leaves ovate, crenate, very villose beneath; stem woody, three or four feet high, dividing into many branches; leaves on long peduncles, hairy, and ash-coloured on their under side. The flowers are produced from the side of the branches, on pretty long peduncles, each sustaining four roundish heads, dividing by pairs, and spreading from each other. They come out in June and July, but do not produce ripe seeds in England. The corolla is white; and the leaves, when bruised, emit an agreeable odour. The gardeners have given it the title of *Madame Maintenon.*—It flowers from June to August, and grows naturally in the Canary Islands.

7. Bystropogon Punctatum; *Cluster-flowered Bystropogon.* Panicles dichotomous; flowers in heads; leaves ovate, toothed, smooth, finely dotted.—Flowers from July till September, and is a native of Madeira.

CAB

CABBAGE. See *Brassica.*

Cabbage-tree. See *Aleraca Oleracea,* and *Cacalia Kleinia.*

Cacalia; a genus of the class Syngenesia, order Polygamia Æqualis.—GENERIC CHARACTER. *Calix:* common simple, oblong, at the base only subcalicled, cylindric; scales five to ten, equal, lanceolate-linear, forming a tube; a few very short, incumbent on the base. *Corolla:* compound tubular; corollules hermaphrodite, in number the same as the longer leaves of the calix, uniform; proper funnel-form gradually lessening to the tube; border four or five-cleft, erect. *Stamina:* filamenta five, capillary, very short; anthera cylindric, tubular. *Pistil:* germen oblong; style filiform, the length of the stamina; stigmas two, oblong, revolute. *Pericarp:* none; calix unchanged. *Seeds:* solitary, oblong, ovate-narrow. *Down:* capillary, very long. *Receptacle:* naked, flat, dotted. ESSENTIAL CHARACTER. *Calix:* cylindric, oblong, at the base only subcalicled. *Down:* capillary. *Receptacle:* naked.—The plants of this genus, which are natives of the Cape of Good Hope, should be propagated by cuttings during the summer months: these should be cut from the plants, and laid to dry a fortnight, that the wound may be healed over before they are planted. Most people plunge the pots, in which these are planted, in a moderate hot-bed, to forward their putting out roots; but if they are planted in June and July, they will root as well in the open air. Branches broken off by accident, which have fallen on the ground, have frequently put out roots without any care: these branches may be kept six months out of the ground, and will then take root if planted. They should have a light sandy earth, and in winter be placed in an airy glass-case, where they may enjoy the sun and air in mild weather, but must be protected from frost. During the winter season, the plants must have but little water; and in summer, when they

CAC

are placed in the open air, it should not be given them too often, nor in great quantity, but they must be treated like the Ficoides, and other succulent plants from the same country.——The species are,

**Shrubby.*

1. Cacalia Papillaris; *Rough-stalked Cacalia.* Stem shrubby, fortified with truncated petiolary spines. Perennial. Stem about three feet high, cylindric; leaves three or four inches long, nearly cylindric, with a longitudinal furrow, glaucous-green, scattered about the summits of the branches.—Native of the Cape of Good Hope. This, as well as the second species, requires a sandy poor soil, and to be kept very dry both summer and winter: hard rains often cause them to rot; but they require the open air in summer.

2. Cacalia Anteuphorbium; *Oval-leaved Cacalia.* Stem shrubby; leaves ovate-oblong, flat; petioles having a triple line at the base. This plant is generally known by the name of Anteuphorbium, being supposed to have qualities contrary to Euphorbium.—Native of the Cape: see the first species.

3. Cacalia Cuneifolia; *Wedge-leaved Cacalia.* Stem shrubby; leaves wedge-form, fleshy, flat above, but somewhat convex underneath.—Native of the Cape.

4. Cacalia Kleinia; *Oleander-leaved Cacalia,* or *Cabbage-tree.* Stem shrubby, compound; leaves lanceolate, flat; scars of the petioles obsolete. This rises with a thick fleshy stem, divided at certain distances, as it were into so many joints; each of these divisions swells much larger in the middle. The stalks divide into many irregular branches of the same form, which, towards their extremities, have long narrow leaves, of a glaucous colour, standing all round without order; as these fall off, they leave a scar at the place, which always remains on the branches. The flowers are produced in large clusters, at the extremities: they are of a

faint carnation-colour.—It grows naturally in the Canary Islands, and flowers in August, September, and the greater part of October, but does not produce seed in this country: it is called Cabbage-tree by the gardeners, from the resemblance which the stalks have to those of Cabbage; others have named it Carnation-tree, from the shape of the leaves and colour of the flowers. In some parts of England, fossils have been dug up, upon which Dr. Woodward supposed that he discovered impressions of this plant.—It requires a warm dry glass-case in winter, and very little water: in summer, it must be placed in the open air, in a warm sheltered situation. With this management, the plants will flower annually, and grow to the height of eight or ten feet.

5. Cacalia Ficoides; *Flat-leaved Cacalia.* Stem shrubby; leaves compressed, fleshy. This rises with strong round stalks to the height of seven or eight feet; they are woody at bottom, but soft and succulent upwards, sending out many irregular branches. These, for more than half their length, have thick taper succulent leaves, a little compressed on two sides, ending in points covered with a whitish meal; when broken, they emit a strong odour of turpentine, and are full of a viscid juice: at the extremities of the branches the flowers are produced in small umbels; they are white, and cut into five parts at top: the stigma is of a dark purple colour, and stands erect above the tube. The seeds do not ripen in England. In France, the leaves are sometimes pickled with the white meal preserved on them.—It flowers from June to November, and grows naturally at the Cape of Good Hope.

6. Cacalia Repens; *Glaucous-leaved Cacalia.* Stem shrubby; leaves depressed, fleshy; root creeping. This plant very much resembles the fifth species in stature; it is also covered with a glaucous meal; but the leaves have their upper surface concave, and are not compressed on the sides.—It flowers in June, and is a native of the Cape.

7. Cacalia Suffruticosa; *Flax-leaved Cacalia.* Stem undershrubby, branching; leaves linear, flat, scattered. This is an undershrub, a palm in height, variously branched, and filiform; leaves quite entire, by no means fleshy; down with hispid hairs.—Native of Brazil.

8. Cacalia Laurifolia; *Bay-leaved Cacalia.* Shrubby smooth: leaves petioled, ovate, triple-nerved, obtuse, quite entire, very smooth; thyrse terminal; calix four-leaved, smooth. A very smooth shrub, resembling the Laurustina; border of the corolla larger than the tube, four-toothed.—Native of Mexico.

9. Cacalia Cordifolia; *Heart-leaved Cacalia.* Shrubby, hirsute: leaves petiolcd, cordate-ovate, nerved, acute, scabrous; calix four-leaved, four-flowered, pubescent. This and the preceding species agree so exactly in the flower, and are so remarkable in the four-fold division of the calix and the number of the floscules, that they might very well make a separate genus.—Observed by Mutis in South America.

10. Cacalia Asclepiadea; *Asclepias-like Cacalia.* Shrubby, tomentose: leaves petioled, ovate-lanccolate, quite entire, very smooth above, tomentose beneath, the edges rolled back; panicles terminal; stems round, hoary, with a soft nap, straight. This herb has the appearance of an Asclepias,—Found by Mutis in South America.

11. Cacalia Appendiculata; *Ear-leaved Cacalia.* Shrubby tomentose: leaves cordate, ovate, acute, angular, tomentose beneath; petioles with leafy appendicles; stem angular, tomentose, hoary; flowers yellow.—Found by Francis Masson, in watery places of the island of Teneriffe.

12. Cacalia Tomentosa; *Woolly-leaved Cacalia.* Shrubby, tomentose: leaves lanccolate, toothed, tomentose beneath, sessile.—Found at the Cape by Thunberg.

***Herbaceous.*

13. Cacalia Porophyllum; *Perforated Cacalia.* Stem herbaceous, undivided; leaves elliptic, subcrenate. The stem is from eight inches to a foot in height, round, slender. It flowers from June till October, is an annual plant, and a native of America. This, and the thirtieth species, *(Ruderalis,)* differ from the genus in their habit, and in having a subturbinate calix; but have no other generic distinctions separating them from the rest of the genus.

14 Cacalia Sonchifolia; *Sowthistle-leaved Cacalia.* Stem herbaceous; leaves lyrate, stem-clasping, toothed; root annual. Flowers few, the size of Groundsel. This plant is much used both in the medicine and economy of the Indians; as it is esteemed to be detergent, and the young leaves are eaten raw in salads. It flowers in July, and the seeds ripen in September.—Native of the East Indies, Ceylon, Amboyna, China, Cochin-china; and, according to Mr. Miller, seeds of it have been received from the Spanish West Indies.—This species is propagated by seeds, which, if sown in the autumn, soon after they are ripe, in a pot, and plunged into the tan-bed in a stove, will more certainly succeed than those sown in the spring; but where there is not such a convenience, the seeds should be sown upon a hot-bed in the spring, and when the plants are fit to remove, they should be planted on another hot-bed to bring them forward, shading them till they have taken new root, after which air should be daily admitted to them in proportion to the warmth of the season. When the plants have acquired strength, they should be planted in pots, and either plunged into a moderate hot-bed under a deep frame, or placed in a glass-case, where they will flower and perfect their seeds.

15. Cacalia Incana; *Hoary Cacalia.* Stem herbaceous, erect; leaves lanceolate, toothed.—Native of the East Indies.

16. Cacalia Saracenica; *Creeping-rooted Cacalia.* Stem herbaceous; leaves lanceolate, serrate, decurrent: the bractes are bristle-shaped. Native of the south of France: it flowers from August to October.

17. Cacalia Hastata; *Spear-leaved Cacalia.* Stem herbaceous; leaves three-lobed, acuminate, serrate; flowers nodding; root perennial. The stem is covered with a glaucous meal; and the flowers composed of about five white florets, without the bristle-shaped bractes, except at the subdivisions.—Observed by Gmelin and Pallas in Siberia.

18. Cacalia Suaveolens; *Sweet-scented Cacalia.* Stem herbaceous, upright; leaves hastate-sagittate, toothletted; petioles dilated at top. This has a perennial creeping root, sending out many stalks; it smells very sweet when dry.—Native of Virginia and Canada, flowering in August, and ripening its seeds in October. The roots of it which have been cast out of the Chelsea garden, having been carried by the tide to a great distance, have lodged on the banks of the river, and fastened themselves to the ground, where they have increased so much, that in a few years this plant may appear to be a native of this country.—Both this and the nineteenth species multiply greatly by their spreading roots, and also by the seeds, which are wafted to a great distance by the wind. The roots should be transplanted in autumn; it requires a moist soil and an open situation.

19. Cacalia Atriplicifolia; *Orach-leaved Cacalia.* Stem herbaceous; leaves subcordate, tooth-sinuate; calices five-flowered; root perennial, composed of many fleshy spreading tubers, sending out several strong stems in the spring, four or five feet high; flowers in a terminal loose corymb, small, oblong, of a pale reddish colour.—It flowers in August, and is a native of Virginia and Canada.

20. Cacalia Alpina; *Alpine Cacalia.* Leaves reniform,

cordate, acute, toothletted; root perennial; stem a foot and half high and more, leafy, and branching at intervals.—Haller, besides the two principal varieties of this species, the *smooth* and the *tomentose*, mentions that it is found with white florets, and with leaves deeply cut. Mr. Miller makes two species of it: the first, or rough sort, he calls *alpina*; the second, or smooth sort, *glabra*. Monsieur Villars has three species, besides varieties; but Allioni considers them all as one species: *smooth*, in subalpine moistish situations, among bushes; *hirsute*, or *very hairy*, in loftier, cold, rocky, alpine situations; *tomentose* or *cottony*, among stones in open situations on the higher Alps. He adds, that he has observed the tomentose variety to become hirsute, when cultivated in a garden.—Native of Switzerland, Mount Jura, Dauphiny, Piedmont, Austria, and Carniola. It is propagated by parting the roots, for it seldom produces good seeds in England; the best time to do this is in autumn: it requires a loamy soil and a shady situation.

21. Cacalia Echinata. Herbaceous: leaves reniform, cordate, angular-toothed, tomentose beneath; leaflets of the calix tubercled.—Observed by Masson in the island of Teneriffe, on precipices near the coast.

22. Cacalia Albifrons; *White-leaved Cacalia.* Herbaceous: leaves cordate, biserrate, acute, tomentose beneath; stipules oblong, rounded. This is a singular plant, and very distinct from the others, in having two leaves at the base of the petioles, resembling stipules; they are sessile, oblong, slightly toothletted, and tomentose beneath.—Native of Austria.

23. Cacalia Bipinnata; *Bipinnate-leaved Cacalia.* Herbaceous: leaves bipinnate, linear; stem upright, streaked even.—Native of the Cape of Good Hope.

24. Cacalia Acaulis; *Stemless Cacalia.* Stemless: leaves semicolumnar; scapes one-flowered.—Found by Thunberg at the Cape of Good Hope.

25. Cacalia Radicans; *Rooting Cacalia.* Herbaceous, creeping, rooting: leaves columnar ovate, fleshy.—Found by Thunberg at the Cape of Good Hope.

26. Cacalia Articulata; *Joint-stalked Cacalia.* Fleshy: stem decumbent, jointed, lower leaves hastate, upper lyrate. This is an elegant plant, smooth and glaucous, of an unpleasant balsamic flavour: it flowers in November, and was found by Masson at the Cape of Good Hope.

27. Cacalia Lutea; *Yellow Cacalia.* Stem herbaceous; leaves five-parted, acute, glaucous beneath; flowers terminal, on very long peduncles.—This species grows naturally at St. Helena; the roots spread and increase under the surface; the leaves arise immediately from the root, having very short foot-stalks. The flower-stalk arises between the leaves, immediately from the roots; this is naked, about eight inches high, terminated by six or eight yellow compound flowers, standing on long foot-stalks, almost in an umbel; the flowers are succeeded by oblong seeds, which rarely ripen in England.

28. Cacalia Carnosa; *Narrow-leaved Cacalia.* Stem shrubby; leaves roundish, fleshy, bent in; peduncles terminating, one-flowered, naked; it flowers in June.—Native of the Cape of Good Hope. It increases fast by the roots, which may be parted either in the beginning of September or the end of March, and should be planted in pots filled with light earth, and plunged into the tan-bed in the stove, where it should be constantly kept, being too tender to thrive elsewhere in this climate.

29. Cacalia Scandens; *Climbing Cacalia.* Stem herbaceous, climbing leaves sagittate, toothed; petioles simple.—It flowers in April, and is a native of the Cape of Good Hope.

30. Cacalia Ruderalis. Stem herbaceous, branched; leaves lanceolate, entire, glaucous. This is an annual plant, upright, not more than three feet high, very smooth, panicled; flowers void of scent, with a green calix, and a corolla green and yellow mixed.—Native of St. Domingo and Martinico.

31. Cacalia Procumbens. Stem suffruticose, procumbent; leaves ovate, lanceolate, subserrate, fleshy; racemes elongated, interrupted; stems perennial, nine feet high, procumbent, round, equal, smooth, succulent, branched.—Native of China and Cochin-china, where it is used as a potherb.

32. Cacalia Bulbosa. Leaves radical, lyrate; stem almost naked; panicle few-flowered; root a roundish, knotted, perennial bulb.—Native of China and Cochin-china. This plant is emollient, refrigerant, and resolvent, used chiefly externally in resolving tumors; and in the erysipelas, as a cataplasm; the juice of the leaves in inflammations of the eyes, and as a gargarism in the inflammation of the fauces.

33. Cacalia Pinnatifida. Leaves pinnatifid; segments lanceolate, serrate; stem two feet high, upright, thick; flowers yellow, in a terminating panicle, few together.—Native of China, among rice near Canton.

Cachrys; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel *universal*, manifold; *partial* similar; involucre *universal*, many-leaved, linear-lanceolate; *partial similar*; perianth proper scarcely observable. *Corolla:* universal, uniform; floscules all uniform; proper of five, lanceolate, almost upright, equal flattish petals. *Stamina:* filamenta five, simple, the length of the corolla; antheræ simple. *Pistil:* germen turbinate, inferior; styles two, simple, the length of the corolla; stigma headed. *Pericarp:* fruit subovate, angular, obtuse, very large, suberous-cortical, splitting in two. *Seeds:* two, very large, very convex on one side, flat on the other, fungous, with solitary ovate-oblong kernel. Essential Character. Fruit subovate, angular, suberous-cortical.—All the plants of this genus are propagated by seeds, which should be sown soon after they are ripe, for if they are kept out of the ground till the following spring, they often miscarry, and when they succeed, they never come up until the spring after; so that by sowing them in autumn, a whole year is saved, and the seeds seldom miscarry. The seeds should be sown on a shady border, where the plants are to remain, for as they have long tap-roots, they will not bear transplanting so well as many other kinds; the distance three feet apart, so that if each kind is sown in a drill, when the plants are come up they may be thinned, leaving two of the most promising plants of each kind to remain. These plants will begin to appear early in April, when they must be carefully cleared from weeds; and in dry weather, if they are gently watered while young, it will greatly promote their growth; after which time they will require no farther care but to keep them clean from weeds, and every spring to dig the ground carefully between them. These plants decay to the ground every autumn, and come up again in the spring; they commonly flower in the beginning of June, and their seeds are ripe in September. Their roots sometimes run down three or four feet deep in the earth, provided the soil be light, and are often as large as Parsnips: they will continue many years, and if the soil be moist and rich, they will annually produce good seeds.——The species are,

1. Cachrys Libanotis; *Smooth-seeded Cachrys.* Leaves superdecompound; leaflets spreading, acuminate; seeds ovate, furrowed, unarmed. The whole plant has an aromatic sweet smell, and is esteemed carminative, astringent, and anticteric.—Native of Sicily, the south of France, and Barbary.

2. Cachrys Sicula; *Hairy-seeded Cachrys.* Leaves superdecompound, with filiform leaflets: flowers yellow; seeds roundish, ovate, grooved, wrinkled. Native of Spain and Sicily.

3. Cachrys Tenuifolia; *Fine-leaved Cachrys.* Leaves superdecompound, smooth, with very numerous filiform leaflets; seeds oval. It flowers in May.—Native of the country about Montpellier.

4. Cachrys Odontalgica. Leaves superdecompound, rough with hairs; the end leaflets digitate-multifid, bluntish; seeds obovate, truncate, even. The root is very long, and being of a very sharp aromatic flavour, is used in the tooth-ache. —Found abundantly between the Volga and the Jaick.

5. Cachrys Panacifolia. Leaves pinnate and ternate, with oblong crenate leaflets; seeds hirsute. Stem three feet high, streaked, hoary, round, full.—Native of New Castile and Barbary.

Cactus; a genus of the class Icosandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, imbricate, hollow-tubular, with scaly leaflets scattered over it, superior, deciduous. *Corolla:* petals numerous, rather obtuse, broad; the outer ones shorter, the inner larger, converging. *Stamina:* filamenta numerous, subulate, inserted into the calix; antheræ oblong, erect. *Pistil:* germen inferior; style the length of the stamina, cylindric; stigma headed, multifid. *Pericarp:* berry rather oblong, one-celled, umbilicate, roughened as the calix is. *Seeds:* numerous, roundish, small, nestling. Essential Character. *Calix:* one-leafed, superior, imbricate. *Corolla:* manifold. *Berry:* one-celled, many-seeded.—This genus consists of succulent plants, permanent in duration, singular and various in structure; generally without leaves, and having the stem or branches jointed; for the most part armed with spines in bundles, with which, in many species, bristles are intermixed. These bundles of spines are placed on the top of the tubercles in the first species, or *Smaller Melon Thistle,* which is tubercled all over, and produces its flowers between the tubercles. In the second species, or *Great Melon Thistle,* the spines are ranged in a single row on the ridge of the ribs; these are of an ovate or globular form. From the third to the eleventh species, or the *Torch Thistles,* they are slender, rise up high, are jointed and branched; many of them are almost cylindrical, with from five to ten shallow ribs; some, however, are square or three-cornered. They are called in the West Indies, Torch-wood, because when they grow old they will burn, and the Indians use them as flambeaux. They are by no means perfectly known; and therefore remain to be well described by travellers.—The structure of the *Creeping Cereuses,* No. 12, 13, &c. is the same with these, except that the stems are weak, and cannot support themselves; they therefore seek support from trees, and throw out roots from the stem like Ivy. In the *Indian Figs,* No. 17, &c. the branches are jointed, and flatted like the sole of a shoe; the bundles of spines, or bristles, are scattered over the surface; and the flowers are produced from the edge of the extreme branches. In the *Phyllanthus,* No. 23, the branches are thinner, and may fairly be denominated *leaves;* they are indented along the edge, and the flowers come out singly from the indentures; it seldom has any spines. *Pereskia* has a round stalk with leafy branches; the leaves alternate, flat, and thick; the prickles are large and stiff, and come out in bundles on the stalk and branches, chiefly at the axils; the flowers are produced several together, from the axils also. In this and the Indian-figs, the flowers are pitcher-shaped; in the other species they are subcylindrical, and longer; in Phyllanthus very long. The fruit in some of the sorts is small, like currants, but in most it is larger, and shaped like a fig, whence the name of Indian-fig. These singular plants are all natives of the continent of South America, and the West Indian islands.——The species are,

* *Echinomelocacti of a roundish form.*

1. Cactus Mammillaris; *Smaller Melon Thistle.* Roundish, covered with ovate bearded tubercles. This differs from the second species, in being smaller and covered with tubercles, between which the flowers and fruit come out, round the middle of the plant; the flowers appear in July and August; the fruit is of a fine scarlet colour, and continuing fresh upon the plants through the winter, are very beautiful at that season. The childing variety is but little larger than the other, growing nearly in the same form, but produces a great number of young plants from the sides, by which it is increased: it produces tufts of a soft white down upon the tubercles or knobs, and also between them, so that the whole plant appears as if covered with fine cotton.—This species produces quantities of fruit annually; and as the seeds grow very readily, it is now very common in those gardens where there are stoves to keep them, for if the fruit be permitted to drop upon the earth of the pots, and that is not disturbed, there will plenty of plants come up without any further trouble; and these seedling plants may be taken up as soon as they are of a proper size to remove, and planted six or seven of them into a small halfpenny-pot, where they may stand one year, by which time they will each be large enough for a separate pot, and afterwards they will make great progress, especially if they are plunged into a hot-bed of tanner's bark in summer, for although this sort is much more hardy than the large kind, and may be preserved in a moderate stove, yet the plants will not make near the progress of those which are kept in a greater degree of heat. This sort will continue many years with proper care, and the plant will grow to be a foot high or more; but when they are so tall, the lower part of them is not so sightly, their green being decayed, and the spines changed to a dark dirty colour, they appear as if dead, so that the upper part of these old plants only seem to have life, whereas the plants of the middling size appear healthy from top to bottom. In the spring, when the fruit shrivels and becomes dry, the seeds will be ripe, and may then be rubbed out, and sown upon the surface of the earth in small pots, which should be plunged into a hot-bed of tanner's bark, to bring up the plants. In the childing variety, the young offsets may be taken off, and after laying them up to dry for two or three days, may be planted, and will succeed very well.

2. Cactus Melocactus; *Great Melon Thistle,* or *Turk's Cap.* Roundish, fourteen or fifteen angled; angles spirally twisted; spines erect. This appears like a large fleshy green melon, with deep ribs set all over with strong sharp thorns; when it is cut through the middle, the inside is found to be a soft, green, fleshy substance, very full of moisture; the flowers and fruit are produced in circles round the upper part of the cap. Some of these, brought to England, have been more than a yard in circumference, and two feet and a half high, including the cap: but in the West Indies there are plants nearly twice as large. There are several varieties of this species; indeed Mr. Miller has made four species of the great Melon Thistle, and thinks, if the islands in the West Indies were examined, many more sorts would be found. These strange plants commonly grow upon the steep sides of rocks in the hottest parts of America, where they seem to be thrust out of the apertures, having little or no earth to support them, their roots shooting down into the fissures of the rock to a considerable depth, so that it is troublesome to get the plants up. As they delight in such rocky places, they seldom live long when transplanted into a better soil. In times of great drought, the cattle repair to the barren rocks where these plants grow, rip them up with their horns,

tear off the outside skin, and greedily devour all the fleshy moist part. The fruit is frequently eaten by the inhabitants of the West Indies. It is about three quarters of an inch in length, of a taper form, drawing to a point at the bottom, but blunt at the top; the taste is an agreeable acid.—This species may be propagated by seeds; but as the plants which are raised from seeds in England will be some years in arriving to any considerable size, it will be much the best way to procure some plants from the West Indies; and if the plants arrive here in any of the summer months, so as that there may be time for them to get new roots before the cold comes on in autumn, the plants will more certeinly succeed. When the plants come over, it will be proper to take them out of the earth as soon as possible, and lay them in the stove upon the shelves to dry, for a fortnight or three weeks; and when they are planted, they should be plunged into a good warm bed of tanner's bark, to promote their making new roots; in this bed they may remain till the beginning of October, when they must be removed into the stove, and treated in the manner directed for the first sort. The soil in which they should be planted, must be of a sandy nature, and mixed with some dry lime-rubbish. The plants require a very good stove to preserve them through the winter in England, nor should they be exposed to the open air in summer, for although they may continue fair to outward appearance, when they have been some time exposed abroad, yet they will imbibe moisture, which will cause them to rot soon after they are removed into the stove; and this is frequently the case of those plants which are brought from abroad, which have a fair healthy appearance many times at their first arrival, but soon after suddenly decay.

** *Cereuses erect, supporting themselves.*

3. Cactus Pitajaya. Erect, triangular. This is upright, and eight or ten feet high; when it grows higher, it wants support, but does not put out any roots from the stem; the flower is whitish and very handsome, but has hardly any smell; it is half a foot in diameter, and blows in the night. The fruit is of the form and size of a hen's egg, of a shining scarlet colour on the outside; the pulp is white, fleshy, sweet, eatable, full of small, black, shining seeds.—Native of Carthagena, and the isle of Mango.—The Cereuses, or Torch Thistles, are all propagated by cuttings; so that if you intend to increase the number of them, you must cut off the stems of the upright sorts at what length you please; these should be laid in a dry place to heal the part cut, at least a fortnight or three weeks before they are planted; but if they lie a month it is much the better, and they will be in less danger of rotting, especially those sorts which are the most succulent. These cuttings should be planted in pots filled with the mixture of earth before directed, laying some stones in the bottom of the pots to drain off the moisture; then place the pots into a gentle hot-bed of tanner's bark, to facilitate their rooting, giving them once a week a gentle watering. The best season for this work is in June, or the beginning of July, that they may have time to root before winter. About the middle of August, give them air by degrees, but they should not be wholly exposed to the open air or sun; and at the end of September they must be removed into the stove or greenhouse, where they are to abide the winter, during which season you must be very careful not to let them have much water, and always observe to place the young plants, for the first winter, in a little warmer situation than the old plants, as being somewhat more tender. They should always have a dry situation in winter; for as they derive the greatest part of their nourishment from the surrounding air, so if this be too moist it will cause them to rot. They should not be exposed abroad, not even in the midst of summer, unless they are under shelter, for the great rains which often occur at that season are very injurious to them; the upright sorts should be therefore placed so as to enjoy a free air in the summer, but at the same time screened from rains and great dews; it will therefore be the best method to set them in an open glass-stove, where the windows may be opened in fair weather, and shut in cold or wet. The creeping sorts must not be much exposed to the open air, even in the hottest season, especially if you design to have them flower, and in winter they should be kept very warm, and have no water given them. These plants being succulent, will bear to be a long time out of the ground, therefore whoever wishes to procure them from the West Indies, need only request their friends there to cut them off, and let them lie two or three days to dry, then put them up in a box with dry hay or straw, to keep them from wounding each other with their spines; and if they are two or three months on their passage, they will keep very well, provided no wet get to them.

4. Cactus Heptagonus; *Seven-angled Upright Torch Thistle.* Erect, oblong, seven-angled.—Native of the British islands in the West Indies. See the preceding species.

5. Cactus Tetragonus; *Four-angled Upright Torch Thistle.* Erect, quadrangular, long; angles compressed. The angles of this species are compressed, and far asunder. It is very subject to put out many shoots from the sides, which stop its upright growth, so that the plants rarely rise more than four or five feet high; it flowers in July.—See the third species.

6. Cactus Hexagonus; *Six-angled Upright Torch Thistle.* Erect, six-angled, long; angles distant.—The angles of this species are armed with sharp spines, coming out in clusters at certain distances, and spreading from a centre every way; the outer substance of the plant is soft, herbaceous, and full of juice, but in the middle there is a strong fibrous circle running the whole length, which secures the stems from being broken by winds. They will rise to the height of thirty or forty feet, if their tops are not injured, and they have room to grow; but whenever the stems are cut or injured, they put out shoots from the angles, immediately under the wounded part, and frequently one or two lower down; these, if they are not cut off, form distinct stems, and grow upright, but they are seldom so large as the principal stem, especially if more than one be left on a plant. The flowers come out from the angles on the sides of the stem; they have a thick, fleshy, scaly, round, channelled, hairy peduncle, supporting a swelling germen, upon the top of which sits the scaly prickly calix, closely surrounding the corolla, till a little time before it expands; the flower is then as large as that of a Hollyhock; the inner petals are white, and crenated at their extremity; the calix is green, with some purple stripes. It is not succeeded by fruit in this country, nor do the plants often produce flowers, but when they do, there are generally several.—Native of Surinam. See the third species.

7. Cactus Pentagonus; *Five-angled Upright Torch Thistle.* Erect, long, jointed, with about five angles. Sometimes, but rarely, the stem has six angles; it never puts out any roots, and though slender and weak, grows upright.

8. Cactus Repandus; *Slender Upright Torch Thistle.* Erect, long, eight-angled; angles compressed, waved; spines longer than the wool. The flowers are produced from the angles in the same manner as those of the sixth species, but they are smaller, and the calix is of a light green, without any mixture of colour. The fruit is about the size and shape of a bergamot pear, having many soft spines on the skin; the outside is a pale yellow, the inside very white, full of pulp, having a number of small black seeds lodged in it. This

sort frequently flowers in July, and in warm seasons will perfect its fruit, which has very little flavour in this country, but is frequently served up at table in the West India islands. —See the third species.

9. Cactus Lunuginosus; *Woolly Upright Torch Thistle.* Erect, long, with about nine angles; angles obsolete; spines shorter than the wool. This is very spiny; the spines, especially the younger ones, have a brownish wool upon them; the fruit is of the size and form of a hen's egg, red on the outside, and without spines.—A native of America. See the third species.

10. Cactus Peruvianus; *Peruvian Upright Torch Thistle.* Erect, long, with about ten bluntish angles.—The stem is a fathom or more in height, almost simple, two or three inches in diameter, blunt at the end, having ten deep angles, set with thorns, crowded eight or ten together, about an inch in length, spreading, the inner ones shorter, tomentose at the base. Berry blood-red within, eatable.—Native of dry situations on the coasts of Peru and Jamaica. See the third species.

11. Cactus Royena; *Royen's Upright* or *Nine-angled Torch Thistle.* Erect, jointed, nine-angled; joints subovate; spines equal in length to the wool.—See the third species.

**** Cereuses creeping, with roots from the sides.*

12. Cactus Grandiflorus; *Great Night-flowering Creeping Cereus.* Creeping, with about five angles. This species, when arrived to a sufficient strength, will produce many exceedingly large, beautiful, sweet-scented flowers; like most of this kind, of very short duration, scarcely continuing six hours full blown; nor do the flowers ever open again when once closed. They begin to open between seven and eight o'clock in the evening, are fully blown by eleven, and by three or four in the morning they fade, and hang down quite decayed; but during their short continuance, there is scarcely any flower of greater beauty, or that makes a more magnificent appearance, for the calix of the flower, when open, is near a foot in diameter, the inside of which being of a splendid yellow colour, appears like the rays of a bright star; the outside is of a dark brown; the petals being of a pure white, add to the lustre; the vast number of recurved stamina surrounding the style in the centre of the flower, make a fine appearance: add to all this, the fine scent of the flower, which perfumes the air to a considerable distance. There is scarcely any plant which deserves a place in the hot-house so much as this, especially as it may be trained against the wall, where it will not take up any room. The usual season of its flowering is in July; and when the plants are large, many flowers will open the same night, and there will be a succession of them for several nights together. Sometimes six, eight, or ten flowers, open at the same time on one plant, making a most magnificent appearance by candle-light; but none of them are succeeded here by any appearance of fruit. —Native of Jamaica and Vera Cruz. See the third species.

13. Cactus Flagelliformis; *Pink-flowering Creeping Cereus.* Creeping, ten-angled. This produces a greater number of flowers than the preceding sort; they come out in May, and sometimes earlier when the season is warm; the petals are of a fine pink colour both within and without; they are not so numerous, and the tube of the flower is longer than that of the other: these flowers keep open three or four days, provided the weather, or the place where the plants stand, be not too warm; and during their continuance they make a fine appearance. This sort has very slender trailing branches, which require a support; they are not jointed, nor do they extend so far as those of the other sort, so that they may be easily trained to a little trellis of sticks, and the plant may be conveyed into the house whilst in flower, to adorn any of the rooms. The flowers are so beautiful, and are produced in such great plenty, that this may be placed in the first class of exotic plants.—Native of Peru. See the third species.

14. Cactus Parasiticus; *Parasitical Creeping Cereus.*— This is probably the root of some species of Epidendrum.

15. Cactus Pendulus; *Slender Cereus.* Pendulous; branches in whorls, round, smooth, without prickles; stem roundish, green, woody, striated, as big as a goose-quill, divided into several slender, round, striated branches, and they into twigs, at distances of one, two, and three inches; at which divisions are set little twigs an inch and a half long, in whorls.—It grows chiefly on the largest trees in Jamaica, hanging commonly to the length of three or four feet.

16. Cactus Triangularis; *Triangular Cereus,* or *Strawberry Pear.* Creeping, triangular. This climbs up trees to a considerable height, supporting itself by throwing out roots; it also covers shady rocks. The fruit is the best flavoured of any of the sorts, being slightly acid, with a mixture of sweetness, and also pleasant and cooling. It has no leaves, but is somewhat irregular with scars. In Martinico, where the fruit is esteemed by the inhabitants, they call it *poirier de chardon,* or thistle pear. There is a variety of this species, (native of the island of St. Eustatia,) the fruit of which is much larger, of a shining scarlet-colour, and clothed with leaves which are almost entire; the pulp is white, sweetish, eatable, but has very little flavour; the seeds are black and glossy.—See the third species.

***** Opuntias, compressed with proliferous joints.*

17. Cactus Moniliformis; *Neck-lace Indian Fig.* Proliferous jointed; joints globular, thorny, glomerate. This is a sessile plant, consisting of globular joints growing out of each other, armed with very sharp subulate spines. It is a very singular plant, and the least known of any in this genus.—Native of South America. All the Opuntias, except the following, or eighteenth species, are too tender to thrive in the open air in England; nor can many of them be preserved through the winter here, unless they have artificial heat, for when they are placed in a green-house they turn to a pale yellow colour, their branches shrink, and frequently rot on the first approach of warm weather in the spring. They may all of them be propagated by cutting off their branches at the joints, during any of the summer months; these should be laid in a warm dry place for a fortnight, that the wounded part may be healed over, otherwise they will rot with the moisture they imbibed at that part, as is the case with most other succulent plants. The soil in which these plants must be planted, should be composed after the following manner, viz. one-third of light fresh earth from a pasture, another third part sea-sand, and the remainder equal parts of rotten tan and lime-rubbish; these should be well mixed, and laid in a heap three or four months before it is used, observing to turn it over at least once a month, that the several parts may be well united; then you should pass it through a rough screen, in order to separate the largest stones and clods, but by no means sift it too fine, which is a very common fault; then you should reserve some of the smaller stones and rubbish to lay at the bottom of the pots, in order to keep an open passage for the moisture to drain off; which is what must be observed for all succulent plants, for if the moisture be detained in the pots it will rot the roots and destroy the plants. When any branches of these plants, except those of the eighteenth sort, are planted, you should plunge the pots into a moderate hot-bed, which will greatly facilitate their taking root;

you should also refresh them now and then with a little water; but be very careful not to let them have too much, or be too often watered, especially before they are rooted. When the plants begin to shoot, you must give them a large share of air, by raising the glasses, otherwise the shoots will draw up so weak as not to be able to support themselves; and after they have taken strong root, you should inure them to the air by degrees, and then remove them into the stove, where they should remain, placing them near the glasses, which should always be opened in warm weather, so that they may have the advantage of a free air, and yet be protected from wet and cold. They often require water in summer: they thrive best when the heat is at the temperate point, as marked upon the botanical thermometers, for if they are kept too warm in winter, it causes their shoots to be very tender, weak, and unsightly. Those sorts which are inclinable to grow upright, should have their branches supported with stakes, otherwise their weight is so great it will break them down. These plants are by most people exposed to the open air in the summer season; but they thrive much better if they are continued in the stoves, provided the glasses be kept open, so that they may have free air; for when they are set abroad, the great rains which generally fall in summer, together with the unsettled temperature of the air in our climate, greatly diminish their beauty, by retarding their growth; and sometimes in wet summers they are so replete with moisture, as to rot the succeeding winter; nor will those tender plants which are set abroad produce their flowers and fruit in such plenty, as those which are constantly preserved in the house.

18. Cactus Opuntia; *Common Indian Fig*, or *Prickly Pear*. Proliferous-jointed, loose; joints ovate, setaceous. The joints or branches of the common Opuntia, or Indian fig, are ovate, compressed, and have very small leaves coming out in knots on their surface, as also on their upper edges, which fall off in a short time; and at the same knots there are three or four bristly spines, which do not appear unless they are closely viewed; but on being handled they enter the skin, are troublesome, and very difficult to get out again. The branches spread near the ground, and frequently trail upon it, putting out new roots, and thus extending to a considerable distance, but never rising in height; they are fleshy and herbaceous whilst young, but as they grow old become dryer, of a tough contexture, and have woody fibres. The flowers come out on the upper edges of the branches generally, though sometimes they are produced on their sides; the skin or cover of the fruit is set with small spines in clusters, and the inside is fleshy, of a purple or red colour. It flowers here in July and August; but, unless the season is very warm, the fruit will not ripen in England. This sort is now found growing wild on the sides of the roads about Naples, and other parts of Italy, in Sicily, Spain, Portugal, the Válais, the south of France, Minorca, &c.—For the propagation and culture, see the preceding species.

19. Cactus Ficus Indica; *Oblong Indian Fig*. Proliferous-jointed; joints ovate, oblong; spines setaceous. The flowers come out from the upper edges of the leaves, like those of the preceding species; but they are larger, and of brighter yellow colour: the fruit is also larger, and of a deeper purple colour; the outer skin is also armed with longer spines. This is the most common sort in Jamaica, and upon the fruit of this, the wild sort of cochineal insect feeds, which is called Silvester. Dr. Houstoun, who was writing a history of these insects, sent some of the plants from Jamaica with the insects alive upon them, and they lived three or four months after their arrival. If the fruit of this plant be eaten, it will dye the urine of a bloody colour. This seems to be a native not only of South America, but also of the East Indies, Cochin-china, Japan, and Madeira.—See the seventeenth species.

20. Cactus Tuna; *Great Indian Fig*, or *Upright Prickly Pear*. Proliferous-jointed; joints ovate, oblong; spines subulate. This species has stronger branches than the foregoing sort, and they are armed with larger thorns, which are awl-shaped, whitish, and in clusters; the flowers are large, of a bright yellow colour; and the fruit is shaped like that of the foregoing species. Professor Martyn enumerates two varieties; the first of which grows taller, with larger and thicker branches, and of a deeper green, and are armed with strong black spines coming out in clusters, which are far asunder; the flowers are smaller, and of a purplish colour, as are also the stamina; the fruit is of the same form with that of the common sort, and does not ripen here. The second variety, called Opuntia Maxima, is the largest of all the sorts yet known; the joints are more than a foot long, and eight inches broad; they are very thick, of a deep green colour, and are armed with a few short spines; the older branches of this often become almost taper, and are very strong; it has not flowered, though many of the plants were more than ten feet high. It makes very strong fences; the prickles are so sharp that the cattle are afraid of coming near them; and it spreads very much, both by the joints and the seed. When the island of St. Christopher was to be divided between the English and the French, three rows of the *tuna* were planted by common consent between the boundaries. Dr. Smith, in his very ingenious paper upon the irritability of vegetables, informs us, that the long and slender stamina of the flower are very irritable; and that if a quill or feather be drawn through them, in the space of two or three seconds they begin to lie down gently on one side, and in a short time become recumbent at the bottom of the flower.—It is a native of South America and Jamaica. See the seventeenth species.

21. Cactus Cochinillifer; *Cochineal Indian Fig*. Proliferous-jointed; joints ovate-oblong, almost unarmed. This, which is supposed to be the plant upon which the cochineal insect feeds, has oblong, smooth, upright branches, rising to the height of eight or ten feet, having scarcely any spines on them, and the few which there are, so soft as not to be troublesome when handled. The flowers are small, and of a purple colour; they do not spread open, appear late in autumn with us, and the fruit drops off in winter without coming to perfection. The cochineal insect feeds on many succulent plants, but most commonly on the Cactus Genus. For this reason the Indians propagate large quantities of the most harmless species, to breed the insects upon; Dampier's account of which is as follows, "The plant on which the cochineal insect feeds is like the prickly pear, about five feet high, and as prickly, only the leaves are not quite so large, although the fruit is larger: on the top of the fruit there grows a red flower; this, when the fruit is ripe, falls down on the top of it, and covers it so that no rain or dew can wet the inside. A day or two after, the flowers being scorched up by the heat of the sun, the fruit opens wide, and the inside appears full of small red insects. The Indians, when they perceive the fruit open, spread a large linen cloth, and then with sticks shake the plant, to disturb the insects, so that they take wing to be gone, but keep hovering over the plant, till by the heat they fall down dead on the cloth, where they let them remain two or three days to dry. The cochineal plants are called *toona* by the Spaniards. They are planted in the country about Guatimala, Cheapo, and Guaxaca, in the kingdom of Mexico." The difference in point of goodness, observable in the cochineal, is entirely owing to the

P. 219.

CACTUS GRANDIFLORUS — *Night-flowering Creeping Cereus.*

P. 220.

CACTUS OPUNTIA — *Common Indian Fig.*

I. Clarke

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

plant it feeds upon. The prickly pear, so abundant in Jamaica, is covered with the insects, but not having their proper food, they are in general diminutive, and have very little red tincture in their bodies. These plants bear a succulent fruit at their extremities, filled with a delicate red-coloured juice. This is the natural food of the insect; the exuviæ and animal salts of the insect are, from the minuteness of its parts, inseparable from the essential principles of the dye, and must diminish the brilliancy of the colour: and this has put some persons upon inspissating the juice of the fruit itself. The fruit, when ripe, is said to check fluxes by its mild restringency; it is also a powerful diuretic, and sometimes imparts a tinge to the urine.—See the seventeenth species.

22. Cactus Curassavicus; *Curassao*, or *Least Indian Fig*, or *Pinpillow*. Proliferous-jointed; joints cylindric, ventricose, compressed. This has thicker and more swelling joints than the other sorts, closely armed with slender white spines. The branches spread out on every side, and where they have no support fall to the ground, very often separating at the joints, and, as they lie upon the ground, putting out roots, and forming new plants. It very rarely produces flowers in England. In the West Indies it is called *Pinpillow*, from the appearance which the branches have to a pincushion stuck full of pins. It is said to grow naturally at Curassao.—See the seventeenth species.

23. Cactus Phyllanthus; *Spleenwort-leaved Indian Fig*. Proliferous, ensiform-compressed, serrate, repand. It has very thin branches, which are indented regularly on their edges like Spleenwort; they are of a light green, shaped like a broadsword, and without spines: the flowers come out from the side and at the end of the branches, and are of a pale yellow colour; the fruit rarely ripens in England.—Native of Brazil.—See the seventeenth species.

24. Cactus Alatus. Proliferous, ensiform, compressed, serrate, repand. The stem round, ash-coloured, flexile, whence issue several leaves, at first hairy, growing to a foot in length, an inch broad in the middle; and having round indentures on their edges, out of which proceed the flowers. The fruit small and compressed.—Native of Jamaica.

25. Cactus Spinosissimus; *Cluster-spined Indian Fig*. Stem upright, compressed; branches opposite, bifarious, compressed; spines bristle-shaped. The branches of this species have the joints much longer, narrower, and more compressed, than in any of the others; the spines are very long, slender, and of a yellowish-brown colour, coming out in clusters all over the surface of the branches, crossing each other, so as to render the plant dangerous to handle; for upon being touched, the spines quit the branches, adhere to the hand, and penetrate the skin, so as to be very troublesome: its growth is more upright and lofty than the other Opuntias; the trunk below the branches is so absolutely covered with spines as to be invisible, and to seem nothing but a congeries of these. Hence the gardeners whimsically call this plant Robinson Crusoe's Coat. Upon the whole, this species is very different from the rest, and has more of an air of neatness and elegance than any of these strange plants, notwithstanding its roughness.—Native of Jamaica.

26. Cactus Pereskia; *Barbadoes Gooseberry*. Stem arboreous, round; prickles double, recurved; leaves lanceolate, ovate. This has many slender branches, which trail on whatever plant grows near them; these, as also the stem, are beset with long whitish spines, or tufts; the leaves are roundish, very thick and succulent; and the fruit is about the size of a walnut, having tufts of small leaves on it, and within a whitish mucilaginous pulp. It grows in some parts of the Spanish West Indies, whence it was brought to the English settlements in America, where it is called Barbadoes gooseberry. The Dutch have named it *blad-apple*. It may be propagated by cuttings planted during any of the summer months, in pots filled with fresh light earth, and plunged into a moderate hot-bed of tanner's bark, observing to shade them from the sun in the heat of the day, and to refresh them every third or fourth day with water; in about two months the cuttings will have made good roots, when they should be carefully taken out of the pots, and each planted into a separate pot filled with fresh earth, and then plunged into the hot-bed again, where they may remain during the summer season; but at Michaelmas, when the nights begin to be cold, they should be removed into the stove, and plunged into the bark-bed. During the winter season the plants must be kept warm, and watered twice a week, but not in large quantities. In summer they demand a greater share of air and more water, but they should remain constantly in the stove; for though they will bear the open air in summer in a warm situation, yet they will make no progress if they be placed abroad; nor do they thrive so well in the dry-stove, as when they are plunged in the tan; so that the best way is to set them next a trellis, at the back of the tan-bed, to which their branches may be fastened, to prevent their trailing on other plants.

27. Cactus Portulacifolius; *Purslain-leaved Indian Fig*. Stem round, arboreous, thorny; leaves wedge-form, retuse. The stem is leafless, but armed with bundles of bristle-shaped spines; fruit roundish, having no tufts of leaves on it; by which it is distinguished from the foregoing, which it much resembles.

Cadia; a genus of the class Decandria, order Monogynia. —Generic Character. *Calix*: perianth one-leafed, five-cornered, five-cleft. *Corolla*: petals five, equal, obcordate. *Stamina*: filamenta ten, filiform, equal, the length of the petals or nearly so, protuberant at the base; antheræ oblong, rather sharp at the top, placed obliquely at the ends of the filamenta. *Pistil*: germen linear; style bowed; stigma acute. *Pericarp*: legume linear, compressed, bent at the end, membraneous, many-seeded. *Seeds*: oblong, smooth. Essential Character. *Calix*: five-cleft. *Petals*: five, equal, obcordate. *Legume*: many-seeded.——The only known species is.

1. Cadia Purpurea; *Purple-flowered Cadia*. This is a shrub rising to the height of nearly three feet; the branches and petioles are pubescent. Forskal observes, that the flowers hang down; that the corolla has sometimes six or seven petals, and that in such cases there are more stamina, frequently twelve or fourteen; and that there is no gland to the antheræ. Native of Arabia; it has not flowered in England.

Cænopteris; a genus of the class Cryptogamia, order Filices.—Generic Character. *Fructifications*: in submarginal lateral lines, covered with a membrane, gaping on the outside.—The only species is,

1. Cænopteris Rhizophylla. Frond bipinnate, rooting at the tip; pinnules obovate, somewhat sickle-shaped, petioled; primordial leaves lobed.—Native of Dominica.

Cæsalpinia: a genus of the class Decandria, order Monogynia. Generic Character. *Calix*: perianth one-leafed, five-parted; tube short; segments oblong, deciduous, the lowest longer than the rest, slightly arched. *Corolla*: petals five, inserted into the throat of the calcyne tube, unequal; lamina roundish. *Stamina*: filamenta ten, inserted into the throat of the calix, filiform, woolly at the base, declining; antheræ oblong, decumbent. *Pistil*: germen superior, linear-oblong, compressed, attenuated at the base;

style filiform, the length of the stamina blunt. *Pericarp:* legume oblong, compressed, one-celled. *Seeds:* few, sub-ovate, compressed flat. ESSENTIAL CHARACTER. *Calix:* five-parted, the lowest segment longer, and slightly arched. *Stamina:* woolly at the base. *Petals:* five. *Legume:* compressed.—The plants of this genus are propagated by seeds, which should be sown in small pots filled with light rich earth early in the spring, and plunged into a hot-bed of tanner's bark, observing to shade them from the sun, and to water the earth as often as it appears dry; if the nights should prove cold, the glasses must be covered with mats, to keep the bed in a moderate warmth: in about six weeks the plants will begin to appear, when they must be carefully cleared from weeds, and frequently refreshed with water: in warm weather the glasses should be raised in the middle of the day to admit fresh air. When the plants are about three inches high, they should be carefully taken out of the pots, and each transplanted into a separate small pot filled with fresh light earth, and plunged into the hot-bed again, observing to water them, and screen them from the heat of the sun, until they have taken new root; after which time the glasses should be raised every day in proportion to the warmth of the weather. In this hot-bed the plants are to remain till autumn, when they should be removed to the stove, and plunged into the bark-bed, where they may have room to grow; here they should remain; and being placed among tender exotics of the same climate, will afford an agreeable variety.——The species are,

1. Cæsalpina Elata. Unarmed: leaflets linear, blunt with a point; corymbs compound; calices coriaceous, tomentose; petals fringed; stamina very long. This is a tree, with bipinnate leaves: the flowers are large, yellow; filamenta very dark purple.—Native of India.

2. Cæsalpina Pulcherrima; *Barbadoes Flower Fence.* Prickly; leaflets oblong, oval, emarginate, they and the calices smooth; corymbs simple; petals fringed; stamina very long. It rises with a straight stalk ten or twelve feet high; it is covered with a smooth gray bark, and is sometimes as thick as the small of a man's leg; it divides into several spreading branches at the top, armed at each joint with two short strong crooked spines.—This beautiful plant is a native of both Indies; it is planted in hedges, to divide the lands in Barbadoes, where it has the name of *Flower-Fence*; it is also called *Spanish Carnations* in some of our islands in the West Indies. Dr. Houstoun has found varieties in the colour of the corolla, some having a red and others a yellow flower in the Spanish West Indies. All parts of this plant are thought to be very powerful emmenagogues, and are frequently used for that purpose among the negroes. The Flower-Fence, if care be taken to water and shift the plants as often as it is necessary, will grow three feet high the first season. When they are grown large, care must be taken, when they are shifted into larger pots, not to suffer the ball of earth to fall from the roots. They are very impatient of moisture in winter, and if damp seizes their top, it very often kills them, or at least occasions the loss of their heads. The beautiful flowers of this shrub appear in December here; but in the West Indies it flowers twice a year.

3. Cæsalpina Sappan; *Narrow-leaved Prickly Brasiletto.* Leaflets oblong-oval, unequal-sided, blunt; they and the calixes smooth; stamina longer than the corolla. This tree is a native of mountains in the Circars.

4. Cæsalpina Pyramida. Unarmed: leaflets oval, quite entire, equilateral; petals with claws roundish, flat, equalling the stamina.—This tree is a native of the West Indies.

5. Cæsalpina Crista, Prickly; leaflets oval; racemes simple; petals ovate, shorter than the smooth calix; stamina longer than the calix.—This tree is also a native of the West Indies.

6. Cæsalpina Brasilinesis. Unarmed: leaflets ovate oblong; mldril pubescent; calixes tomentose; stamina shorter than the corolla.—Native of the West Indies.

7. Cæsalpina Bijuga. Leaves doubly pinnate, with two pairs of obcordate leaflets; they and the calixes smooth; stamina equalling the corrola.—This tree is about 15 feet high; native of Jamaica and Curaçoa.

8. Cæsalpina Coriaria. Leaflets linear; racemes in form of spikes; calixes smooth, equalling the corolla; stamina longer than the corolla; legumes curved inwards.—An elegant tree, growing in salt-marshes in Carthagena, &c.

Calabash. See *Cucurbita* and *Crescentia.*

Calamint. See *Melissa* and *Mentha.*

Calamus; a genus of the class Hexandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth six-leaved, permanent; the three outer leaflets shorter, broader; the three inner longer, narrower, acuminate. *Corolla:* none, except the calix be so called. *Stamina:* filamenta six, capillary longer than the calix; antheræ round. *Pistil:* germen roundish, superior; style trifid, columnar, spiral, filiform; stigmas simple. *Pericarp:* membranous, globular, covered with scales, imbricated backwards, and obtuse; it is one-celled, at first pulpy, but afterwards juiceless. *Seed:* one, globular, fleshy. ESSENTIAL CHARACTER. *Calix:* six-leaved. *Corolla:* none. *Berry:* dried, one-seeded, imbricate backwards.

1. Calamus Rotang, or Rattan.—All the sorts or varieties of the Calamus Rotang, or Rattan, have a stem which is perennial, quite simple or unbranched, long, round, unarmed or without prickles, solid, jointed, procumbent when unsupported, scandent when near trees, but without any tendrils. The Rattan seems to form the connecting link between the palms and the gramineous plants, having the flower of the former, but the habit of the latter. Loureiro has discriminated six species of Calamus, viz. 1. The *Stone Rattan,* with a stem as thick as the human arm, and a hundred feet long, used for large spears and halberts. 2. The *Cable Rattan:* stem more than five hundred feet long and about an inch thick, very tough, used for ships' cables, for ropes to draw great weights, and to tame and fasten wild elephants. 3. The *Walking Cane Rattan,* with very long, subulate, glossy internodes. It grows abundantly on both sides of the straits of Malacca, whence it is exported into China and Europe. 4. The *Genuine Rattan:* stem a hundred feet long, yellowish, brown, equal, very flexile, the thickness of a finger. In India the largest cables are made of the stem cut into thongs; besides all sorts of ropes for fastening the planks of the country vessels and the boarding of houses, in which no nails are used; and also for tying a variety of utensils, both domestic and rural. 5. The *Bitter Rattan:* stems sixty-feet long, the thickness of a finger. It is used for the same purposes as the genuine Rattan, but is harder and more durable. 6. The *Diœcous Rattan:* stem the thickness of a goose-quill, twenty feet long, very regular and flexile. It is used for weaving, and fastening smaller and nicer utensils. All these are specifically different, for they grow wild in places very remote from each other, where they regularly preserve their peculiar habits and differences. Many others grow in Cochin-china, the straits of Malacca, and other places, which, on an accurate examination, may be found to be different both from these and each other. They grow abundantly in the East Indies, by the sides of rivers. Their extreme toughness and pliability render them very useful to the natives, for withs, and almost all the purposes to which we apply ropes. The

Rattan is imported into Europe, and used for a variety of minor purposes, such as bottoming chairs, for riding and walking canes, hoops for the petticoats of fools, &c. &c. The Zalaced or Salxch, another species, is cultivated for the fruit, which is about the size of a walnut, and covered with scales like those of a lizard; below the scales, are two or three yellow kernels, in flavour somewhat resembling a strawberry. This is supposed to produce the dragon's-blood.

Calceolaria; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-parted, spreading, equal; divisions ovate, permanent. *Corolla:* monopetalous, bilabiate; lower lip resupine; upper very small, contracted, globular, bifid anteriorly, lower very large, slipper-form, inflated, gaping anteriorly. *Stamina:* filamenta two, very short, within the upper lip; antheræ incumbent, club-form, with the handle prominent through the chink. *Pistil:* germen roundish; style very short; stigma bluntish. *Pericarp:* capsule subconic, acuminate, two-furrowed, two-celled, two-valved. *Seeds:* numerous, ovate. Essential Character. *Corolla:* ringent, inflated. *Capsule:* two-celled, two-valved. *Calix:* four-parted, equal.——The species are,

1. Calceolaria Pinnata; *Pinnated Slipperwort.* Leaves pinnate. Root annual; stem erect, two feet high, round, brachiate, brittle, with a very thick down, and from fifteen to twenty joints.—It flowers from July to October; and is a native of moist places in Peru. This species may easily be raised from seed, sown on a gentle hot-bed in the spring; the seedlings, when of a proper size, are to be transplanted into the borders of the flower-garden, where they will flower, ripen, and scatter their seeds; but it appears to most advantage in a tan-stove.

2. Calceolaria Integrifolia; *Whole-leaved Slipperwort.* Leaves lanceolate, wrinkled, serrate; flowers panicled, terminating.—It was observed in Chili by Feuillée.

3. Calceolaria Perfoliata; *Perfoliate Slipperwort.* Leaves perfoliate, sagittate, villose on both sides. This is a very singular and handsome plant, the whole of which is villose, except the corolla; stem round, from a foot to two feet high, leafy, terminated by a many-flowered leafy corymb; corolla yellow, large; antheræ two-lobed, large, the lobes bent down.—Found in New Granada, by Mutis.

4. Calceolaria Nana; *Dwarf Slipperwort.* Scapes one-flowered; leaves ovate, quite entire. Stemless; flowers large, specious, yellow, spotted with red.—Found by Commerson in the Straits of Magellan.

5. Calceolaria Plantaginea; *Plaintain-leaved Slipperwort.* Scapes few-flowered; leaves rhombed, serrate. Root perennial, fibrous; stem none; corolla yellow.—Found in the Straits of Magellan.

6. Calceolaria Ovata. Stem branching; leaves ovate, crenate. Root annual, fibrous; stem erect, round, hairy; leaves opposite, on short petioles, with white pellucid hairs, and underneath paler; corolla like that of the first species, small and yellow.—Found by Dombey in Peru.

7. Calceolaria Fothergillii; *Spatula-leaved Slipperwort.* Leaves spatulate, quite entire; peduncles scape-form, one-flowered. Stem scarcely an inch high, subdivided near the root: flowering from May to August.—Native of the Falkland Isles.

Calea; a genus of the class Syngenesia, order Polygamia Æqualis. Generic Character. *Calix:* common imbricate; scales oblong, somewhat loose. *Corolla:* compound, uniform; corollules hermaphrodite, very many, equal; proper funnel-form, with a five-cleft border. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen somewhat oblong; style filiform, the length of the corollule; stigmas two, recurved, acute. *Pericarp:* none; calix unchanged. *Seeds:* solitary, oblong; down hairy, the length of the calix. *Receptacle:* chaffy; chaffs a little longer than the calix, eminent between the floscules. Essential Character. *Calix:* imbricate. *Down:* hairy, or none. *Receptacle:* chaffy.—These plants may be propagated by seeds, sown upon a hot-bed in the beginning of April; when they come up, they should be tenderly treated whilst young; admitting, however, fresh air to them daily, in proportion to the warmth of the season, giving them water frequently, but sparingly. When they have strength enough to be removed, they must be each transplanted into a separate small pot, filled with light sandy earth, and plunged into a hot-bed, observing to shade them until they have taken new root, giving them air, and watering them frequently, but gently, as before. When the plants are grown strong, they must be removed into larger pots, and placed in the stove or glass-case, giving them plenty of fresh air in warm weather; with which management they will sometimes ripen their seeds in favourable seasons.——The species are,

1. Calea Jamaicensis Flowers subtern, peduncled; leaves ovate-oblong, subserrate, petioled. Height six or seven feet or more; stems shrubby, narrow, round, obscurely tomentose; leaves hairy, rugged, three-nerved; flowers terminating, frequently three together, the pedicles of the same length with the flowers; calix coloured; the pappus or down is rugged, and as long as the flower.—Native of the woods and inland parts of the island of Jamaica.

2. Calea Oppositifolia. Corymbs heaped; peduncles very long; leaves lanceolate; stem herbaceous, two feet high, branched, upright, round, pubescent.—Native of hedges on the mountains of Jamaica.

3. Calea Amellus. Flowers subpanicled; calices short; seeds naked; leaves ovate-lanceolate, petioled. This species has woody branches, which spread over the neighbouring plants, and rise eight or ten feet high; the leaves are thick and opposite; there are many side-branches on which are smaller leaves, opposite like the others, and terminated by panicles of yellow flowers; seeds four-cornered, without down.—Native of Jamaica.

4. Calea Lobata. Corymbs heaped; leaves alternate, the upper ones ovate-lanceolate, the lower ones tooth-hastate, sinuate-serrate. This plant bears many naked yellow flowers, and generally rises to the height of four or five feet, according to Browne; who calls it *Halbert weed*, from the shape of the leaves: he affirms, that it is an excellent bitter, and much used in America, where a spirituous infusion of the tops is generally kept in most plantations, and is often administered as an active warm stomachic.—Native of Jamaica.

5. Calea Scoparia. Stem suffruticose; branches almost opposite, angular. This is a shrub or small tree; stem the height of a man or more, branched towards the top, even, streaked, wrinkled, with an ash-coloured bark.—It is a native of Jamaica, and there found only in the coldest parts of the mountains; it resembles our European Broom, and is therefore called *Mountain Broom-tree;* it is the only tree of the same appearance in that country. Flowers small, white.

6. Calea Leptophylla. Flowers terminating in threes and fives, heaped; leaves oblong, imbricate, quite entire, sessile; stem shrubby.—Native of New Zealand.

7. Calea Pinifolia. Peduncles terminating, heaped; leaves linear, acerose; stem shrubby.—Native of New Zealand.

Calendula; a genus of the class Syngenesia, order Polygamia Necessaria.—Generic Character. *Calix:* com-

mon simple, many-leaved, almost upright; segments linear-lanceolate, (fourteen to twenty,) nearly equal. *Corolla:* compound radiate; corollules hermaphrodite, very many in the disk; females the number of rays in the calix, very long in the ray: proper of the hermaphrodite tubular, semiquinquefid, the length of the calix; of the female, ligulate, very long, three-toothed, villose at the base, nerveless. *Stamina:* (hermaphrodite) filamenta five, capillary, very short; antheræ cylindric, tubular, the length of the corollule. *Pistil:* hermaphrodite; germen oblong; style filiform, scarcely the length of the stamina; stigma obtuse, bifid, straight. Females; germen oblong, three-cornered; style filiform, the length of the stamina; stigmas two, oblong, acuminate, reflex. *Pericarp:* none; calix converging, roundish, depressed. *Seeds:* hermaphrodite, central of the disk, none; of the circumference, seldom solitary, membranous, obcordate, compressed; females solitary, larger, oblong, incurved, triangular, with membranous angles, marked on the outside longitudinally, with the figure of a vegetable. *Down:* none. *Receptacle:* naked, flat.—The flowers are commonly solitary, and terminating.——The species are,

1. Calendula Arvensis; *Field Marygold.* Seeds boatform, muricated, bent in; the outmost erect, protended. Root annual; stalk slender, branching, spreading near the ground; leaves narrow, spear-shaped, hairy, half surrounding the stalk at their base; flowers produced at the extremity of the branches, upon long naked peduncles, they are very small, and of a pale yellow colour; the florets of the ray are very narrow, as are also the leaves of the calix.—It flowers most part of the summer, and is a native of Sweden, Germany, Switzerland, France, Carniola, Italy, and Spain. If the seeds of the Field Marigold be permitted to scatter, there will be a fresh supply of young plants, so that from May, when the flowers first appear, till the frost puts a stop to them, there will be a succession of plants in flower.

2. Calendula Sancta; *Palestine Marigold.* Seeds pitcher-form, obovate, even; calices submuricated. This is very like the foregoing species, but the calix is muricated on the outside. Mr. Miller informs us, that the leaves are much larger than those of the former sort, but yet not so large as those of the Garden Marigold; and that the flowers are of a middle size between the two others, and of a very pale yellow colour.

3. Calendula Officinalis; *Garden Marigold.* Seeds all boat-form, muricated, bent in.—This differs from the Field Marigold not only in the seeds, but in having a loftier stem, more divaricated, pubescent, and pale green, as are also the leaves; these are longer and less sinuated, the lower and middle leaves ovate and blunt, the upper ones lanceolate.—Native of France, in the vineyards; of Italy in the cornfields; of Silesia, in orchards, gardens, and fields; flowering most part of the summer. The golden splendour of this flower, says Bauhin, ennobled this plant before it was known to be of any use. It has however been cultivated time out of mind in kitchen gardens for the flowers, which were dried in order to be boiled in broth; from a fancy that they are comforters of the heart and spirits. Linneus accordingly says, that they may be used in a double dose, as a succedaneum to Saffron; but modern practice has little confidence in these supposed cordials. The common, or officinal Marigold, is a plant which is now much out of use in the materia medica, and has probably been commended beyond its merit as an aperient and detergent in visceral obstructions, jaundice, and menstrual suppressions. It has also been considered as useful in the scrofula of children, eaten in the manner of a salad. There is a certain acrimony in the plant, insomuch that it has even been commended as an extirpator of warts. Formerly, the flowers were very much esteemed as preservatives against pestilential disorders, either chewed, or infused in vinegar; or the juice itself, drank to the quantity of some ounces. It has been highly recommended in the plague itself, by some writers, and is esteemed a powerful sudorific; the leaves are supposed to be more efficacious than the flowers. It has been asserted, that a Marigold flower, rubbed on the affected part, is an admirable remedy for the pain and swelling caused by the sting of a wasp or bee. According to Hill, an infusion of the fresh-gathered flower is good in fevers; it gently promotes perspiration, and throws out any thing which ought to appear on the skin. Meyrick says, a water distilled from them is good for inflamed and sore eyes: a decoction of the flowers, in posset drink, is much used among country people, as an expulsive in the small-pox and measles. The leaves of the plant, when chewed, at first communicate a viscid sweetness, which is followed by a sharp penetrating taste, very durable in the mouth, but not of the hot or aromatic kind, but rather of a saline nature. The expressed juice, which contains the greatest part of this pungent matter, has been given in doses of two or three ounces, in cases of costiveness, in which it is very efficacious; and it likewise promotes the other secretions of the body in general. Snuffed up the nose, it excites sneezing, and a discharge of mucus from the head. Linneus observes, that the flowers of this plant are open from nine in the morning till three in the afternoon. This regular expansion and closing of the flowers attracted early notice, and hence this plant acquired the names of *solsequia* and *solis sponsa.* There is an allusion to this property in the poems ascribed to Rowley:

> " The Mary-budde that shootethe (shutteth) with the light."

But more fully thus by Shakspeare,

> " The Marigold, that goes to bed wi' th' sun,
> " And with him rises weeping."

Of the garden Marigold, there are the following varieties:—1. The single. 2. The common double-flowering. 3. The largest very double-flowering. 4. The double lemon-coloured. 5. The greater and smaller Childing Marigold, called by Gerarde, fruitful or much-bearing Marigold. There are other trifling varieties not worth observation.—This plant, in German, is called *gewohnlicken, ringelblume, goldblume, dotterblume, gilkenbutterblume, gemeine sonnenwendes, haussonnenwirbel, weckbroselchen, todtenblume*; in Dutch, *tamme goudbloem*; in Swedish, *ringblomma*; in Danish, *almindelige koeblomme, solsikke, soelsik*; in English, *Common* or *Garden Marigold* or *Marygold;* by old authors, *Golds* or *Ruddes. Golds*, or *Gouldes*, is a name among the country people, not only for this but for Chrysanthemum Segetum, any sort of Hawkweed, and, in short, for most yellow flowers of the Syngenesia class. The fondness of the British for tacking Christian names to animals and plants, is well known; the Virgin Mary, in particular, has sanctified many of the latter. The French term the garden Marigold *souci du jardin*; the Italians, *calendula ortense, fiorrancio, fiore d'ogni mese*, which latter name countenances the derivation of Calendula from the calends; the Spaniards and Portuguese also call it *calendula ortense*, and the latter sometimes term it *maravilha bastarda;* in Russian, its name is *nogotki.*—The seeds of the single garden Marigold will come up of themselves, if they are permitted to scatter: the varieties are supposed to have been originally obtained from the seeds of the single sort, but most of these differences continue, if the seeds be pro-

perly saved; but the two childing Marigolds, and the largest double, are subject to degenerate, where care is not taken in saving their seeds: the best way to preserve the varieties, is to pull up all those plants, whose flowers are less double, as soon as they appear, and to save the seeds from the largest and most double flowers; the childing sort should be sown by itself in a separate part of the garden, and the seeds saved from the large centre flowers only, not from the smaller ones which come from the calix of the other, for the seeds of these are apt to change. The seeds may be sown in March or April where the plants are to remain, and will require no other culture but to keep them clean from weeds, and to thin the plants where they are too close, leaving them ten inches asunder, that their branches may have room to spread. These plants will begin to flower in June, and continue in flower until the frost kills them. The seeds ripen in August and September, which, if permitted to scatter, will furnish a supply of young plants in the spring; but as these will be a mixture of bad and good, the best method is to save the best seeds, and sow each of the varieties distinct, which is the sure way to have them in perfection.

4. Calendula Pluvialis; *Small Cape Marigold.* Leaves lanceolate, sinuate-toothletted; stem leafy; peduncles filiform. Root annual; lower leaves deeply indented on their edges, fleshy, and of a pale green colour; stems declining from six to eight inches long, leafy to within two inches of the top; stem-leaves much narrower and more indented than those of the root; upper part of the stem very slender, upon which stands one flower shaped like those of the common Marigold, having a purple bottom, with the ray of a violet colour on the outside, and of a pure white within: it opens when the sun shines, but shuts up in the evening, and remains so in cloudy weather; when the flower decays, it hangs down during the growth of the seeds, but when they are full ripe the peduncle is raised again, so that the heads of the seeds stand upright.—It is a native of the Cape of Good Hope, and flowers from June to August. The seeds of this and the two next sorts, should be sown in the spring, in the borders of the garden where the plants are designed to remain, for they do not bear transplanting well; therefore they may be treated in the same manner, and sown at the same time, with Candy-tuft, Venus Looking-glass, and other hardy annual plants, putting four or five seeds in each patch; if they all grow, there should not be more than two plants left in each patch; after this, they require no farther care but to keep them clean from weeds. If the seeds of these plants be permitted to scatter, the plants will come up the following spring without care, and these will flower earlier than those which are sown in the spring.

5. Calendula Hybrida; *Hybridous* or *Great Cape Marigold.* Leaves lanceolate, toothed; stem leafy; peduncles thickened at the top. Root annual; leaves much longer than in the foregoing, and broader at the end; those near the root are regularly indented, but the stem-leaves have only a few shallow indentures; flowers smaller, but of the same colour.—Native of the Cape. See the preceding species.

6. Calendula Nudicaulis; *Naked-stalked Cape Marigold.* Leaves lanceolate, sinuate-toothed; stem almost naked. This is also an annual plant, and has much the appearance of the fourth, but the leaves are more deeply indented on their edges. It flowers from June to August, and is a native of the Cape. See the fourth species.

7. Calendula Graminifolia; *Grass-leaved Marigold.* Leaves linear, almost entire; stems almost naked, one-flowered; seeds subcordate, orbiculate, even. This is a perennial plant, which divides near the root into several tufted heads, closely covered with long grassy leaves coming out on every side without order; some of these have one or two indentures on their edges, but the most part are entire. From between the leaves arise naked peduncles, about nine inches long, sustaining one flower at the top, which is about the size of the common Marigold, having a purple bottom; the rays are also purple without, but of a pure white within; these expand when the sun shines, but always close in the evening and in cloudy weather. The general season of their beauty is in April and May, when they have the greatest number of flowers upon them; but there is commonly a succession of flowers late in the autumn, though not in so great plenty. The seeds are heart-shaped, like those of the foregoing.—They were brought from the Cape in 1698. Though this plant has been long in the English gardens, it has not been so often seen there as it deserves, there being few which continue so long in flower. It does not often produce good seeds in Europe, but is easily propagated by slips taken off from the heads, in the same manner as is practised for Thrift; they may be planted any time in summer, in pots filled with light fresh earth, which may be plunged into a very moderate hot-bed, to forward their putting out roots; or otherwise the pots may be sunk in the ground up to their rims, and covered with a melon-glass, which, in the middle of summer, will answer full as well, but in the spring or autumn the former method is to be preferred: when these are planted, the glasses must be shaded in the heat of the day, and the slips must be frequently refreshed with water, but it must not be given them too liberally, for much wet will rot them; after they have got strong roots, they should be each planted into small pots, filled with fresh light earth, and placed in a sheltered situation, where they may remain till autumn, and then should be placed in a dry airy glass-case, for the winter season, or under a common hot-bed frame; for these plants do not thrive in an artificial heat, they only require protection from frost and wet, and should enjoy the air at all times when the weather is mild.

8. Calendula Fruticosa; *Shrubby Marigold.* Leaves obovate, a little toothed; stem shrubby, decumbent. This has a slender shrubby stalk rising to the height of seven or eight feet, but requiring support; it sends out a great number of weak branches from the bottom to the top, hanging downwards; the leaves are on short footstalks; most of them are slightly indented towards the top, but some are entire; they are of a shining green colour on the upper surface, but paler underneath: the flowers come out at the ends of the branches on short naked peduncles.—Native of the Cape of Good Hope. It is easily propagated by cuttings, which may be planted any time in summer in a shady border, or otherwise shaded with mats in the heat of the day; in five or six weeks these will have taken root, when they should be carefully taken up, and each put into a separate pot filled with light sandy earth, but not dunged, and placed in the shade till they have taken fresh root; then they may be placed with other hardy exotic plants in a sheltered situation, where they may remain till the frost begins, when they must be removed into the green-house, placing them near the windows, that they may enjoy the free air, for they only require protection from frost. The earth in which they are planted should be light, but very poor; for in rich earth they grow too luxuriantly, and seldom flower.

9. Calendula Stellata; *Starry Marigold.* Five outer seeds boat-shaped, smooth; five alternate horned, patulous, muricate; the rest screw-shaped. Root annual; stem three feet high; leaves bright green.—Cultivated in Madrid,

where it flowers and perfects seeds from June to August.

Calf's Snout. See *Antirrhinum.*

Calla; a genus of the class Gynandria, order Polyandria.—Generic Character. *Calix:* spathe one-leafed, ovate-cordate, acuminate, coloured at top, very large, spreading, permanent; spadix finger-shaped, quite simple, erect, covered with fructifications. *Corolla:* none. *Stamina:* filamenta some, intermixed with the germina, the length of the pistils permanent, compressed, truncate; antheræ simple, truncate, sessile. *Pistil:* to each a roundish obtuse germen; style simple, very short; stigma acute. *Pericarp:* berries as many as there are pistils, four-cornered, globular, pulpy, one-celled. *Seeds:* many, (six to twelve,) oblong, cylindric, obtuse at both ends. Essential Character. *Spathe:* flat. *Spadix:* covered with floscules. *Calix* and *Petals:* none. *Berries:* many seeded.——The species are,

1. Calla Æthiopica; *Æthiopian Calla.* Leaves sagittate, cordate; spathe crowded; spadix, male at top. This plant has thick fleshy tuberous roots, which are covered with a thin brown skin, and strike down many strong fleshy fibres into the ground; the leaves rise in clusters, having foot-stalks more than a foot long, which are green and succulent; the leaves are eight or nine inches in length, and of a shining green, ending in a sharp point, which turns backward; between the leaves comes out the scape, which is thick, smooth, of the same colour as the leaves, rises above them, and is terminated by a single flower, shaped like those of the Arum; the hood or spathe is twisted at the bottom, but spreads open at the top, and is of a pure white colour; in the centre of this is situated the spadix or club, which is of an herbaceous yellow colour, upon which the small herbaceous flowers are placed, so closely joined as that the stamina and pistils are very difficult to distinguish without the assistance of glasses, it is only about half the length of the spathe.—It grows naturally at the Cape, and has long been an inhabitant of the English gardens. It propagates very fast by offsets which should be taken off at the latter end of August, at which time the old leaves decay; but this plant is never destitute of leaves, for before the old ones decay there are young leaves produced, which advance in height all the winter; but at this season the roots are in their most inactive state: these roots have generally a great number of offsets about them, and the largest of them only should be chosen, which should each be planted in a separate pot, filled with kitchen-garden earth, and placed with other hardy exotic plants in the open air till autumn, when they must be removed into shelter for the winter, during which time they must not have too much wet, for that will rot the roots. This plant is so hardy as to live in the open air in mild winters without any cover, if it be planted in a warm border, and have a dry soil; but with a little shelter in hard frost, it may be preserved in the full ground. It flowers in May, and the seeds ripen in August; but as the roots increase so plentifully, few persons care to sow the seeds, because the young plants will not flower in less than three years.

2. Calla Palustris; *Marsh Calla.* Leaves cordate; spathe flat; spadix hermaphrodite all over. Leaves erect, acuminate, streaked, bright or yellowish green, smooth, four or five inches long, and three or four broad, alternately embracing the stem, with thick, smooth, succulent petioles five or six inches long; scape round, thick, succulent, smooth, bright green. The roots creep in the mud, so as sometimes to cover whole marshes; they have a hot biting taste, and yet bread is sometimes made of them. It flowers from June to August, and is a native of Lapland, Sweden, Denmark, Russia, Germany, and Holland. It is rarely admitted into gardens, and must be planted in an artificial bog, or at least in the mud of a pond, or in a pot or tub set in water.

3. Calla Orientalis; *Oriental Calla.* Leaves ovate. This has also a thick tuberous root, from which spring up several ovate leaves, standing on pretty long foot-stalks; the scape rises between the leaves, about six or eight inches high, supporting one white flower at the top.—Native of the mountains near Aleppo. The roots of this sort should be planted in pots filled with light earth, and in summer placed, with other exotic plants, in the open air; but in winter they should be put under a common hot-bed frame, to screen them from frost, which would be fatal to the roots.

4. Calla Occulta. Leaves cordate, ovate; spathe spiral; spadix male at top. Plant one foot high, perennial, with scarcely any stalks.—Native of Cochin-china, in moist places.

Callicarpa: a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-form; mouth four-cleft, erect. *Corolla:* monopetalous, tubular; border four-cleft, obtuse, spreading. *Stamina:* filamenta four, filiform, twice the length of the corolla; antheræ ovate, incumbent. *Pistil:* germen roundish; style filiform, thicker at the top; stigma thickish, obtuse. *Pericarp:* berry globular, smooth. *Seeds:* four, oblong, shaped like a meniscus, compressed, callous. Essential Character. *Calix:* four-cleft. *Corolla:* four-cleft. *Berry:* four-seeded.——The species are,

1. Callicarpa Americana; *American Callicarpa.* Leaves serrate, tomentose beneath. A shrub, from three or four to six feet in height; branches rather compressed; the nerves of the upper surface of the leaves, and the whole under surface, tomentose; the flowers in axillary, dichotomous, tomentose panicles, scarcely the length of the leaves; with minute subulate bractes, opposite at each fork; corolla funnel-form, deep purple.—Native of Cochin-china as well as of North America, which shews the impropriety of the trivial name. It is the only plant of its genus which has been yet cultivated in England, and rises easily from seeds on a moderate hot-bed; it is best to sow the seeds in pots, and to plunge them into a tan-bed of a moderate warmth; when the plants come up, and have attained some strength, they should be gradually inured to the open air, into which they should be removed in June, and placed in a sheltered situation, where they may remain till autumn; during this time they must be kept clean from weeds, and gently refreshed with water in dry weather; but as these young plants are tender, they should be placed under a frame before the early frost comes on, for autumnal frosts will kill the tender part of their shoots, which often causes their stalks to decay most part of their length before the spring. During the winter season they should be screened from frost, but in mild weather they must enjoy the free air, otherwise their shoots will turn mouldy and decay. The following spring, just before the plants shoot, they should be carefully turned out of their pots, so as not to break their roots, and part of them may be planted in small pots filled with light earth, and the others in a nursery-bed in a warm situation, at about four or five inches asunder; those in the pots should be plunged into a moderate hot-bed, which will forward their taking root; but afterwards they must be hardened to bear the open air as before; these should be sheltered under a frame in winter for three or four years, till they have obtained strength; then they may be turned out of the pots, and planted in a warm situation, where they will live in the open air through common winters; but in severe frost they are in danger of being killed, if they be not sheltered; therefore the surface of the ground about the roots

should be covered with old tan to keep out the frost, and their tops protected with straw, pease haulm, or fern.

2. Callicarpa Tomentosa. Leaves quite entire, woolly. This is a singular tree, which has no parallel: a thick nap invests the branches, peduncles, and petioles, like woollen cloth; leaves ovate, the size of the hand, opposite, acuminate, coriaceous, wrinkled, naked, petioled; peduncles axillary, solitary, dichotomous, the length of the petioles, divaricated; corolla four-petalled; filamenta inserted into the receptacle; berry the size of a pepper-corn, black, terminated by the stigma, which is pale-coloured, within the calix, which is white with down, orbicular, scarcely toothed, or very obscurely four-toothed, spreading very wide: the berry is one-celled, and contains four bony seeds, convex on one side, on the other concave, with an obscurely elevated ridge. The Indians chew the bark of this tree when they have not the leaves of the betel.—Native of the East Indies.

3. Callicarpa Japonica. Leaves serrate, smooth; stem shrubby, erect, smooth; branches opposite, round, smooth, purple, divaricated; leaves opposite, on short petioles, oblong, acuminate, entire at the base and point, green above, pale beneath, nerved, two inches long; flowers above, axillary, panicled, very small.—Native of Japan.

4. Callicarpa Ferruginea. Leaves broad-lanceolate, serrate, somewhat rugged underneath; cymes terminating and axillary.—Native of Jamaica.

5. Callicarpa Reticulata. Leaves elliptic, lanceolate, subserrate, wrinkled, tomentose hoary underneath.—Native of Jamaica.

6. Callicarpa Umbellata. Leaves turbinate, ovate, smooth, alternate, umbels sessile. This is a middle-sized tree, with ascending branches; leaves quite entire, reflex at the edge; flowers herbaceous, small, in coloured umbels, almost at the ends of the branches; berry fleshy, roundish, small, containing four seeds.—Native of Cochin-china, in woods.

7. Callicarpa Triloba. Stem scandent; leaves three-lobed; peduncles dichotomous. A long branching shrub, climbing by bifid tendrils; leaves cordate, serrate, smooth, on long petioles; flowers axillary, pale; berry roundish, four-seeded.—Native both of China and Cochin-china.

Calligonum; a genus of the class Dodecandria, order Tetragynia.—Generic Character. *Calix:* perianth one-leafed, turbinate at the base, with a five-parted border; parts nearly equal, roundish, spreading, finally obscurely turned back, permanent, the two outer a little smaller than the rest. *Corolla:* none, unless the calix be taken for it. *Stamina:* filamenta about sixteen, diverging, capillary, at bottom thickened a little and pubescent, surrounding the germen like a nectary, with their slightly coalescent base, withering; antheræ roundish, two-celled, peltate. *Pistil:* germen superior, ovate, four-sided, acuminate; styles three or more, frequently four, filiform, spreading, subcoalescent as the base, or ending in an acumen of the germen, scarcely shorter than the filamenta; stigmas capitate. *Pericarp:* none, except the crust or shell of the nut. *Seed:* nut with a juiceless inseparable crust or rind, oblong, four-sided, four-winged, one-celled, valveless; the wings either membranaceous longitudinally, two-parted, toothed, curled, or bristly; the bristles branched, rigid, but soft; nucleus or kernel of the same form. Essential Character. *Calix:* five-parted. *Corolla:* none; filamenta about sixteen, slightly united at the base. *Germen:* superior, four-sided. *Nut:* one-celled, with a crust that has several wings, or many bristles.——The species are,

1. Calligonum Polygonoides. Fruit latticed; bristles branched, rigid. A shrub three or four feet in height, very bushy, and extending on every side; the trunk, crooked, hard, brittle, the thickness of the arm, divided into crooked branches, subdivided into twigs, whence instead of leaves spring cylindric threads, composed of jointed pieces; the flowers are in the form of basins, cut into five parts to the middle, where they are pale green, the rest is white; from the bottom of the basin rises an angular pistil a line and half in length, surrounded with white filamenta, which have purple antheræ; each flower is supported by a very slender and short peduncle: the fruit is about half an inch long, and four lines thick, of a conical figure, deeply channelled longitudinally; the channels are sometimes straight, sometimes spiral; the angles are terminated by wings cut into very fine fringes; the pulpy part is white and angular. The flowers smell like those of the lime-tree, are long in withering, and continue at the base of the fruit.—Found in Armenia, at the foot of mount Ararat, by Tournefort.

2. Calligonum Comosum. Fruits latticed; bristles branched, soft.—Found in Egypt and Barbary.

3. Calligonum Pallasia. Fruits winged; wings membranaceous, curled. A shrub three or four feet high, with many alternate, round, reclining, flexuose, jointed, somewhat knotty, leafless branches; the shoots at each joint are numerous, (six to ten,) much crowded in bundles, rushy, some simple, others branched; few of these become branches, but most of them perish; they are subulate jointed, bright green, or somewhat glaucous; at each joint of the roots is a single leaf, fleshy, half an inch long, placed alternately; flowers lateral or axillary, usually three together at each joint, peduncled, white, with the disk of the calycine segments greenish, fragrant. With us it flowers in August.—It was found by Pallas in the sandy deserts of Siberia, between the Volga and the Jaick, flowering in June.

Callisia; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* perianth three-leaved; leaflets linear-lanceolate, keeled, erect, permanent. *Corolla:* petals three, lanceolate, acuminate, erect, spreading at the top, the length of the calix. *Stamina:* filamenta three, capillary, longer than the corolla, dilated at the top into a roundish lamina; antheræ double, globular, fixed to the inside of the lamina. *Pistil:* germen superior, oblong, compressed; style capillary, the length of the stamina; stigmas three, spreading, pencil-form. *Pericarp:* capsule ovate; compressed, acute, two-celled, two-valved, the valves contrary. *Seeds:* two, roundish. Essential Character. *Calix:* three-leaved. *Petals:* three. *Antheræ:* double. *Capsule:* two-celled.——The only known species is,

1. Callisia Repens; *Creeping Callisia.* Herbaceous, tender, creeping from the joints, rather erect at top, a little branching at the base, smooth; leaves ovate, acuminate, subcordate at the base, quite entire, thickish, shining fat, sheathing, the edge purple, alternate; flowers small, tender, sessile, greenish, generally three together from each sheath of the lower leaves.—Native of the West Indies, in low moist shady places. In England it flowers in June and July.

Callitriche; a genus of the class Monandria, order Digynia.—Generic Character. *Calix:* none. *Corolla:* petals two, incurved, acuminate, channelled, opposite. *Stamina:* filamenta one, long, recurved; antheræ simple. *Pistil:* germen roundish; styles two, capillary, recurved; stigmas acute. *Pericarp:* capsule roundish, quadrangular, compressed, two-celled. *Seeds:* solitary, oblong. Essential Character. *Calix:* none; petals two. *Capsule:* two-celled, four-seeded.——The species are,

1. Callitriche Verna; *Vernal Starwort,* or *Star-headed Water Chickweed.* Upper leaves oval; flowers androgynous. Stem long, round, branching, rooting; leaves in pairs, the upper ones radiating, and floating on the surface of the water;

flowers sessile in the axils; the upper ones male, the lower female; petals small, white, thick, flat, crescent-form; when magnified, they appear to be a collection of air-vessels, to enable the flower to float.—It is an annual plant, very common in ditches and standing waters, flowering from April to June. There is a variety of this species; but the difference is probably owing to its situation, in places where water has stood in the winter, or in ditches and marshes dried up.

2. Callitriche Autumnalis; *Autumnal Starwort.* All the leaves linear, bifid at the end; flowers hermaprodite. This differs from the first species in having all the leaves linear, and cleft at the end; to which Withering adds, that the corolla is yellowish white; and Linneus, that it flowers in September. It is sometimes so thickly matted together on deep marshes, that a person may walk upon it without sinking.

Calodendrum; a genus of the class Pentandria, order Monogynia. — Generic Character. *Calix:* perianth one-leafed, permanent, five-parted; parts ovate, acute, thickish, villose-muricate on the outside, with the edges slightly revolute. *Corolla:* petals five, lanceolate, blunt, spreading, channelled, keeled, waved villose, three times the length of the calix; nectaries five, shaped like the petals, inserted into the receptacle within them, linear-lanceolate, subulate at the tip, terminated by a gland, smooth, silvery-glandular, narrower than the corolla, but of the same length. *Stamina:* filamenta five, equal, the length of the corolla, four of which have antheræ, one being usually barren: antheræ ovate-cordate, grooved, inserted into the back. *Pistil:* germen pedicelled, capitate, muricate, superior; style inserted into one side of the germen, filiform, the length of the stamina; stigma simple, blunt. *Pericarp:* capsule peduncled, ovate, bluntly five-cornered, five-grooved, muricate, five-celled, five-valved. *Seeds:* in pairs, triangular, convex at the back, smooth. Essential Character. *Calix:* spreading, five-petalled. *Nectary:* five-leaved. *Capsule:* five-celled.—— The only species hitherto known is.

1. Calodendrum Capense. A tree, with branches opposite, or three together; leaves entire, evergreen; flowers in terminating panicles, on opposite one-flowered peduncles.—Native of the Cape of Good Hope.

Calophyllum; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate, concave, coloured, deciduous; the two outer ones shorter. *Corolla:* petals four, oblong, concave, spreading. *Stamina:* filamenta many, filiform, short; antheræ erect, oblong. *Pistil:* germen roundish; style filiform, the length of the stamina; stigma headed, obtuse. *Pericarp:* drupe globular. *Seed:* nut globular, subacuminate, very large. Essential Character. *Calix:* four-leaved, coloured. *Corolla:* four-petalled. *Drupe:* globular.—The species are,

1. Calophyllum Inophyllum. Leaves oval; calix the size of the petals; flowers more racemed; leaves a span long, and a hand broad, marked with transverse distant streaks. The root exudes a whitish clear gum, without scent. Flowers eight-petalled, snow-white, sweet-smelling, growing in racemes; fruit the size of a walnut, under a fleshy bark, and a woody shell, having a very oily nut, which is bitter, and yields a yellow resinous juice. It is a tree of great size, ninety feet in height, and twelve in thickness; bark of the branches smooth, at first green, afterwards reddish; of the trunk thick, scaly, blackish and purple within, which, when wounded, exudes a yellowish viscid juice, frequently hardening to a gum; leaves like those of the Water-lily; fruit smooth, shining, green, when ripe reddish; the nut is at first sweet, but afterwards very bitter.—It is common in Malabar, in sandy soils, hearing fruit twice a year, in March and September, frequently to the age of three hundred years. An oil is expressed from the nuts to burn in lamps, to assuage pains, and to make ointments; the bark and gum is also used for medicinal purposes. The inhabitants of Java plant this tree about their houses, for the elegance of the shade, and the sweetness of the flowers.

2. Calophyllum Calaba. Leaves ovate, obtuse. This is also a lofty tree, putting out branches from very near the ground, so that it is well adapted for hedges and walks. The leaves are shining, coriaceous, firm, with parallel transverse streaks, on short petioles, opposite, four inches long; the flowers on axillary, simple, loose racemes, usually seven together, white, and smelling sweet; the fruit green, with a little pulp, and that hardish, involving a smooth yellowish ash-coloured nut, in which is a white solid kernel; it is not eaten, but the Caribbees express an oil from it for domestic uses. Brown informs us, that this tree is pretty good timber, but does not bear the weather well, although it is frequently used for staves and heading.

Caltha; a genus of the class Polyandria, order Polygynia. —Generic Character. *Calix:* none. *Corolla:* petals five, ovate, flat, spreading, deciduous, large. *Stamina:* filamenta numerous, filiform, shorter than the corolla; antheræ compressed, obtuse, erect. *Pistil:* germen superior, five to ten, oblong, compressed, erect; styles none; stigmas simple. *Pericarp:* capsules many, one-celled, two-keeled, gaping in the superior suture. *Seeds:* very many, (fifteen,) ovate, or ovate-oblong, smooth, affixed to the superior suture in a double row. Essential Character. *Calix:* none. *Petals:* five. *Nectary:* none. *Capsule:* several, many-seeded.—— The only species discovered is,

1. Caltha Palustris; *Marsh Marigold,* (*Souci de Marais.*) Root perennial; stem several, almost upright, about a foot high, hollow, nearly round, smooth, branched, purple at bottom; radical leaves on long petioles, cordate-reniform, smooth, shining, and notched or crenated, sometimes scalloped, sometimes entire; stem-leaves nearly sessile, more pointed at top, and sharply crenated; stipules brown, membranous, and withering; branches dichotomous; peduncles one-flowered, upright, grooved; corolla of five petals, somewhat concave, large, without any gloss on the upper side; antheræ oblong, flat, bending inward, yellow; the inner row of filamenta with broad antheræ, the outer twice as long, club-shaped, with compressed antheræ; seeds beautiful, at the bottom of an olive, and at top of a reddish colour.—It is found in wet meadows, and by the sides of rivers, making a noble appearance in March and April, and sometimes so early as February. The flowers, gathered before they expand, are said to be a good substitute for capers. The juice of the petals, boiled with alum, stains paper yellow. Cows will not eat it, unless compelled by extreme hunger; it is a vulgar notion, therefore, and wholly unfounded, that the yellowness of butter in the spring is caused by this plant; where a high colour is not given by art, it is the effect of abundance of rich pasture. Boerhaave says, that when cows eat this plant, it occasions such an inflammation that they generally die. On May-day, the country people strew the flowers before their doors; the garlands are also ornamented with it on that day. The leaves seldom appear to be eaten; but the flowers are often destroyed by a species of chrysomela. This is the first flower that announces the spring in Lapland, where it begins to blow towards the end of May. Müller insists that the *greater* and *smaller* Marsh Marigolds never vary, either in their natural places of growth, or when cultivated in a garden. There is a variety with many double flowers, which is preserved in gardens for its beauty. — Caltha propagated by parting the roots in autumn; it should be planted in a moist soil and shady

situation, and may be allowed room where few other plants will thrive: during the season of flowering, it will afford an agreeable variety. The Marsh-marigold with double flowers does not appear so early in the spring as the single, but continues much longer in beauty: it flowers from May to the middle of June.

Calycanthus; a genus of the class Icosandria, order Polygynia.—Generic Character. *Calix:* perianth one-leaved, pitcher-shaped, squarrose; leaflets coloured, lanceolate, the superior ones gradually larger, resembling petals. *Corolla:* none, except the calycine folioles, representing petals. *Stamina:* filamenta numerous, subulate, inserted into the neck of the calix; antheræ oblong, furrowed, growing to the top of the filamenta. *Pistil:* germen a great many, ending in subulate compressed styles of the length of the stamina; stigmas glandulous. *Pericarp:* none; the calix being thickened, obovate, and berried. *Seeds:* very many, tailed. Essential Character. *Calix:* one-leafed, pitcher-form, squarrose, with coloured leaflets. *Corolla:* calycine. *Styles:* very many, with a glandulous stigma. *Seeds:* very many, tailed, within a succulent calix.——The species are,

1. Calycanthus Floridus; *Carolina Allspice.* Inner petals longer than the outer. This shrub arrives at the height of eight or ten feet where it grows naturally, but it seldom rises more than four feet high in this country, dividing into many slender branches near the ground, covered with a brown aromatic bark, with two entire leaves placed opposite at every joint on short foot-stalks; the flowers grow single, on short peduncles at the extremity of the branches; they have two series of narrow thick petals, which spread open, and turn inward at the top, like those of the Starry Anemone, or the Virgin's Bower; these are of a dusky purple colour, and have a disagreeable scent; they appear in May. The bark of this shrub is brown, and has a very strong aromatic odour; and hence the inhabitants of Carolina call it *allspice.* There are two varieties of it; the Long-leaved Carolina allspice, and the Round-leaved Carolina Allspice.—It will thrive in the open air in England, if it be planted in a warm situation and dry soil: it is propagated by laying down the young branches, which will take root in one year, and may then be taken from the mother-plant, and set where they are designed to remain for they do not bear transplanting well after they are grown to any size. When the layers are transplanted, the surface of the ground should be covered with mulch, to prevent the drying winds from penetrating the ground to the roots; and if the season prove dry, they must be watered once a week, but should not have too much wet, for that will rot their tender fibres: the best time for laying down the branches is in autumn, but they should not be transplanted till the spring, twelve months after; for the spring is the safest time to remove these plants. After the branches are laid down, there should be some old tanner's bark laid upon the surface to keep out the frost, which should also be done every winter whilst the plants are young.

2. Calycanthus Præcox; *Japan Allspice.* Inner petals minute.—Native of Japan.

Calyptranthes; a genus of the class Icosandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, truncate, toothless, or very obscurely four-toothed, superior, permanent, covered with an orbicular, concave, deciduous lid. *Corolla:* none. *Stamina:* filamenta very many, capillary, inserted into the inside of the calix at the rim; antheræ roundish, twin, small. *Pistil:* germen roundish, fastened to the bottom of the calix, two-celled, with a few seeds fixed to the partition; style simple, filiform, bent in the length of the stamina; stigma blunt. *Pericarp:* berry globular or oblong, crowned with the calix, one-celled. *Seed:* single, or few, slightly angular. Essential Character. *Calix:* superior, truncate, covered with a veil-shaped deciduous lid. *Corolla:* none. *Berry:* one-celled, one to four seeded.——The species are,

Calyptranthes Chytraculia. Arboreous: peduncles terminating, panicled, trichotomous, tomentose; leaves ovate, attenuated at the tip. The leaves of this tree are smooth and opposite; the lid is fastened to the calix laterally, but afterwards turns back, and then the filamenta issue forth, which had been before twisted and concealed. It is reckoned an excellent timber tree, but it seldom exceeds fourteen or fifteen inches in diameter.—Native of Jamaica.

2. Calyptranthes Zuzygium. Arborescent; peduncles axillary, trichotomous, patulous; leaves ovate, blunt; branches dichotomous. This shrub seldom rises above ten or twelve feet in height; the whole is bushy, and bears black berries, crowned with the margin of the cup; these contain four smooth slightly angular seeds, one or two only usually arrive at maturity; the style is longer than the stamina, and the stigma is acute.—Native of Jamaica.

3. Calyptranthes Rigida. Arborescent: peduncles solitary, axillary, three-flowered, or thereabouts; leaves ovate acute, convex, veinless, rigid.—Native of Jamaica.

4. Calyptranthes Jambolifera. Leaves ovate, emarginate; corymb terminating. This is a tree above the middle size, with spreading branches, the smaller ones brachiate; berry black, esculent.—Native of the East Indies and China.

5. Calyptranthes Odorata. Leaves ovate, obliquely truncate at the base; corymbs terminating, distich. This is a small tree, about five feet high, with a very straight single stem, and brachiate branches; the young leaves are put into salads, and are not unpleasant. Berry white, dotted. Loureiro observed it in the gardens of Cochin-china.

6. Calyptranthes Resinosa. Leaves oblong; peduncles lateral. This is a middle sized tree, with spreading branches and a very tough resinous bark; leaves quite entire; flowers white, on many-flowered axillary peduncles; berry roundish, small, black, four-celled.—Native of Cochin-china; where the fishermen dye their nets in a strong decoction of the root, to prevent them from rotting.

Camax: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts roundish. *Corolla:* one-petalled, wheel-shaped; tube very short; border five-parted; parts roundish, villose above. *Stamina:* filamenta five, inserted into the corolla between the segments, villose. *Pistil:* germen roundish, villose, superior; style capillary; stigmas three or four, sharp. *Pericarp:* berry ovate, villose, four-celled. *Seeds:* very many, nestling in a viscid pulp. Essential Character. *Corolla:* wheel-shaped; filamenta inserted between the segments of the corolla. *Berry:* four-celled, many-seeded; all villose.——The only species known is,

1. Camax Guianensis. This is a shrub, growing to the height of twelve or fifteen feet, with a simple, knotty, cylindric stem; leaves many, in whorls at the joints, declining unequally, pinnate, with six alternate leaflets, which are sessile, oval, acuminate, the largest of them ten inches long and three broad, and a little above each of them is a small spine issuing from the midrib; the flowers are sessile, in great numbers at the base of the leaves, and in the intervals between them. It is called *bois gaulete* by the Creoles, and *aroupouron* by the Coussaris, one of the nations of Guiana, where it is a native, and flowers in January. The inhabitants and negroes use the branches of this shrub for wattling their huts.

Cambogia; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved; leaflets roundish, concave, deciduous. *Corolla:* petals four, roundish-oblong, concave, with oblong claws. *Stamina:* filamenta very many, short: antheræ roundish. *Pistil:* germen roundish, striated; style none; stigma four-cleft, obtuse, permanent. *Pericarp:* pome roundish, eight-angled, eight-celled. *Seeds:* solitary, reniform, oblong, slightly compressed. Essential Character. *Corolla:* four-petalled. *Calix:* four-leaved. *Pome:* eight-celled. *Seeds:* solitary.——The only species known is,

1. Cambogia Gutta. This is a tall tree, with a trunk sometimes as thick as two men can compass, with spreading opposite branches. Flowers in whorls, sessile, saffron-coloured, the fruit is first green, then yellowish, and when ripe whitish.—Native of the East Indies, and of the woods in China and Cochin-china; very abundant in Siam and Cambodia, where incisions are made in the bark, and a great quantity of *gummi guttæ*, or gamboge, is extracted, and exported into foreign countries. This concrete is a gum-resin, in part inflammable, compact, dry, yellow, inclining to orange colour, without smell, and almost without taste; producing, however, a slight sensation of acrimony in the throat. A greater quantity of it is dissolved in spirits of wine than in water, to which it imparts a lemon-colour: it is used medicinally in the East Indies, as a purgative, hydragogue, and emetic, particularly in dropsies and worm cases; it is said to lose the latter quality, when macerated in vinegar. The principal use, however, of gamboge, is in painting in miniature and water colours. The fruit is eaten at meals in the East Indies; and being much esteemed for provoking the appetite, is a frequent ingredient in their sauces.

Camellia; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth many-leaved, roundish, imbricate; the scales roundish, very blunt, the inner ones gradually larger, concave, deciduous. *Corolla:* petals five, obovate, coalescing at the base. *Stamina:* filamenta numerous, erect, coalescing below into a crown, larger than the style; above unconnected, shorter than the corolla; antheræ simple. *Pistil:* germen roundish; style subulate, length of the stamina; stigma acute, reflex. *Pericarp:* capsule turbinate, woody, marked with some furrows. *Seeds:* kernels equal in number to the streaks of the capsule, roundish, often filled with smaller seeds. Essential Character. *Calix:* imbricate, many-leaved; the inner leaflets larger. ——The species are,

1. Camellia Japonica; *Japan Rose.* Leaves acutely serrate, acuminate; bark ash-coloured; branches round and smooth; leaves alternate, ovate, shining on both sides, thick and stiff, paler green beneath, on short petioles; peduncles terminating, very short, commonly solitary, with the branches lenthened out beyond them. It is a vast and lofty tree, in high esteem with the Japanese, for the elegance of its large flowers, which exhibit a great variety of colours, but have no scent, and for its evergreen leaves: it is very common every where in their groves and gardens, flowering from October to April. It varies with single and double flowers, white, red, and purple. It is a native also of China, and occurs very frequently in Chinese paintings.—Having been hitherto scarce, and kept up to a high price, it has been generally treated as a stove plant, though it has been sometimes placed in the green-house. When it shall hereafter become more common among us, it may perhaps be treated in the same manner as the Magnolia: it is propagated by layers; it may also be propagated by cuttings, in the same manner as directed for Gardenia.

2. Camellia Sasanqua. Leaves obtusely serrate, emarginate. A tree of a middling size, differing from the first species, in having thinner and narrow leaves, obscurely serrate; flowers much smaller, with oblong emarginate petals, and a much smaller and more slender stem; the flowers are borne singly at the end of the branches; the calix is five-leaved, sometimes six-leaved; the petals are five in number, sometimes six or seven, snow-white, deciduous. The leaves, dried in the shade, have a sweet smell; a decoction of them is used by the women to wash their hair with. The petals are mixed with tea, to give it a grateful odour. It yields, says Sir G. Staunton, a nut, from which is expressed an esculent oil, equal to the best from Florence; and on this account is cultivated in vast abundance, growing in a soil consisting of little more than fragments of stone.—Native of Japan; flowering in November.

3. Camellia Drupifera. Leaves ovate-oblong, slightly crenate; flowers two or three together, terminating; drupes four-celled.—This is a middle-sized tree, with spreading branches; leaves smooth, hard, small, alternate, petioled; flowers white, terminating, two or three peduncles together, one on each; petals eight, oblong, emarginate; style quadrifid, equal to the stamina; drupe roundish, with a grooved four-celled nut, and roundish kernels. The fruit is equal in size to the walnut, and not much unlike it; it is not however, esculent. It is both wild and cultivated in Cochinchina. The oil expressed from the nut is used by the natives to anoint their hair, and for various medical purposes; it has a pleasant odour, and does not easily become rancid.

Camel's Hay. See *Andropogon.*

Cameraria; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-cleft, acute, converging, very small. *Corolla:* monopetalous, funnel-form; tube cylindric, long, bellied out at the base and tip; border five-parted, flat; divisions lanceolate, oblique. *Stamina:* filamenta five, very small from the middle of the tube; antheræ converging. *Pistil:* germen two, with lateral appendages; style hardly any; stigmas obscure. *Pericarp:* follicles two, horizontally reflected, oblong, obtuse at both ends, and sending forth a lobe each way near the sides of the base, one-celled, one-valved. *Seeds:* numerous, ovate, inserted on the larger ovate membrane at the base, imbricate. Essential Character. Contorted. *Follicles:* two, horizontal. *Seeds:* inserted into their proper membrane.—These plants are propagated by seeds, which must be procured from the places of their growth; they may also be increased by cuttings, planted in a hot-bed during the summer months. They must have a bark-stove, for they are very tender; but in warm weather they must have plenty of air.——The species are,

1. Cameraria Latifolia; *Bastard Manganeel.* Leaves ovate, acute at both ends, transverse, striated. This is a tall elegant tree, about thirty feet in height, the whole abounding with an acrid milky juice. Leaves somewhat resembling those of Myrtle.—Native of Cuba, Jamaica, and St. Domingo: the flowers, which are white, appear in August, but never produce any seed in England.

2. Cameraria Angustifolia. Leaves linear; stem irregularly branching, shrubby; leaves opposite, quite entire, the middle nerve decurrent; flower and fruit much smaller than in the foregoing species, as is the whole plant. It grows about eight feet high: the flowers are produced scatteringly at the ends of the branches: like the other species, it abounds with an acrid milky juice.—It grows naturally in Jamaica.

Cammock. See *Ononis.*

Camomile. See *Anthemis.*

Campanula; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, acute, erect, expanding, superior. *Corolla:* monopetalous, bell-form, impervious at the base, half five-cleft, marescent; divisions broad, acute, spreading; nectary in the bottom of the corolla, composed of five valves, acute, converging, covering the receptacle. *Stamina:* filamenta five, capillary, very short, inserted on the tips of the valves of the nectary; antheræ longer than the filamenta, compressed. *Pistil:* germen angular, inferior; style filiform, longer than the stamina; stigma three-parted, oblong, thickish; divisions revolute. *Pericarp:* capsule roundish, angular, three or five celled, emitting the seeds at so many lateral openings. *Seeds:* numerous, small; receptacle, columnar, adnate. Essential Character. *Corolla:* bell-form, the bottom closed with staminiferous valves. *Stigma:* three-cleft. *Capsule:* inferior, gaping, with lateral pores.—The directions for propagating and cultivating, which will be found subjoined to various species of this genus, may serve for all the other hardy annuals, biennials, and perennials, of which it consists. Those species which come from the Cape of Good Hope, must be kept in the dry-stove, and otherwise treated like the plants from that country; they may in general be increased from cuttings.——The species are,

* *Leaves more glossy and narrow.*

1. Campanula Cenisia; *Ciliate Bell-flower.* Stems one-flowered; leaves ovate, smooth, quite entire, subciliate. Root perennial, creeping, often a foot long, dividing into several branches at top; corolla blue, divided to the middle into five segments, which are frequently bent back, twice as long as the calix; capsule three-celled.—Native of the higher rocks of the Alps, about the Glacieres; on the highest pike of Mont Cenis, called Ronche; by the head of the river Durance, and on other neighbouring eminences; also in Dauphiny; it flowers in June and July.

2. Campanula Uniflora. Stem one-flowered; calix equalling the corolla. Root fibrous, annual; stem absolutely simple, the length of a finger, obliquely erect, round, entire; stem-leaves six or seven, alternate, the lowest vertically ovate, the middle ones lanceolate, the uppermost linear, the last of these is immediately under the flower. A single flower terminates the stem; it is nodding, bell-shaped, contracted towards the base, and blue; fruit turbinate, ovate, or pear-shaped, very large in proportion to the plant, slightly inclined, opening with three holes near where the capsule unites with the crowning calix.—Native of the mountains of Lapland, where it is very rare, and flowers in the beginning of July.

3. Campanula Pulla; *Russet Bell-flower.* Stemlets one-flowered; stem-leaves ovate, crenate; calices drooping. Root filiform, creeping; stems a short span in length, erect, flexuose, filiform, sometimes having a branch or two bearing a single flower; root and stem-leaves ovate, obtuse, with a few distant notches, naked and petioled; peduncle terminating; flower drooping, the same size as in the next sort, with a smooth calix. There is a variety which has several flowers at the top of the stalk; the corolla is of a very deep blue.—Native of the mountains of Austria, Carniola, and Arragon.

4. Campanula Rotundifolia; *Round-leaved Bell-flower.* Radical leaves kidney-form; stem-leaves linear. Root perennial, creeping, sweetish; stems several, a foot or more in height, varying from two inches to a yard, rather upright, but weak and crooked, round, smooth, solid, milky, and branched; radical-leaves heart or kidney-form, petioled, toothed (frequently quite entire;) stem-leaves near the base, lanceolate and toothed, near the summit linear and entire; flower-branches spreading, simple or subdivided, almost naked; flowers nodding a little; corolla blue, sometimes white; calix permanent, segments linear, smooth, grooved, considerably expanded when out of blossom; nectary at the bottom of the corolla, formed of five pointed valves, closing and covering the receptacle, fringed, white; capsule three-celled. The radical leaves, whence this plant has its name, are usually hid in the herbage, and therefore seldom observed; they also dry away and drop off, when it is advancing to maturity.—It grows plentifully on heaths and other waste grounds, in dry hilly situations, flowering from June to September. A green pigment is obtained from the flowers; the juice stains blue, but with the addition of alum, green. The stalks and branches, when broken, give out a milky juice, which has a disagreeable smell. There are two varieties of this species, but not worth noticing.

5. Campanula Patula; *Spreading* or *Field Bell-flower.* Leaves stiff, the radical ones lanceolate-oval; panicle spreading. Root-leaves many together, spreading, small, roundish or oval, soon turning yellowish; those on the stems lanceolate, straight, and even. The herb, though bitter, being frequently eaten down by cattle, side-branches spring up, and flower till the winter frost destroys the root; corolla of an elegant form, tapering at the base, but spreading in the rim.—Native of Sweden, Denmark, Germany, Switzerland, Carniola, Piedmont; in corn fields, woods, hedges, and by road-sides; flowering in July and August: in England it is not common. Lyttleton, Browne, and Merrett, found it at Adferton near Wigmore in Herefordshire; Dillenius, in a wood called Elberry Hill, about a mile from Worcester, and near Bishop's Castle in Shropshire; Dr. Pulteney, by Buddon wood near Loughborough, and between Litchfield and Meriden; Mr. Nash, near Malvern; Mr. Woodward, near the bath at Litchfield, and on the road to Coleshill; Dr. Smith, in the park of the late Lord Ligonier, at Colsham in Surry. It may be propagated by seeds sown in autumn.

6. Campanula Rapunculus; *Rampion.* Leaves waved, the radical ones lanceolate-oval; panicle contracted. The whole plant is full of a milky juice; root biennial, spindle-shaped, sometimes branching; stem upright, angular, two feet high, hairy towards the base, smooth above; branches alternate, short, upright; leaves towards the base of the stem hairy, above, or on both sides, blunt; the upper ones smooth and becoming gradually more pointed, obscurely notched; an awl-shaped bracte at the base of each peduncle; segments of the calix awl-shaped or setaceous, twice as long as the germen, with a small tooth on each side of the base; flowers upright; corolla bluish purple, sometimes very pale purplish, or whitish; each segment marked with three lines; nectary fringed.—It grows wild in France, Flanders, Switzerland, Germany, Carniola, Piedmont, by hedges and road-sides, and woods, in fallow-fields and dry pastures; flowering in June, July, and August. In England it has been found growing near Croydon and Esher in Surry; old Buckenham Castle in Norfolk; and about Hindlip and Enville in Worcestershire. The fleshy roots are eatable, and are much cultivated in France for salads; some years past it was cultivated in the English gardens for the same purpose, but it is now generally neglected. Haller says, that it is in great request among the Swiss, in the spring; and that it increases milk; the roots are eaten, not only raw in salads, but boiled like asparagus: they were boiled tender and eaten cold with vinegar and pepper, in the time of Parkinson.—This plant is propagated by seeds, which should be sown in a shady border the latter end of May, and when the plants are about an inch high, the ground should be hoed, as is practised for

Onions, to cut up the weeds, and thin the plants to the distance of three or four inches; and when the weeds come up again they must be hoed over to destroy them; this, if well performed in dry weather, will make the ground clean for a considerable time, so that if thrice repeated it will keep the plants clean till winter, which is the season for eating the roots, when they may be taken up for use as they are wanted. These will continue good till April, at which time they will send out their stalks, when they will become hard and unfit for use, as do also those roots which have flowered; the young roots only are fit for the table: when the seeds are sown too early, the plants frequently run up to flower the same year, and the roots are spoiled.

7. Campanula Persicifolia; *Peach-leaved Bell-flower.* Radical leaves obovate; stem-leaves lanceolate-linear, subserrate, sessile, remote. Root like that of Navew, and eatable; stem very straight, eighteen inches high and more, (in gardens two feet and a half) unbranched, angular, smooth, as is the whole plant (except the germen and capsule;) flowers in a thin spike, one or two together, on very long peduncles, which have two stipules at the base; corolla large, broad, bell-form, deep blue, the segments short, and moderately acuminate.—This is a perennial plant, native of most parts of the continent of Europe, from Sweden to Spain, but not of Britain. The varieties are, the single blue, and white; and double flowers of both colours: the latter have not been more than fifty years in England, but have been propagated in such plenty, as to have almost banished those with single flowers from the gardens.—This species, as well as all the other hardy perennial sorts, which are very numerous in this genus, are easily propagated by parting their roots in autumn, at which time every head that is slipped off will grow; they will thrive in any soil and situation, and are proper furniture for the common borders of the flower-garden and shrubbery.

8. Campanula Pyramidalis; *Pyramidal Bell-flower.* Leaves smooth and even, serrate, cordate; stem-leaves lanceolate; stems rushy, simple; umbels sessile, lateral.—Scopoli thus describes this plant in its wild state: the root and stem are milky; the latter is four feet high, panicled, with short branches from top to bottom; all the leaves are ovate, petioled, and shortly toothed; the teeth paler, and terminated by a gland; the corolla spreading, five-cleft beyond the middle; the calycine teeth even, whilst the corolla is closed, spreading out horizontally, and twice as long as the germen, which is three-cornered.—It is found about Idria, in Struk; and, according to Allioni, in Savoy. It is thus described by Mr. Miller, as it appears in gardens. It has thick tuberous roots which are milky; these send out three or four strong, smooth, upright stalks, which are nearly four feet high, and are garnished with smooth oblong leaves, whose edges are a little indented: the lower leaves are much broader than those on the stalks. The flowers are produced from the side of the stalks, and are regularly set on for more than half their length, forming a sort of pyramid; these are large, open, and shaped like a bell; the most common colour of the flower is a light blue; but there have been some with white flowers, which make a variety when intermixed with the blue, but the latter is most esteemed. This plant is cultivated to adorn halls, and to place before the chimnies in summer, when it is in flower, for which purpose there is no plant more proper; for when the roots are strong they will send out four or five stalks, which will rise as many feet high, and are garnished with flowers great part of their length; these upright stalks send out some short side-branches, which are also adorned with flowers, so that by spreading the upright stalks to a flat frame composed of slender laths, as is usually practised, the whole plant is formed into the shape of a fan, and will spread nearly to the width of a common fire-place. When the flowers begin to open, the pots are removed into the rooms, where being shaded from the sun, and kept from the rain, the flowers will continue long in beauty; and if the pots are every night removed into a more airy situation, but not exposed to heavy rains, the flowers will be fairer, and continue much longer in beauty.—Those plants which are trained for adorning halls and chimneys, are seldom fit for the purpose the following season; a supply of young plants therefore should be annually raised: the common method of doing this, is by dividing the roots; and the best time for doing it is in September, that the offsets may have time to get strong roots before winter. This method of propagating by the offsets is the quickest, therefore generally practised, but the plants which are raised from seeds are always stronger; the stalks will rise higher, and produce a greater number of flowers; and is therefore recommended to the practice of the curious. In order to obtain good seeds, there should be some strong plants, placed in a warm situation, near a pale or wall, in autumn; and if the following winter should prove severe, they should be covered with either hand-glasses or mats, to prevent their being injured by the frost; and in the summer, when the flowers are fully open, if the season should prove very wet, the flowers must be screened from great rains, otherwise there will be no good seed produced: the not observing this had led many to conclude that the plants do not bear seed in England, which is a great mistake, though it has certainly been found that the plants which have been raised by offsets, seldom produce seeds; and this is the case with many other plants which are propagated by slips or cuttings, which in a few years become barren. When the seeds are obtained, they must be sown in autumn, in pots or boxes filled with light undunged earth, and placed in the open air till the frost or hard rains come on, when they should be placed under a hot-bed frame, where they may be sheltered from both; but in mild weather, the glasses should be drawn off every day, that they may enjoy the free air; with this management the plants will come up early in the spring, and then they must be removed out of the frame, placing them first in a warm situation; but when the season becomes warm, they should be removed where they may have the morning sun only: during the following summer, they must be kept clean from weeds, and in very dry weather now and then refreshed with water, which must be given with great caution, for the roots are very subject to rot with too much moisture. In September, the leaves of the plants will begin to decay, at which time they should be transplanted; therefore there must be one or two beds prepared, in proportion to the number of plants. These beds must be in a warm situation, and the earth light, sandy, and without any mixture of dung, which last is an enemy to this plant. If the situation of the place be low, or the soil moist, the beds must be raised five or six inches above the surface of the ground, and the natural soil removed a foot and a half deep, putting lime-rubbish, eight or nine inches thick, in the bottom of the trench, to drain off the moisture. When the beds are prepared, the plants must be taken out of the pots or cases very carefully, so as not to break or bruise their roots, for they are very tender, and on being broken, the milky juice will flow out plentifully, which will greatly weaken them. These should be planted at four inches' distance each way, with the head or crown of the root half an inch below the surface; if there happen a gentle shower of rain soon after they are planted, it will be of great service to them; but as the season

sometimes proves very dry at this time of the year, in that case it will be proper to give them a gentle watering three or four days after they are planted, and to cover the beds with mats every day, to prevent the sun from drying the earth; but these must be taken off in the evening, that the dew may fall on the ground. Towards the end of October the bed should be covered over with some old tanner's bark to keep out the frost, and where there is not a conveniency of covering them with frames, they should be arched over with hoops, that in severe frosts they may be covered with mats; for these plants when young are often destroyed in winter, where this care is wanting. In the spring the covering must be removed, and the plants kept clean from weeds during the following summer; and if the season should prove very dry, they must now and then be refreshed with water. The following autumn, the surface of the ground should be stirred between the plants, and some fresh earth spread over the beds, and in winter covered as before. In these beds the plants may remain two years, during which time they must be treated in the manner before directed, by which time the roots will be strong enough to flower: in September they should be carefully taken up, and some of the most promising planted in pots; the others may be planted into warm borders, or in a fresh bed, at a greater distance than before, to allow them room to grow. Those plants which are potted, should be sheltered in winter; and those in the full ground, should have some old tanner's bark laid round them, to prevent the frost injuring the roots.

9. Campanula Americana; *American Bell-flower.* Leaves cordate, and lanceolate serrate; petioles of the lower ciliate; flowers axillary, sessile; corollas five-parted, flat; styles longer than the corolla. Root annual; stem and germina smooth; leaves acuminate; flowers three or more from each axil or bracte.—Native of Pennsylvania; flowers in July.

10. Campanula Lilifolia; *Lily-leaved Bell-flower.* Leaves lanceolate; stem-leaves sharply serrate; flowers panicled nodding. It is singular in this plant, that the stem, before it produces the panicle, puts out leaves in a kind of rose, which, when the panicle comes forth, are dispersed about the stem. It is perennial, and varies much in the colour and size of the flower, quantity of branches, hardness and softness, smoothness and roughness, of the leaves.—It flowers most part of the summer; and was found from the Jaick eastward to the very confines of China, where the roots, both boiled and raw, are eaten by the inhabitants.

11. Campanula Rhomboidea; *Germander-leaved Bell-flower.* Leaves rhomboid, serrate; spike one-ranked; calices toothed. Root creeping, perennial; stem erect, smooth, from six, eight, or ten, to eighteen inches in height, unbranched; leaves few, tender, smooth, ending in a point; the upper ones smaller; corollas blue, sometimes white, short, and swelling; calix capillary.—Native of the mountains of Switzerland, Dauphiny, Carniola, and Italy, on mount Cenis. It flowers in July.

12. Campanula Unindentata; *One-toothed Bell-flower.* Erect, smooth; leaves lanceolate, acute, one-toothed on each side; panicle divaricated, leafy; stems extremely simple.—Native of the Cape.

13. Campanula Capillacea; *Five-leaved Bell-flower.* Herbaceous erect; leaves filiform, smooth; panicle terminal; flowers alternate.—Native of the Cape.

14. Campanula Linearis; *Linear-leaved Bell-flower.* Herbaceous, erect; leaves linear, entire, smooth; flowers drooping; capsules hispid.—Native of the Cape.

15. Campanula Lobelioides; *Lobelia-like Bell-flower.* Small stems round, stiff, smooth; leaves linear-lanceolate, toothletted; corollas nearly funnel-form, trifid, and quadrifid.—This species, as its name signifies, has the air of a *Lobelia*, the same tenderness, divided in the same manner, and even the same inflorescence. Perianth three or five-leaved; leaflets ovate, obtuse, permanent; corollas very small, purplish white, twice as long as the calix, funnel-form; tube round, gradually widened; segments erect. It varies with the calix and corolla, three and five-parted, and even with three and five stamina; the capsule also is two-celled. It flowers in July and August.—Native of Madeira.

16. Campanula Carpatica; *Carpathian* or *Heart-leaved Bell-flower.* Leaves smooth, cordate, serrate, petioled; branches filiform, one-flowered. This pours out a milky juice when wounded; the root is whitish, and perennial; stems herbaceous, annual, weak, hardly branching, bearing one or very few flowers. In gardens it becomes branching and many-flowered: the root-leaves are kidney-form, roundish; the peduncle elongated and smooth; the corolla blue. It flowers the whole summer, and was first observed on the Carpathian Alps. It is yet scarce in our gardens, but deserves to be more generally known and cultivated, its flowers being large and showy in proportion to the plant; and, like many other alpine plants, being well suited to decorate rock-work, or such borders of the flower-garden as are not adapted to large plants. It is a perennial plant; and may be propagated by parting the root.

17. Campanula Grandiflora; *Great-flowered Bell-flower.* Leaves tern, oblong, serrate; stem one-flowered; flower spreading. The whole plant is very smooth; root perennial, white, fusiform, the thickness of a finger, and branched; stems few, erect, or ascending, simple, round, a foot high, leafy all over, annual, terminated with one handsome flower, but without scent, nodding a little; with sometimes one or two flowers more from the upper axillas; corolla two inches or more in diameter, very deep blue, with numerous blue veins, elegantly pear-shape, before expanding, and at first green; no holes in the capsule: it flowers in June and the beginning of July, and ripens its seeds in August.—Native of Siberia.

18. Campanula Aurea, *Golden Bell-flower.* Capsules five-celled; leaves elliptic, serrate, smooth; flowers subpanicled, five-parted; stem shrubby, fleshy. It flowers in August and September.—Grows in Madeira.

19. Campanula Tenella. Stems diffused, filiform; leaves ovate, sometimes one-toothed, reflex; flowers solitary, terminal. Stem determinately branched and hard; branches simple, and covered with leaflets; calix glossy, acute; corolla five-parted. The leaves are seldom without a lateral tooth.—Found at the Cape.

20. Campanula Purosa; *Porous-stalked Bell-flower.* Leaves lanceolate, glossy; stem erect, porous, with dots upwards. This is a plant difficult to be distinguished; unless by the pores, scarcely distinguishable by the naked eye, which penetrate into the stem, not downward but upwards; stem round, a foot high, erect; branches numerous, erect, short; the upper leaves linear, even, quite entire; racemes terminal, erect; flowers small, rather erect; calix shorter by half than the corolla, even, with lanceolate segments.—Native of the Cape.

21. Campanula Undulata. Leaves lanceolate, tooth-waved; flowers subsolitary, peduncled. Stem a foot and a half high, erect, filiform, glossy, somewhat branched at top; leaves sessile, reflected at the edge, subdecurrent, repand, somewhat glossy; peduncles terminal, long, leafless; flowers the size of the fourth species; calix glossy, with short acuminate teeth.—Native of the Cape.

** *Leaves rugged, broader.*

22. Campanula Latifolia; *Broad-leaved Bell-flower*, or *Giant Throatwort*. Leaves ovate, lanceolate; stem very simple, columnar; flowers solitary, peduncled; fruit drooping. Stem three feet high and more, angular, smooth, not branching; leaves sharply serrate, on short petioles, hirsute; flowers axillary, one or two together, on peduncles shorter than the leaf; corolla very large, blue, the segments triangular, divided by a line: the fruit compels the peduncle to bend down beneath its weight. The whole plant abounds with milky liquor; it varies with purple, and with white flowers.—It grows naturally in the northern parts of England, in Flintshire, Scotland, Denmark, Sweden, Switzerland, Piedmont, &c. flowering in July and August. It is perennial, and easily propagated by seeds, which it furnishes in great plenty; if these be suffered to scatter, the plants will come up abundantly the following spring, when they may be removed into the nursery till autumn, at which time they should be transplanted whither they are intended to remain. As this sort delights in shade, the plants may be placed under trees, or in shady borders, where few better things will thrive, and they will there afford an agreeable variety when in flower.

23. Campanula Rapunculoides; *Rampion-like Bell-flower*. Leaves cordate-lanceolate; stem branching; flowers one-ranked, scattered; calices reflex. The throat of the corolla is not very hairy; the root creeps prodigiously, and is said to be esculent.—Native of France, Germany, Austria, Switzerland, and Piedmont. Ray noticed it about Geneva, towards Gex, and on Mont Saleve. It is perennial, affects a dry soil, and flowers in July and August.

24. Campanula Bononiensis; *Bologna* or *Panicled Bell-flower*. Leaves ovate-lanceolate, rugged beneath, sessile; stem panicled. It grows to the height of three feet and more, with many ascending conjugate branches; leaves stem-clasping, almost cordate, villose, with a white nap beneath, but not rough, moderately serrate; the same under the flowers, which come out on almost naked branches, and at the top of the stem, the lower ones on erect short peduncles, three together, the upper ones sessile, in the axillas solitary or two together, at the top of the stem very numerous but small, forming a spike; they are of a violet colour.—Native of Bologna, Monte Baldo, Austria, Switzerland, and Piedmont: it is perennial.

25. Campanula Graminifolia; *Grass-leaved Bell-flower*. Leaves linear-subulate; head terminal. Stems extremely simple, scarcely longer than the leaves; leaves very narrow, like grass; flowers facicled into a head with ovate bractes, subulate at top; stigma bifid.—Native of Italy, in the mountains of Abruzzo near Salmone, and Monte Vergine.

26. Campanula Cineria. Erect, tomentose; leaves subulate, entire, erect, approximating; flowers solitary, terminal.—Native of the Cape.

27. Campanula Hispidula. Hispid; flowers erect; calices the length of the corolla. Stem branching, a hand high, and hispid, more branching at top; leaves alternate, linear, acuminate, ciliate, especially the midrib; calices subsessile, terminal, linear, with the keel ciliate; corolla funnel-form; stigma trifid, annual.—Found at the Cape.

28. Campanula Trachelium; *Great Bell-flower, Great Nettle-leaved Throatwort*, or *Canterbury Bells*. Stem angular; leaves petioled; calices ciliate; peduncles trifid. Root perennial; stems from two to three feet in height, upright, stiff, hairy, angular, the angles membranaceous, putting out a few short side branches; corolla pale or deep blue, purple or white, spreading very much, hairy within, the segments triangular, divided by a hairy line; when the corolla is double, there are no stamina or nectary. The number of flowers varies from one or two to three, four, and even five; they are large, and nodding. The whole plant contains a juice of a dirty yellow colour.—Native of most parts of Europe, and of Japan, in woods and hedges; flowering in July and August. The double sorts of great Canterbury Bells are propagated by parting their roots in autumn, which should be annually performed, otherwise the flowers are apt to degenerate to single; the soil should not be too light or rich in which they are planted, for in either of these they will degenerate; but in a strong fresh loam their flowers will be in the greatest perfection: these plants, being extremely hardy, may be planted in any situation; those, however, with single flowers, do not deserve a place in gardens.

29. Campanula Glomerata; *Small* or *Clustered Bell-flower*, or *Little Canterbury Bells*. Stem angular, simple; flowers sessile; head terminal. Root perennial; stem upright, angular, hairy, from six to eighteen inches in height, but varying from two and even three feet in strong soils, down to two inches in lofty dry situations; seldom or ever branched, unless when it is eaten down by cattle; corolla blue, purple, or white, five-cleft to the middle, (sometimes four-cleft,) usually villose on the outside, and sometimes on the inside, with white hairs.—Native of most parts of Europe, in hilly and dry pastures, particularly in a calcareous soil; flowering from June to September. This plant is no contemptible ornament for rock work or dry flower-borders; a moist or rich soil makes it too luxuriant, and renders the flowers pale and degenerate.

30. Campanula Cervicaria; *Wave-leaved Bell-flower*. Hispid; flowers sessile; head terminal; leaves lanceolate, linear, waved. Root biennial.—It is a wood plant, native of Sweden, Denmark, Germany, Switzerland, Piedmont, Siberia; flowering in July and August. The root is esculent. This, as well as the fifth and thirty-ninth species, and several others, may be propagated by seeds sown in autumn; for such as are sown in spring often fail, or at least lie a year in the ground; when the plants come up, they should be removed into beds, and kept clean from weeds.

31. Campanula Thyrsoidea; *Long-spiked Bell-flower*. Hispid; raceme ovate oblong, terminal; stem entirely simple; leaves lanceolate linear. Root large, woody, biennial; from which rises a round tuft of rough broad ovate-lanceolate leaves; from the centre of these springs a stem eight or ten inches high, unbranched, covered with leaves and flowers, the leaves tongue-shaped, longer than the radical ones, equal to the whole stem; the flowers hirsute, white, or yellowish white, long and slender, collected into one very long, ovate cylindric, close terminating spike, leafy at bottom, but naked at top; sometimes the corolla is cut into four or six parts, and then there is a proportional number of stamina, and two stigmas.—In Switzerland it is common in stony alpine meadows; on the lower mountains it is more rare. It was observed by Ray to grow plentifully on the highest tops of Jura. It is also a native of Germany, Hungary, Austria, Carniola, Savoy, and Dauphiny; and it flowers in July.

32. Campanula Petræa; *Great Stone Throatwort*. Stem angular, simple; flowers sessile, headed-glomerate; leaves tomentose beneath. The stem is upright, rough, hairy, from a foot to two feet in height, beset with flowers from the top to below the middle, in alternate distinct bunches, with a leaf between each; the lower leaves are petioled, the rest are sessile; they are all bluntish, serrate, rugged on the upper surface, white with nap on the under: the corolla is white, divided into five, (sometimes seven,) sharp spreading seg-

ments, twirling at the extremity.—It was first observed by Pona on Monte Baldo, flowering in August; and is also a native of Piedmont, Silesia, &c.

**** Capsules covered with the reflected Sinuses of the Calix.*

33. Campanula Dichotoma; *Dichotomous Bell-flower.* Capsules five-celled, covered; stem dichotomous; flowers drooping. The leaves are oblong, rugged; and the flowers solitary, from the forks and ends of the branches.

34. Campanula Medium; *Coventry* or *Canterbury Bells.* Capsules five-celled, covered; stem undivided, erect, leafy; flowers erect. Root biennial. Leaves oblong, rough, hairy, serrate, coming out without order from the root, narrowing into a petiole: from the centre of these, the second season, arises a stiff, hairy, furrowed stalk, about two feet high, sending out several lateral branches, with long, narrow, hairy, serrate, sessile leaves, placed alternately: from the setting on of these leaves come out the peduncles, those on the lower part of the stem and branches four or five inches long, diminishing gradually in length upwards, and thus forming a sort of pyramid. The flowers are very large, and make a fine appearance; they are smooth, and the segments turn back at the end; they come out at the beginning of June, and, if the season be not very hot, will continue a month in beauty; the seeds ripen in September, and the plants decay soon after.

According to Hill, the fresh tops of this plant, with the buds of the flowers upon them, contain most virtue, but the dried leaves may be used. An infusion of them, sharpened with a few drops of spirit of vitriol, and sweetened with honey, is an excellent medicine for sore throats, used by way of a gargle. The plant, he says, is so famous for this virtue, that one of its common English names is *Throatwort*: if the medicine be swallowed, there is no harm in it; but in the use of every thing this way, it is best to spit the liquor out, together with the foulness which it may have washed from the affected parts.—It grows naturally in the woods of Germany, Austria, and Italy; and is cultivated in the English gardens for the beauty of its flowers, of which there are the following varieties; blue, purple, white, striped, and double, but the two last are not very common in England. It is propagated by seeds, sown in the spring, upon an open bed of common earth. When the plants are fit to remove, they are to be transplanted into other beds in the flower-nursery, six inches asunder, observing to water them frequently till they have taken new root, after which they will require no other culture but to keep them clean from weeds till the following autumn, when they may be transplanted into the borders of the flower-garden. As these plants perish the second year, young ones should be raised annually for a succession.

35. Campanula Barbata; *Bearded* or *One-leafed Bell-flower.* Capsules five-celled, covered; stem quite simple, with only one or two leaves; leaves lanceolate; corollas bearded. Root perennial, white, large, and woody, fusiform, or rather tuberous, two, three, or more inches in length; root-leaves many, somewhat rugged, from two to three inches long and upwards, narrowing into flat petioles: from these arises a simple upright round stem, from six to eighteen inches in length, with very few leaves on it; and towards the top from three to five, and sometimes ten or eleven, flowers, forming a kind of loose spike; they are large, solitary, nodding, alternate, and commonly directed one way.—Native of the mountains of Italy, Austria, Switzerland, Silesia, &c.: it flowers in June and July.

36. Campanula Spicata; *Spiked Bell-flower.* Hispid: spike loose; flowers alternate; leaves linear, quite entire. Root biennial, the thickness of a finger, two or three inches long, fusiform; root-leaves linear, lanceolate, quite entire, rough, hairy; stem leaves like them, but shorter and narrower; stem a foot high, or more, with white stiff hairs, like all other parts of the plant, and alternate branches terminating in a very long loose spike, of many sessile, alternate, remote flowers; calix hoary, with white hairs; corolla subcylindric, blue, small in comparison of the plant. Allioni remarks, that it assumes a variety of appearances; in very dry open situations at the foot of the Alps, where it has very rough linear leaves, with a curled waving hedge, and flowers in a very long close continued spike. In the county of Nice it has elliptic leaves, not curled about the edge, which flowers in an uninterrupted spike. But it has more usually linear leaves and flowers, though in a spike, yet interrupted so as to form lateral heads. It is common both in the Upper and Lower Valais, about Chiavenna, and by the Lago Maggiore, and Como, in the vineyards; between Pignerolles and La Perosa; and in the whole valley of Fenestrelles, very common in dry open rocky situations; in Alsace, between Sultz and Zenne; in Dauphiny, but not very common; and in Silesia: it flowers in July.

37. Campanula Alpina; *Alpine Bell-flower.* Stem simple; peduncles one-flowered, axillary, two-leaved. Root perennial, fusiform; stem absolutely simple, smooth, a span high, loaded the whole length with axillary solitary flowers; root-leaves oblong, lanceolate, blunt, growing wider towards the top, hirsute, entire; stem-leaves ligulate, smaller, sessile; peduncles upright, very long, with two bractes; valves of the nectary semiovate, blue, germen blue, three-cornered, semiovate, fastened by its base to the bottom of the calix; stigma trifid; capsule roundish, three-celled; seeds brownish, with a membranaceous edge.—It is found upon Schneeberg, Scheidegg, and also in Silesia; flowering in July.

38. Campanula Mollis; *Soft Bell-flower.* Capsules five-celled, covered, peduncled; stem prostrate; leaves suborbiculate. The stems are decumbent, with few branches, rather stiff, villose; leaves small, sessile, nearly entire, tomentose, pubescent.—Native of Syria, Sicily, and Spain.

39. Campanula Saxatilis; *Rock Bell-flower.* Capsules five-keeled, covered; flowers alternate, nodding; leaves obovate, crenate. The stalks rise a foot high; the flowers are large, blue, nodding, alternate; they open in July, and are succeeded by five-celled capsules, filled with small seeds.—It grows naturally in Crete, upon rocks, where the roots penetrate the fissures, and continue much longer than in gardens. For the culture and propagation of this sort, see the thirtieth species. A few of these plants may be set in pots, to be sheltered in winter.

40. Campanula Sibirica; *Siberian Bell-flower.* Capsules three-celled, covered; stem panicled. Root biennial; stem a foot high, angular, a little hispid, straight, undivided; panicle thin, loose; leaves linear, half stem-clasping; stem-leaves rugged; flowers oblong, small; peduncles generally three-flowered; calices hispid. There is a variety with a subdivided stem, and broader leaves.—Native of Siberia, Austria, and Piedmont: it flowers from July to September.

41. Campanula Tridentata; *Three-toothed Bell-flower.* Capsule five-celled, covered; stem one-flowered; radical leaves three-toothed. The stem is twice as long as the leaves, with some linear leaves on it; flowers upright, rather large, solitary.—Found by Tournefort in the Levant.

42. Campanula Laciniata. Capsules covered, peduncled; leaves serrate, the radical ones lyrate; stem-leaves lanceolate. Root biennial; stem two feet high, suffruticose, branched from the bottom; lower leaves eight inches long, and two and a half wide; those on the branches two or three inches

long and sessile, the uppermost only four or five lines in length, slightly crenated and pointed; flowers large, pale, blue; capsule five-celled, nine or ten lines in diameter.—Found by Tournefort in the island of Policandro.

43. Campanula Stricta. Capsules covered; leaves rough with hairs; stem-leaves lanceolate, serrate; stem quite simple; flowers sessile. The stem is eighteen inches high, rough with hairs; root-leaves cordate or ovate, somewhat oblong, serrate, rough with hairs on both sides, petioled; stem-leaves alternate, remote, sessile, obtuse, serrate, toothed, rough with hairs, narrow at the base; flowers axillary, solitary, erect; calices rough with hairs, covering the germen with their sinuses.—Native of Syria and Palestine.

44. Campanula Canariensis; *Canary Bell-flower.* This is now made a distinct genus. See *Canarina.*

45. Campanula Fruticosa; *Shrubby Cape Bell-flower.* Capsules columnar, five-celled; stem shrubby; leaves linear, subulate; peduncles very long.—It flowers in August; and is a native of the Cape.

46. Campanula Speculum; *Venus's Looking-glass.* Stem very much branched, diffused; leaves oblong, subcrenate; flowers solitary; capsules prismatic. This is an annual plant, which rises with slender stalks a foot high; the flowers are of a beautiful purple, inclining to a violet colour, (sometimes pale, purple, or white) and in the evening fold up into a pentagon figure, whence it is also called *viola pentagonia*; the calix is composed of five narrow leaves, which spread open, and turn back, and are much longer than the petals; these remain on the top of the prismatic seed-vessel, which is filled with small angular seeds.—Native of the most southern countries of Europe, among corn; flowering from May till September. It is commonly sown in patches in the borders of the flower-garden, among other hardy annuals, in the spring: but if it be sown in autumn, it will grow much taller, and flower a month earlier, that is, in May.

47. Campanula Hybrida; *Corn Bell-flower: Small Venus's Looking-glass;* or *Codded Corn Violet.* Stem a little branching at the base, and stiff; leaves oblong, crenate; calices aggregate, longer than the corolla; capsules prismatic.—An annual plant, common in corn-fields, in England, France, and Switzerland; flowering in June and July.

48. Campanula Limonifolia. Branches expanding, undivided; radical leaves elliptic, even, quite entire; flowers sessile, in threes. The root-leaves are petioled, but not rigid; stem with very simple wand-like branches, and linear or subulate leaves; flowers remote, axillary, with bractes the length of the germen.—Native of the Levant.

49. Campanula Pentagonia. Stem subdivided, very branching; calycine leaflets linear, acuminate. This is a small plant, a hand or not more than six inches in height, with a simple white root; the stem is slender, weak, shrubby, with frequent branches; flowers at the ends of the stem and oranches, twice as large as those of *Venus's Looking-glass,* and of a paler purple, the bottom or eye white, but less so than in that; a broad blue band surrounds the eye, and the edges are purple; the flowers are more concave and bell-shaped than in our common garden sort, and the segments are not so deeply cut; the leaflets of the calix are narrow, oblong, sharp, spreading, but not revolute, and sometimes have little bristles at the edges; the flowers, before they open, are folded up like the other sorts, and have five wings like the feathers of a shaft, and hence the name *Pentagonia.* The seeds are large, round, and shining. Mr. Ray informs us, that the first seeds of this plant were brought from Thrace. This and the fiftieth, and also the fifty-sixth species, must be treated like the forty-sixth species, which see; if, however, the seeds be permitted to scatter, they will come up without care.

50. Campanula Perfoliata; *Perfoliate Bell-flower.* Stem simple; leaves cordate, toothed, stem-clasping; flowers sessile, aggregate. This is an annual plant, which in good ground will rise a foot and half high, but in poor ground, or where it grows wild among corn, scarcely rises to the height of six inches; the stalk is single, rarely putting out any branches, unless near the root, whence sometimes one or two short lateral branches are produced; the leaves are roundish and stem-clasping, sharply serrate at the edge, and from their base comes out a close tuft of flowers surrounded with a leaf as with the calix. Native of North America, and flowering in June. See the preceding species.

51. Campanula Capensis; *Cape Bell-flower.* Leaves lanceolate, toothed, hispid; peduncles very long; capsules strigose. Root annual; stem round.—Native of the Cape. It flowers in August and September; ripens its seeds in October, and then dies.

52. Campanula Elatines. Leaves cordate, toothed, pubescent, petioled; stems prostrate; peduncles capillary, many-flowered. Root perennial; stems many, procumbent, round, generally simple, from the fissures of the rocks; flowers purple, half five-cleft; the segments lanceolate, revolute. The whole plant is pubescent, with soft hairs, and is very milky.—It is found at the foot of the Alps, in the country of the Valdenses, or Vaudois, in rocky shady situations.

53. Campanula Hederacea; *Ivy-leaved Bell-flower.* Leaves cordate, five-lobed, petioled, smooth; stem lax. Root perennial, fibrous, slender, creeping; stems procumbent, filiform, trailing, matted together, and covering spots of a foot diameter: the whole herb pale, tender, delicate, and smooth, except a very few scattered hairs, occasionally found on some of the leaves, the lower of which are heart or kidney-form, and nearly entire; peduncles long, filiform, solitary, either terminating or axillary; segments of the calix pointed and entire; corolla pale blue, slender, oblong; filamenta longer than the antheræ.—Native of England and Wales, Denmark, France, and Spain, in moist shady places: it flowers from May till August.

54. Campanula Erinoides. Stems diffused; leaves lanceolate, subserrate, decurrent, with a scabrous line; flowers peduncled, solitary. See *Lobelia Erinus.*

55. Campanula Heterophylla. Leaves subovate, smooth, quite entire; stems diffused. Root perennial, white, sweet, and full of milk; lower leaves like those of the Daisy, disposed in a ring, brownish green, shining, two inches and a half long, and half an inch wide; those on the stems fleshy, smooth, bright green, eight lines long: stems eight or nine inches long, a line in thickness, milky, and full of white pith: flowers axillary, seven or eight lines long, and four or five wide, pale blue; calix five lines in length, and three in width, pale green; fruit three-celled, filled with brownish red, polished, oval seeds, the third of a line in length. The whole plant is insipid.—Native of the Levant; found by Tournefort in the desert isle of Cheiro.

56. Campanula Erinus; *Forked Bell-flower.* Stem dichotomous; leaves sessile; the upper ones opposite, three-toothed. This is a low annual plant, seldom rising six inches high, but dividing into many branches; flowers small, pale blue; they are produced at the ends of the branches, and are shaped like those of *Venus's Looking-glass,* but their colours are less beautiful, and the leaflets of the calix are broader.—Native of Spain, Portugal, Italy, Sicily, and the south of France; it flowers in July and August. See the forty-ninth species.

**** *New species.*

57. Campanula Sessiliflora. Prostrate; leaves linear subulate, entire; flowers axillary, solitary, sessile.—Native of the Cape.

58. Campanula Fasciculata. Shrubby, erect; leaves ovate, with a tooth or two, recurved; flowers glomerate, terminal.—Native of the Cape.

59. Campanula Paniculata. Herbaceous; stem panicled; branches divaricate; leaves lanceolate, entire; flowers terminal, solitary.—Native of the Cape.

60. Campanula Adpressa. Herbaceous, erect; leaves lanceolate, toothed, recurved, ciliate at the base, appressed; panicle decompound.—Native of the Cape.

61. Campanulata Verticillata; *Whorl-leaved Bell-flower.* Leaves and flowers verticilled. Root perennial; stems many, straight; leaves in fives or sixes, lanceolate, serrate; corollas small, pale blue; style double the length of the corolla.—Native of Siberia; flowering in June.

62. Campanula Procumbens. Stem dichotomous, diffused; leaves ovate, crenate, obtuse; flowers solitary, erect.—Found in moist places near the Cape.

63. Campanulata Triphylla. Leaves tern, linear; flowers by threes in a whorl. Root fusiform; stem herbaceous, erect. The whole smooth. Native of Japan: flowering in September.

64. Campanula Tetraphylla. Leaves by fours, oblong, serrate. Stem obscurely angular, jointed, smooth, simple at bottom, panicled at top, two feet high; corolla whitish; antheræ linear; style double the length of the corolla; stigma trifid.—Native of Japan.

65. Campanula Glauca. Leaves sessile, ovate, serrate, glaucous beneath; stem angular, panicled; peduncles one-flowered. Stem undershrubby, smooth, erect, two feet high; branches very angular, flexuose, erect, subfastigiate, smooth; corolla large, blue.—It flowers in July and August; and is cultivated in Japan.

66. Campanula Marginata. Leaves lanceolate, waved, serrate, margined; branches weak; flowers terminal, solitary. Stem thick at the base, rather woody, decumbent; branches very many, capillary, rather erect, with a very few subdivisions, striated, smooth, a short span in length. It grows by road-sides, flowering in May and June.—Native of Japan.

67. Campanula Gracilis. Leaves linear-lanceolate, obscurely serrate; stem dichotomous; flowers solitary, terminal.—Native of New Zealand, and New Caledonia.

68. Campanula Bellardi. Stem naked, one-flowered; leaves petioled, elliptic-lanceolate, toothed. This very elegant plant has a few leaves at the bottom rather erect, on petioles the length of the leaves, and grooved within; the leaves are drawn to a point at each end, have on each side two or three sharpish teeth, are of a deep green, roughish, rather firm, and not juicy; the little stem is erect, rather firm, round, smooth, half a finger high; flower erect; calix smooth, five-cleft beyond the middle; the segments lanceolate-linear, not reflected, nor expanded, nor appendicled; corolla blue.—Native of Piedmont: perennial.

69. Campanula Vesula. One-flowered; leaves smooth, oval, toothed; stem almost naked; calix smooth. Radical leaves very many, petioled, decurrent, acute, shortly toothed, or rather notched, nerved beneath, finely and thinly haired, so as to seem almost smooth; stem round, a short span in height; calix livid, five-cleft beyond the middle; segments lanceolate, not reflex; corolla spreading; perennial.—Native of Piedmont.

70. Campanula Cespitosa. Radical leaves kidney-form, gashed; stem-leaves toothed, upper ones quite entire. Many stems and shoots form a tuft. The flowers nod; corolla deep blue, half an inch long, and four lines over; form oval, wider below than at the edge, with three lines on each segment. It grows in dry rocky mountains, flowering at the beginning of August: it is perennial.—Native of Switzerland, Dauphiny, Carniola, and Piedmont.

71. Campanula Valdensis. Hirsute: leaves lanceolate, sometimes toothletted; flower solitary, nodding. Root perennial. The root is small, and throws out one or two stems only three inches high, often bending to one side and arched; stem-leaves oval, oblong, linear; a single flower at the top is deep blue or almost black, more lengthened out than in the species that most resemble it.—Native of Piedmont and Dauphiny.

72. Campanula Urticifolia. Stem roundish, simple; upper leaves sessile; spike one-ranked; peduncles one-flowered; calices smooth. Root perennial: plant entirely smooth; stem three feet high, simple, streaked, round; each axil produces a flower on a short peduncle; corolla and calix nearly equal.—Native of Italy, in woods.

73. Campanula Alpestris. Stem quite simple, one-flowered; leaves lanceolate, quite acute, hispid; corolla bearded; capsules three-celled, covered. Root perennial, creeping; stems only two or three inches high, having at top a single flower, which hangs down; root-leaves, which appear the first-year, small, blunt, and almost round, those which come afterwards are longer; the bottom stem-leaves are still longer, pointed, and a little waved on the edge; they are all roughish, and ciliate on the edge with small stiff hairs.—It grows on the very high Alps, and on Mount Cenis.

74. Campanula Nitida; *Smooth-leaved Bell-flower.* Leaves oblong, crenate, glossy, those on the stem lanceolate, almost entire; corollas campanulate-rotate. This has many stiff oblong leaves coming out from the root on every side, which form a sort of head like those of Houseleek, crenate, having a strong rib, running on their border longitudinally. There is a white and blue flower of this sort in the gardens, but in Holland they have it with a double flower.—It is a native of North America, and flowers in July. As it does not produce seeds in England, it is propagated by offsets only, which should be taken off in August, that they may get good root before cold weather comes in; they must be planted in small pots, filled with fresh, light, loamy earth, and placed in the shade until they have taken root; then they may be put along with other hardy exotic plants; and in autumn they must be removed into shelter, for in severe winters plants which are exposed are often destroyed, though in mild winters they will live in the open air.

75. Campanula Prismatocarpus; *Long-Capsuled Bell-flower.* Capsules linear, two-celled; leaves lanceolate, loosely serrate, very smooth; stem decumbent. The stems are a little shrubby at the base. It is an annual, and flowers in September.—Native of the Cape.

76. Campanula Fragilis. Stems procumbent; branches directed one way, many-flowered; root-leaves kidney-form, crenate; calices angular. This is a very beautiful plant, but extremely brittle, abounding in milk, commonly quite smooth, bright green, and lucid, but sometimes lanuginous; it has a handsome head of flowers; the root is perennial, and brown.—Native of the kingdom of Naples, especially on the coast of the bays of Salerno and Amalfi.

77. Campanula Virgata. Branches wand-like; leaves lanceolate, sharp at both ends, toothed, somewhat rugged; flowers in pairs, sessile; corollas deeply parted. Root biennial; stem upright, streaked, a foot or more in height, scarcely leafy, with spreading branches; leaves radical, petioled; flowers remote, commonly two together, blue, with a bracte under them, the length of the germen; segments of

the calix acute; those of the corolla lanceolate, cut almost to the base.—Native of Mount Libanus.

78. Campanula Repens. Stem subdivided, creeping; leaves oblong, fleshy; flowers solitary. The stem is herbaceous, and very much branched; the leaves oblong, ovate, quite entire, small, hairy opposite; the flowers white, sessile, axillary, solitary.—Native of Cochin-china.

Campechy Wood. See *Hæmatoxylum.*

Camphire, or *Camphor Wood.* See *Laurus.*

Campherosma; a genus of the class Tetrandia order Monogynia.—Generic Character. *Calix*: perianth pitcher-shaped, half four-cleft, compressed, permanent; segments acute, the opposite ones largish, recurved. *Corolla:* none. *Stamina:* filamento four, filiform, equal; antheræ oval. *Pistil:* germen ovate, compressed; style filiform, half two-cleft, longer than the calix; stigmas acute. *Pericarp:* capsule one-celled, gaping above, covered by the calix. *Seed:* single, oval, compressed, shining. Essential Character. *Calix:* pitcher-form; two of the teeth opposite, and the alternate ones very small. *Corolla:* none. *Capsule:* one-seeded.—These plants are preserved in gardens merely for the sake of variety; they are propagated by seeds, which succeed best when sown in the autumn. The European sorts require only to be thinned, and kept clean from weeds; and if they are permitted to scatter their seeds, there will be a supply of young plants in the spring.——The species are,

1. Camphorosma Monspeliaca; *Hairy Camphorosma.* Leaves hirsute. Annual; with trailing branches, a foot or more in length; leaves linear, hairy, close to the branches; flowers from the joints, very small.—Native of the south of France, Spain, and the county of Nice. The whole plant smells of camphor; it abounds in a volatile oily salt, and is warm and stimulating: an infusion of it is of service in the asthma; the dose from half an ounce to an ounce and a half.

2. Camphorosma Acuta; *Sharp-leaved Camphorosma.* Leaves subulate, rigid, smooth. Root perennial, slender, fusiform, fibrous; stems many, woody, decumbent, round, hairy, roughish, from a finger's length to a foot in height; branches alternate. It flowers in July and August.—Native of very dry sandy fields in the Palatinate, Italy, and Tartary.

3. Camphorosma Glabra; *Smooth Camphorosma.* Leaves subtriquetrous, smooth, unarmed. This is a perennial plant, with trailing branches. The flowers are not more visible than those of the first sort.

4. Camphorosma Pteranthus. Very branching; peduncles ensiform, dilated; bractes crested. Root annual, fibrous.—Native of Arabia, Egypt, and Barbary. It is singular in its manner of flowering, and in its fruit, which resembles a stag's horns.

5. Camphorosma Palacea. Shrubby; branches spike-form, chaffy, hairy. A shrub scarcely a foot high, determinately branched.—Found at the Cape.

Campion. See *Agrostemma, Cucubalus,* and *Lychnis.*

Canarina; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth superior; leaflets six, lanceolate, recurved, permanent. *Corolla:* monopetalous, bell-form, six-cleft, nerved; nectary of six valves, equal, distant, covering the receptacle. *Stamina:* filamenta six, subulate, spreading outwards, originating from the valves; antheræ pendulous from the tip. *Pistil:* germen inferior, six-cornered; style conical, short; stigma longer than the stamina, clavated, six-cleft. *Pericarp:* capsule six-angled, obtuse, six-celled. *Seeds:* numerous, small. Essential Character. *Calix:* six-leaved. *Corolla:* six-cleft, bell form; stigmas six. *Capsule:* inferior, six-celled many seeded.——The species are,

1. Canarina Campanula; *Canary Bell-flower.* Stem erect; leaves hastate, in threes, or opposite. Root perennial, tuberous, fusiform; stem three feet high, erect, solitary, round, even with swelling joints; branches by threes from each joint; leaves on the stem in threes; flowers from the forks of the upper branches, solitary, peduncled, drooping; corolla larger than the leaves, resembling that of a Crown Imperial, rufous, brighter within, with a yellow eye; each segment with three purple nerves; style club-form, longer than the stamina. It flowers from January till March.—It is propagated by parting the roots, which must be done with caution, for if they be broken or wounded, the milky juice will flow out plentifully, so that if they be planted before the wounds are skinned over, it occasions their rotting; therefore whenever any of them are broken, they should be laid in the green-house a few days to heal. The root must not be too often parted, for that weakens the plants, and prevents them from flowering well; the best time for doing it is in July, soon after the stalks are decayed; the earth should not be rich, for that will cause the plant to be luxuriant in branches, but poor in flowers; the soil in which they succeed best, is a light sandy loam, with a fourth part o screened lime rubbish; the pots should at first be placed in the shade, and, unless the season be very dry, they should not be watered: about the middle of August the roots will begin to put out fibres, when, if the pots be placed under a hot-bed frame, and, as the nights grow cool, be covered with the glasses, (opening them every day,) it will greatly forward their flowering, and increase their strength: when the stalks appear, the plants must now and then be refreshed with water, but it must not be given too often, nor in great quantity; by the middle of September the plants will be grown so tall, that they must be removed into a dry airy glass case, where they may enjoy the free air in fine weather, and yet be screened from cold.

2. Canarina Zanguebar. Stem scandent; leaves hastate alternate. Flowers solitary, lateral; corolla pale-coloured.—Native of Zanguebar, on the coast of Africa.

Canarium; a genus of the class Diœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth two-leaved, leaflets ovate, concave, permanent. *Corolla:* petals three, oblong, like the calix. *Stamina:* filamenta five, very short; antheræ oblong, of the length of the petals. *Female. Calix:* as in the male; leaflets reflex. *Corolla:* as in the male. *Pistil:* germen ovate; style scarcely any: stigma headed, three-cornered. *Pericarp:* drupe dry, ovate, acuminate; base surrounded by a crenate membrane. *Seed:* nut ovate, three-cornered, acute. Essential Character. *Male. Calix:* two-leaved. *Corolla:* three-petalled. *Female. Calix:* two-leaved. *Corolla:* three-petalled. *Stigma:* sessile. *Drupe:* with a three-cornered nut.——The only species known is,

1. Canarium Commune. Leaves alternate, pinnated with an odd foliole; panicles with divaricate rigid branches; flowers sessile. The fruit is covered with a thin olive-coloured skin, and having within it very little pulp, full of capillary fibres.—This tree is a native of the Molucca isles, Banda, and New Guinea. The nuts are eaten both raw and dressed by the inhabitants; an oil is expressed from them, which is used at the table when fresh, and for lamps when stale; bread is also made of them, and cakes, biscuits, &c. for the table: eaten fresh, they are apt to bring on diarrhœas and dysenteries, and to occasion oppression of the breast.

Canary Grass. See *Phalaris.*

Candleberry Tree. See *Myrica.*

Candy Tuft. See *Iberis.*

Cane. See *Arundo.*

Canella; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, three-lobed; lobes roundish, concave. *Corolla:* petals five, oblong, sessile, longer than the calix; two a little narrower than the rest; nectary pitcher-shaped, the length of the petals, anther-bearing. *Stamina:* filamenta none; antheræ twenty-one, linear, parallel, distinct, fastened on the outside to the nectary. *Pistil:* germen superior, within the nectary, ovate; style cylindric, the length of the nectary; stigmas two, blunt, convex, wrinkled. *Pericarp:* berry oblong, three-celled. *Seeds:* roundish, kidney-shaped, in pairs cordate. Essential Character. *Calix:* three-lobed. *Corolla:* five-petalled. *Antheræ:* twenty-one, fastened to a pitcher-shaped nectary. *Berry:* three-celled. *Seeds:* two to four. ——The only species known is.

1. Canella Alba; *Laurel-leaved Canella.* This is a tree, the stem of which rises from ten to fifty feet in height, very straight and upright, and branched only at the top. It is common in most of the West India islands, and is frequently found near the coast; then seldom exceeding twelve or fifteen feet; in the inland woods it attains a more considerable height. The whole tree is very aromatic, and when in blossom perfumes the whole neighbourhood; the flowers dried and softened again in warm water, have a fragrant odour, nearly approaching to that of musk; the leaves have a strong smell of laurel. The berries, after having been some time green turn blue, and become at last of a black colour and glossy, with a faint aromatic taste and smell: when ripe, the white-bellied and bald-pate pigeons feed greedily upon them, and thence acquire their peculiar flavour. The bark of this plant, and the fruit of capsicum, were formerly common ingredients in the food and drink of the Caraibs; and at present it makes a necessary ingredient in the meager pot of the negroes. The bark is brought to Europe in long quills, which are about three quarters of an inch in diameter, somewhat thicker than cinnamon, and both externally and internally of a whitish or light brown colour, with a yellowish hue, and commonly intermixed with thicker pieces, which are probably obtained from the trunk of the tree. In taste it is moderately warm, aromatic, and bitterish; its smell is agreeable, and resembles that of cloves: its virtues are extracted most perfectly by proof spirit. The use of canella alba now supersedes that of the old bark of Winter, on the authority of both the London and Edinburgh pharmacopœias. It has been supposed to possess considerable virtues, and is said to be useful in scorbutic and many other complaints. It is now, however, considered merely in the light of an aromatic, and, like many other spices, is employed for the purpose of correcting disagreeable drugs. —This tree is too tender to live in England out of a stove: the plants require to be plunged in the tan-bed, and in winter should be sparingly watered; in summer they should have it in greater plenty, and they should also have a good share of air admitted to them when the weather is warm; with this management they may be preserved very well; but as they are difficult to propagate either by layers or cuttings, the surest method is to procure fresh seeds from the West Indies.

Canna; a genus of the class Monandria, order Monogynia. —Generic Character. *Calix:* perianth three-leaved; leaflets lanceolate, erect, small, coloured, permanent. *Corolla:* monopetalous, six-parted; divisions lanceolate, conjoined at the base, the three outer ones erect, larger than the calix; the three inner ones larger than the outer, two erect, one reflected, and thus constituting the upper lip; nectary petal-like, two parted, of the length and figure of the petals; the upper divisions ascending, the inferior revolute, imitating the upper lip of a corolla. *Stamina:* filamenta none; antheræ linear, growing to the upper margin of the division which bears the nectary. *Pistil:* germen roundish, rugged, inferior; style single, ensiform, growing to the anther-bearing nectary, lanceolate, of the length and figure of a petal; stigma linear, growing to the margin of the style. *Pericarp:* capsule roundish, rugged, crowned, three-grooved, three-celled, three-valved. *Seeds:* few, globular. Essential Character. *Corolla:* six-parted, erect; lip two-parted, revolute. *Style:* lanceolate, growing to the corolla. *Calix:* three-leaved.—Every species of this genus is propagated by seeds, which should be sown upon a hot-bed in the spring; and when the plants are fit to remove, they should be transplanted into separate small pots filled with rich kitchen-garden earth, and plunged into a moderate hot-bed of tanners' bark, observing to shade them until they have taken root; after which they should have a large share of free air admitted to them every day in warm weather, and be frequently refreshed with water. As these plants will grow very fast, they must be shifted into larger pots filled with the same sort of earth, and part of them plunged into the hot-bed again; and the others may be placed abroad in June, with other exotic plants, in a warm situation. Those which are placed in the hot-bed, will be strong enough to flower well in the stove the following winter; but those in the open air will not flower before the following summer: the latter may remain abroad till the beginning of October, but must then be removed into the stove, and treated in the same manner as the old plants until May, when a gentle hot-bed should be made, covered a foot thick with rich earth, and the plants turned out of the pots, planting them with their balls of earth upon the hot-bed, covering each with a bell-glass, which may be raised on one side every day to admit the air to the plants; and as they advance, they must be gradually inured to bear the open air. With this management the plants will grow much taller and stronger than those which are kept in pots, and from these good seeds may be expected in autumn. These plants will continue many years; but as young plants always flower better than the old roots, it is not worth while continuing them after they have borne good seeds.——The species are,

1. Canna Indica; *Indian Shot.* Leaves ovate, acuminate at both ends, nerved. This plant has a thick fleshy tuberous root, which divides into many irregular knobs, spreading wide near the surface of the ground, sending out many large ovate leaves without any order; these, at their first appearance, are twisted like a horn, but afterwards expand, and are near five feet long, and five inches broad in the middle, lessening gradually to both ends, and terminating in points; the stalks are herbaceous, rising four feet high, encompassed by the broad leafy footstalks of the leaves; the flowers are produced at the upper part of the stalk in loose spikes; the petal is of a pale red colour. There are several varieties, not worth enumerating; the stalks are sometimes of a pale red, and sometimes of a beautiful scarlet colour, succeeded by a prickly pericarp, with several black seeds, which will kill small birds. The juice of the root is said to be a counter-poison, and to be good, mixed with the bruised leaves and Water Lily, as a cataplasm for hard tumors and indurations of the spleen. Gerarde informs us, that in his time it was in the garden at Padua, and that he had planted it in his garden divers times, but it never came to a flowering; and that it must be set or sown in a pot with fine earth, or a bed made of horse-dung, in the same manner as cucumbers and musk melons are. Parkinson says, that in some kindly years this beautiful plant has borne its brave flowers, but never any ripe

seed; and that it will not abide the extremities of our winters, unless it meet with a stove or hot-house, such as are used in Germany, for neither house nor cellar will preserve it. Clusius saw it flowering by house-sides in Spain and Portugal: and says that the inhabitants there use the seeds for making their rosaries.—It is found wild within the tropics on all continents.

2. Canna Angustifolia; *Narrow-leaved Indian Reed.* Leaves lanceolate, petioled, nerved. This can hardly be distinguished from the first species, but is nevertheless lower and narrower.—It is found within the tropics of America, in shady and boggy places.

3. Canna Glauca. Leaves lanceolate, petiolate, nerveless. The roots of this are much larger than the former sorts, and strike down strong fleshy fibres deep in the ground; the stalks rise seven or eight feet high; the leaves are nearly two feet long, narrow, smooth, and of a sea-green colour; the flowers are produced in short thick spikes at the extremity, are large, and of a pale yellow colour; the segments of the petal are broad, but their shape like those of the other sorts.—Native of New Spain. The young plants of this species, when raised from seeds, are more certain of flowering than the old ones, for their roots send out many offsets, which when they have room soon spread to a considerable distance, but seldom produce flowers. It is, therefore, the best way to raise a succession of plants from seeds, and to throw out the old ones after they have perfected their seeds.

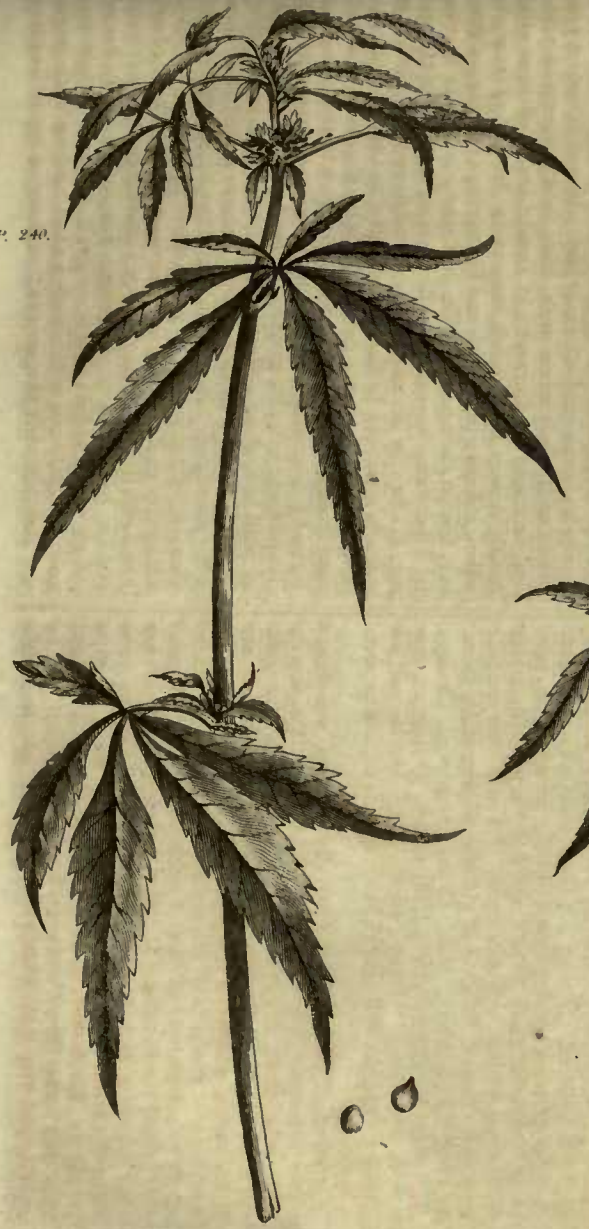
4. Canna Flaccida. Leaves narrow, lanceolate, smooth and even on both sides; inner limb of the corolla five-cleft; segments flaccid, obovate, the outmost largest. Four feet high or more, very much resembling the preceding in the herb, with which it is often confounded in our stoves.—Native of South America.

5. Canna Juncea. Leaves linear, nerved. The leaves resemble those of grass, with five raised nerves, sheathing at the base, near the root covered with capillary fibres, a span or a foot in length; scape with several lanceolate sheaths and few flowers; corolla small, of a dusky rufous colour; pericarp muricated.—It was discovered by Bladh in China.

Cannabis; a genus of the class Diœcia, order Pentandria.—Generic Character. *Males. Calix:* perianth five-parted; leaflets oblong, acuminate, obtuse, concave. *Corolla:* none. *Stamina:* filamenta five, capillary very short; antheræ oblong, four-cornered. *Female. Calix:* perianth one-leafed, oblong, acuminate, gaping longitudinally on one side, permanent. *Corolla:* none. *Pistil:* germen very small; styles two; subulate, long; stigmas acute. *Pericarp:* very small; calix tightly closed. *Seed:* nut globose, depressed, bivalve. Essential Character. *Male. Calix:* five-parted. *Corolla:* none. *Female. Calix:* one-leafed, entire, gaping on one side. *Corolla:* none. *Styles:* two. *Nut:* bivalve within the closed calix.——The only known species of this important genus is,

1. Cannabis Sativa. Stem generally six feet, sometimes considerably more, branched, hairy, as are also the leaves, which are digitate, slender, serrate; the folioles seven, the outer ones smallest. In the female, plant the flowers are solitary in the axillas: in the male, they are in thin pendulous spikes, at the ends of the stem and branches. Some female flowers are frequently found among the males, and some males among the females. It is not therefore any objection to the sexual system, that female plants of the Hemp have produced perfect seed, when there have been no male plants near them. Mr. Miller, however, contradicts this assertion, and declares, that for several years he tried the experiment by removing all the male plants; when, although the female plants continued strong and flourishing, they did not, nevertheless, produce any good seeds. It is also worthy of remark, that all the old authors, ignorant of the true doctrine of the sexes, and blind followers of the ancients, have fallen into an egregious mistake upon this subject, for they invariably call the male plants female, and the female male.—It is extremely difficult to ascertain the original place of the native growth of Hemp, but the most probable conjecture is, that it is a native of the East. Its use and great importance are well known. Huckaback of an excellent quality for towels and table-cloths, and the low-priced hempen cloths which husbandmen, servants, and labouring manufacturers, generally wear, as well as the better sorts for farmers and tradesmen in the country, are made from it. The finer cloths also, which are seven-eighths wide, and from 2*s.* 6*d.* to 3*s.* 6*d.* per yard, are preferred by some gentlemen for their strength and warmth. One advantage they certainly possess over the Irish and other linens; which is, that their colour improves by wearing, while that of the others declines. English Hemp, properly manufactured, is unrivalled for its strength, and in that respect much superior to the Russian. Considerable quantities of cloth are nevertheless imported from that country for sheeting, merely on account of its *strength*, which is entirely owing to its being coarser than British linen of the same price; but our hempen cloth is in reality more durable from the superior quality of the thread, and at the same time lighter in washing. The Hemp raised in England is not of so dry and spongy a nature as the Russian, and therefore requires less tar in proportion, to manufacture it into cordage. But as tar is cheaper than hemp, the rope-makers prefer foreign hemp to ours, because they obtain a greater profit in working it: but cordage must certainly be stronger in proportion as there is more hemp and less tar in it, provided there be a sufficient quantity of tar to unite the fibres. An oil is extracted from the seeds of hemp, and the seeds themselves are reckoned to be a good food for poultry, being supposed to make them lay a greater number of eggs. Small birds in general are very fond of them, but they should be sparingly given to birds confined in cages, and always mixed with other seeds. It is recorded, upon unquestionable authority, that the black and yellow feathers of the bulfinch and goldfinch have been sometimes changed to a total blackness by feeding them with hemp-seed alone, or giving them too large a proportion of it when mixed with other food. Hemp is called *hanf* or *hampf* in German; in Dutch, *hennip* or *kennip*; in Danish, *hamp*; in Swedish *hampa*; in French, *chanvre*; in Italian, *canapa*; in Spanish and Portuguese, *canamo*; in Russian, *konapli, konopel, kanaple*; in Polish, *kanop*; in Illyrian and Sclavonian, *konoplija*; in Walachian, *kœnepe*; in Hungarian, *kender*; in Tartarian, *kinder*; in Armenian, *kanop*; in Arabian, *sjæranck*; in Persian, *canngb*; in Chinese *ma-fuen, chu-tsao.* There is no doubt that the Greeks took their name from the eastern *kanop* or *coanab*, and that the plant originally migrated into Europe from those countries, notwithstanding what Pliny and Dioscorides affirm of its growing wild in Europe.—Hemp is commonly sown upon a deep rich moist soil, such as is found in the tract called Holland in the county of Lincoln, and the fens of the isle of Ely, where it is cultivated to great advantage; as it might in other parts of England where there is the same kind of soil. It will not thrive on clay, nor yet on stiff cold land; but is found to succeed very well after Turnips on friable loams, and good sands, provided it be well manured. Spalding-moor in Lincolnshire is a barren sand, and yet with proper care and culture it produces as fine hemp as any in England,

P. 240.



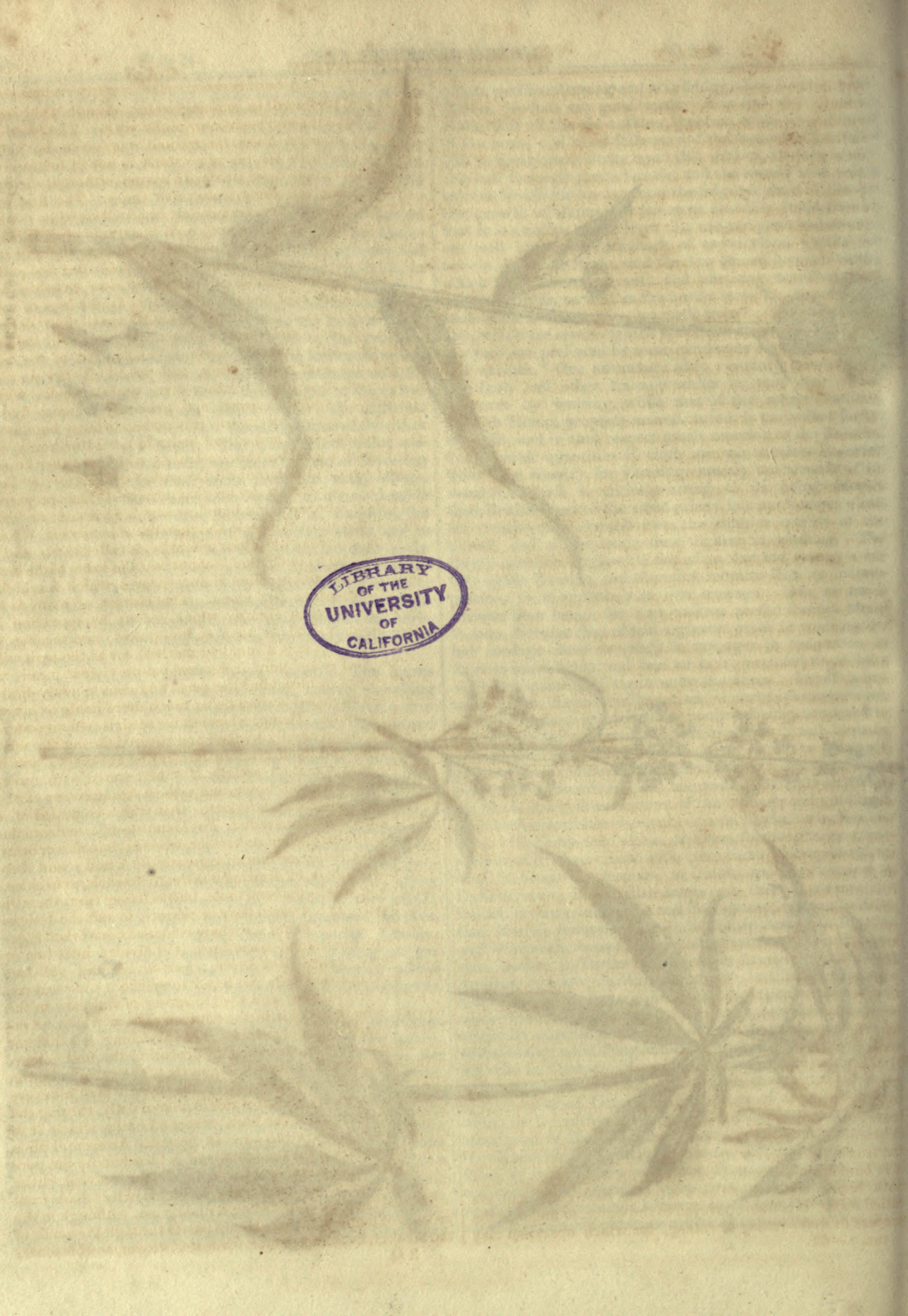
CANNABIS ___ *Female Hemp.*

Male Hemp.

P. 250.

CARDUUS ___ *Melancholy Thistle.*

Published by Henry Fisher, Caxton, London. 1823.


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

and in large quantities. In the isle of Axholme, in the same county, the culture and management of it is the principal employment of the inhabitants; and in the county of Suffolk, in the district extending from Eye to Beccles, it is cultivated on a sandy loam with great success; for upon such soils the quality is much finer, and better adapted to the fabric of hempen-cloth, though the quantity falls short of that produced in black rich mould. As it destroys weeds by depriving them of their nourishment, it is generally reckoned to be a cleansing crop; but it is at the same time a great impoverisher of the land, and must not be repeated upon the same ground, unless it be annually manured, in which case it is said to have been continued for seventy successive years upon the same spot. The letting it stand for seed, is universally acknowledged to exhaust the land; but many suppose, that if previously cut, it is an excellent preparation for Wheat. The land in which it is to be sown, must have three earths given to it, with sufficient harrowing to make the soil perfectly fine, and laid flat, with as few furrows as possible; it must be well manured with twenty-five or thirty-three horse-loads of muck, or from sixteen to twenty loads of dung, to an acre, immediately after the Wheat-sowing is finished, or, according to others, a fortnight before seed-time, which is from the beginning, or rather middle, to the end of April. If it be sown earlier, the spring frosts will greatly endanger the plants. Sowing is sometimes deferred till the middle of May; but when the weather is fine, early sowing is to be preferred, because it improves the quality of the Hemp. Although three bushels of seed is commonly allowed to an acre, two are fully sufficient. In the choice of the seed, the heaviest and brightest-coloured should be preferred; and some of them should be cracked, to see if they have the germen perfect. When sown, the seed should be lightly and gently harrowed in; and the birds should be kept off till the plants appear. In the fen countries, the plants are hoed out in the same manner as is practised for Turnips, leaving them a foot or sixteen inches apart, and cutting down all the weeds: they give them a second hoeing about a month or six weeks after the first. If these hoeings be well performed, the crop will not require any further care, for the Hemp will soon cover the ground, and prevent all growth of weeds. The first season for pulling Hemp is usually about the middle of August, when they begin to pull the *fimble, femble,* or *thimble Hemp*, that is, the male plants; but it would be much better to defer this a fortnight or three weeks, if the Hemp be intended to seed, until these male plants have shed their dust, without which it is well known the seeds will not grow, nor will those persons concerned in the oil-mills give any thing for them. The second pulling is a little after Michaelmas, when the seeds are ripe; the female plants are then pulled, and called *seed Hemp,* or *karle Hemp.* It is bound up in bundles about a yard in circumference, which are laid in the sun a few days to dry, and then are stacked up or housed till the seed can be threshed out. An acre of Hemp on a rich soil will produce near three quarters of seed, which, together with the unwrought Hemp, is worth from six to eight pounds. If the Hemp be designed for making thread only, without any regard to the seed, the male and female plants are pulled together, thirteen or fourteen weeks after sowing. When the leaves turn yellow and the stalk white, it is known to be ripe: it bears a dry season better than a wet one, and the wetter the season the longer it stands. As soon as it is all pulled up, it is bound up in bundles small enough to be grasped with both hands, which bundles are tied at both ends, and are called *baits.* It is then conveyed to the water, to undergo the process of *water-retting* or *rotting,* for which operation clay pits are preferred to running water, though they require cleansing once every seven or eight years. The usual produce of an acre, about three small waggon-loads, may be laid in one bed; but the same water is not fit for receiving Hemp more than three times in a season, although some persons employ the same water five times. The first water always produces the best colour in the least time: where there are not pits sufficient to hold the whole crop, it is customary to pull as they become ready, it being thought injurious to the Hemp to let it lie upon the land after it is pulled. In the pits, the bundles are placed in rows crossing each other, and are kept under water by blocks and logs of wood laid upon them. The Hemp generally soaks four days in warm weather, and rarely exceeds five or six, till the outside coat easily rubs off; when it is taken out of the pits, spread out singly upon grass, and turned, in dry weather twice, and in showery weather three times a week; which operation is called *grassing,* and generally occupies five or six weeks' time. Afterwards it is tied up in large bundles of eight or ten baits, and carted home to a barn or house, for *breaking* by a machine called a *brake*; which is either immediately done, or deferred till December or January, by laying up the bundles to dry for that purpose. Thus prepared, the Hemp is bound up in bundles, weighing a stone or fourteen pounds and a half each, and then taken to market. Whatever Hemp breaks off in the operation is called *shorts,* and is also bound up by itself, and is about half the value of the long Hemp. The offal is called Hemp-sheaves, which is sold for fuel at two-pence per stone. The custom of many is to *dew-ret* or *rot* their Hemp; which is done by spreading it upon meadow-land as soon as it is pulled, and turning it frequently; but it is a very bad method, for as the bark will not come off completely, it demands more violent means to be employed in bleaching the yarn, and consequently diminishes the strength, besides being much more liable to injury in rainy seasons. Hemp, when left for seed, is seldom water-retted, being generally stacked and covered during the winter, and spread upon grass in January or February; and if the season favour it, especially if it be covered with snow, it will acquire a good colour, and make a strong coarse cloth, but is after all greatly inferior to that which is pulled at a proper time, and water-retted. The Hemp now passes from the grower to the hatcheller, or heckler, who first bunches or beats it, either by hand, or more frequently by a mill; and then dresses or combs it, by drawing it through hatchels, or heckles, resembling wool-combers' tools, but differing from them in being fixed. It is dressed finer or coarser, to suit the designs of the purchasers: hence the whole is sometimes worked together for one sort, and sometimes it is divided into two or three sorts, called *long-strike, short-strike,* and *pull-tow.* The heckler either sells the latter to spinners and weavers, or puts it out to spin, and then disposes of the yarn to the weaver, who delivers it to the whitester, from whom he receives it back again bleached. The bleaching is a difficult operation; the art consisting in procuring the best colour, with the least diminution of strength. The yarn is laid in large tubs, covered with thick cloths, upon which ashes are placed, through which hot water is poured daily, turning the yarn frequently until the bark comes off, after which it is spread upon poles in the air. In general, hempen cloth is sold as it comes from the loom, and is bleached by the purchaser; some, however, is bleached ready for weaving, either by the weaver or a whitester, by boiling it in lees made from ashes, and frequently spreading it upon grass. Although in the process of manufacturing, Hemp passes through the hands of the breaker, heckler, spinner, whitester, weaver, and bleacher;

yet many of these operations are frequently carried on by the same person; some weavers bleach their own yarn and cloth, others their cloth only; some heckle their tow, and some put it out to spinning; others buy the tow, and put it out; and some carry on the whole of the trade themselves. When this trade is conducted by different persons, their interests often clash; by under-retting the Hemp, the grower increases the weight; by slightly beating it, the heckler increases the quantity of tow, but leaves it fuller of bark; by drawing out the thread beyond the staple, the spinner increases the quantity of yarn, but injures the quality; by forcing the bleaching, the whitester increases his profit, but diminishes the strength of the yarn: and we generally find, that in manufacturing cloth, strength is sacrificed to fineness and colour. This is the practice in Suffolk. The expense of an acre of Hemp may be estimated at eight or nine pounds, and the average produce at forty-five stones, which produces £16. 17*s.* 6*d.* at 7*s.* 6*d.* per stone: some crops produce fifty-five stones, and even more, but are counterbalanced by others which fall as low as twenty-five; and the price also varies from 6*s.* to 9*s.* and 10s. per stone, according to the quality of the produce. The principal objections to the Hemp crops are, that their coming in the middle of harvest is embarrassing, and that the attention they require is very great during every stage of their progress, especially where they are only a secondary consideration: the cultivation of Hemp is nevertheless of great consequence to the country, particularly as it affords much employment for the industrious poor, and therefore certainly deserves every encouragement from the legislature.

Canterbury Bell. See *Campanula.*

Cape Jasmin. See *Gardenia.*

Caper. See *Capparis.*

Caper Bean. See *Zygophyllum.*

Capparis; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved, coriaceous; leaflets ovate, concave, gibbous. *Corolla:* petals four, obtuse, spreading, very large. *Stamina:* filamenta numerous, filiform, patulous; antheræ oblong, versatile, inclined. *Pistil:* germen pedicelled; style none; stigma obtuse, sessile. *Pericarp:* berry corticose, one-celled, pedicelled. *Seeds:* numerous, reniform, nestling. Essential Character. *Calix:* four-leaved, coriaceous. *Petals:* four. *Stamina:* long. *Berry:* corticose, one-celled, pedicelled.—This genus consists of shrubs; the leaves are simple, frequently having in the berry-bearing sorts, two spines at the base, but in those which bear pods they are commonly naked or biglandular; the flowers are solitary, axillary, or in a kind of corymb, terminating. Every species, except the first, being a native of hot climates, requires the protection of a stove, to survive the rigour of an English winter: they are propagated by seeds, which must be procured from the countries where they naturally grow, since they do not produce them in England; the seed must be sown in small pots filled with light sandy earth, and plunged into a hot-bed of tanner's bark, which should be now and then moderately refreshed with water; they frequently remain in the ground a whole year without vegetating; and must be screened during the winter, and plunged, in the following spring, into a fresh hot-bed of tanner's bark, which, if the seeds were good, will soon compel the plants to appear. In warm weather they require little water, but much air; and when they are large enough to remove, must be each transplanted into a separate small pot, filled with the same earth, and replaced in the hot-bed again, observing to shade them until they have taken fresh root; after which, fresh air must be every day admitted to them, in proportion to the warmth of the season. In the autumn they must be removed into the stove, and plunged into the bark-bed, where they should constantly remain, as they require the same treatment as other tender exotic plants from the same countries, with this difference only, that they require little water, especially in winter, for the roots of these plants are very subject to rot with wet. If the seeds be brought over in their capsules, they will keep much better than without them; but they should be secured from insects, by wrapping them in well-dried tobacco leaves, for without this precaution they will be destroyed before they arrive. The seeds are said to germinate immediately, and therefore cannot well be sent dry to Europe, which, together with the great difficulty of preserving the plants, account for the present scarcity of them in our stoves.—The species are,

1. Capparis Spinosa; *Prickly Caper Bush.* Peduncles one-flowered, solitary; stipules spiny; leaves annual; capsules oval. The common Caper-bush is a low shrub, generally growing out of the joints of old walls, the fissures of rocks, and among rubbish; the stems are woody, and covered with a white bark.—It grows wild in the southern countries of Europe, and in the Levant, on rocks, walls, and in dry places: Mr. Ray observed it on the walls of Rome, Sienna, and Florence, wild; and cultivated in the neighbourhood of Toulon. "It is surprising," says Dr. Smith, "that this beautiful shrub, which in the south of France is as common as the bramble is with us, and which even at Paris grows luxuriantly when trained against a wall in the open air, should be almost unknown in English gardens, where we can scarcely produce a flower, unless by stoving it with every possible precaution!" The flower-buds, which are produced in great plenty on the wild plant, are well known as a pickle; and in Italy, the unripe fruit is prepared in the same manner. The pickled Caper bud has the character of an antiscorbutic, and of removing hepatic and other visceral obstructions; but the part of the plant which has chiefly been recommended for medicinal purposes, is the bark of the root. Its taste is somewhat aromatic, bitterish, and acrid.—It thrives best in an horizontal position, so that when planted either in pots or the full ground, it seldom thrives, although it may be kept alive for some years. In the warmer parts of Europe, they are propagated by seeds, but the importers of orange-trees bring roots of this plant annually from Italy, some of which, when planted in walls, have lived a few years, but have not lasted long.

2. Capparis Zeylanica. Peduncles one-flowered, solitary; stipules spiny; leaves ovate, sharp at both ends; stem shrubby, six feet high, upright, but weak; branches divaricating; stamina thrice the length of the corolla.—Native of hedges in Ceylon and Cochin-china.

3. Capparis Horrida. Peduncles axillary, by two; stipules prickly; branches flexuose; leaves ovate-lanceolate, mucronate, smooth.—Found by Kœnig in Coromandel.

4. Capparis Scpiaria. Peduncles umbelled; stipules spiny; leaves annual, ovate, emarginate; branches round and woody; spines stipular, double-recurved, short, black.—Native of the East Indies.

5. Capparis Frondosa. Peduncles umbelled; leaves every where crowded; height above seven feet, extending as far as twenty; branches very few, and scarcely divided.—Native of thickets in South America.

6. Capparis Ferruginea. Peduncles umbelled; leaves permanent, lanceolate, tomentose beneath; flowers eight-stamined. This is a small tree or shrub, with striated rufous, or ferruginous coloured branches; corollas white; flowers in a sort of corymb, terminating, on bifid or trifid pedunucles, and fragrant.—This plant is strongly impregnated with an

acrid volatile salt, like the mustard tribe; and hence, in Jamaica, where it grows wild, it has obtained the name of the *Mustard Shrub*.

7. Capparis Baducca. Peduncles one-flowered; leaves perennial; ovate-oblong, determinately crowded, naked; leaves smooth on both sides, obscurely netted.—It is a native of the East Indies, where it is cultivated for the beauty of the flowers, which appear in January.

8. Capparis Cynophallophora. Peduncles many-flowered, terminal; leaves oval, obtuse, perennial; glands axillary. This species varies considerably in its habit or general appearance, according to the soil in which it is found: in sunny hedges it is weak, thin, and, as it were, supported by the neighbouring vegetables; but in fields, and towards the shores, it is a kind of shrub, or little tree of twelve feet high, and of a pretty appearance; in the axilla of the leaves there is a roundish solitary gland, which is scarcely ever missing; the flowers are beautiful, very patulous, and extremely fragrant, of a white or greenish white; the stamina often four inches long.—Native of the West Indies.

9. Capparis Pulcherrima. Peduncles racemed; leaves oblong, obtuse; fruits berried. This is an upright shrub in open situations, only two or three feet high, but in woods rising to twelve feet; flowers beautiful, of a pale yellow colour, and having a very sweet scent; filamenta at first white, then bright purple: each raceme has only one or two berries, from two to four inches in diameter, variegated green and brown on the outside; the flesh or pulp when unripe, hard, and having little scent; but when ripe, soft, nauseous, and so fetid that no animal will touch it.—Native of Carthagena in New Spain, on the declivities of the mountains.

10. Capparis Linearis. Peduncles subracemed; leaves linear. This plant, which grows in great plenty on the woody hills of Carthagena, is an elegant upright branchy tree, about fifteen feet high; the flowers are white, inodorous, and about half an inch in diameter; the fruits are orange-coloured, with a redness intermixed, and about an inch in diameter.

11. Capparis Breynia. Peduncles racemed; leaves permanent, oblong; calices and peduncles tomentose; flowers eight-stamined. A small tree, with an upright smooth trunk, and flexuose branches, scarred with the fallen leaves; twigs angular and pubescent.—It is a native of dry coppices near the sea in Jamaica, and most of the other islands in the West Indies.

12. Capparis Hastata. Peduncles many-flowered; leaves hastate-lanceolate, glittering. This is an upright weak shrub, divided into a few very long branches, often six feet long; the common footstalks of the flowers are clustery, terminal, almost half a foot long, and support about eight flowers, which are somewhat odorous, purple, and nearly two inches in diameter.—Native of Carthagena, in woody places.

13. Capparis Flexuosa.—See the eighth species; from which it in nowise differs.

14. Capparis Siliquosa. Peduncles many-flowered, compressed; leaves permanent, lanceolate-oblong, acuminate, dotted beneath. The leaves of this species are extremely acuminated; the upper surface is glittering, and the lower powdered with ferruginous dust. Mr. Miller says, it rises with a shrubby stalk to the height of eight or ten feet, sending out many woody branches, covered with a reddish brown bark. It was sent to him from Tolu in America.

15. Capparis Grandis. Corymbs terminating; leaves ovate, acute, smooth; fruit globular. This is a large hoary tree; flowers whitish yellow.—Found by Kœnig in Ceylon.

16. Capparis Magna. Stem arboreous, unarmed; leaves ternate, lanceolate; corymbs terminating. This is a middling-sized tree, with spreading unarmed branches; flowers large, white, in spreading corymbs.—Native of Cochin-china, on the banks of rivers.

17. Capparis Falcata. Stem arboreous, unarmed; leaves ternate, sickle-shaped; racemes loose, terminating. This is a large tree, with spreading unarmed branches; corolla white, resembling that of the foregoing sort; stamina eighteen.—Native of China, near Canton.

18. Capparis Cantoniensis. Peduncles racemed; stipules thorny; leaves ovate, acuminate, wrinkled; stem shrubby; upright, branched; flowers white, axillary, and terminating; filamenta long.—Native of China, near Canton.

19. Capparis Torulosa. Peduncles subbiflorous, round, terminating; leaves lanceolate-oval, dotted with white underneath; pods round, linear, torulose.—It grows into a shrubby tree, and is a native of Jamaica.

20. Capparis Longifolia. Leaves linear-lanceolate, dotted with meal underneath.—Native of Jamaica.

21. Capparis Arborescens. Leaves lanceolate, ovate, perennial; stem arborescent. It rises with a woody stem twelve or fourteen feet.—Native of Carthagena, in New Spain.

22. Capparis Racemosa. Leaves ovate, opposite, perennial; flowers racemed. It rises with a trunk about twenty feet high, sending out many long slender branches, which are covered with a brown bark, and garnished with leaves like those of the Bay-tree, but longer, and deeply ribbed on their under side, standing upon long pretty footstalks opposite; the flowers are produced upon long branching, terminating peduncles, each sustaining two or three flowers, which are large and white, and are succeeded by pods two or three inches long, the thickness of a man's little finger, which are filled with large kidney-shaped seeds; these pods have a thick fleshy cover.—Grows in Carthagena.

23. Capparis Fruticosa. Leaves lanceolate, acute, crowded, perennial; stem shrubby. This species rises with a shrubby stem to the height of twelve or fourteen feet, sending out many strong lateral branches, covered with a dark brown bark; the antheræ are of a purplish colour, but the stamina are white.—Sent from Tolu in America.

24. Capparis Conferta. Leaves lanceolate, alternate, on very long petioles; flowers crowded. It rises with a shrubby stalk to the height of ten or twelve feet, sending out slender horizontal branches, which are covered with a reddish bark.—Sent from Tolu in America.

25. Capparis Triflora. Leaves lanceolate, nerved, perennial; peduncles three-flowered. This has slender shrubby stalks, which rise seven or eight feet high, sending out many woody branches, with very long nerved spear-shaped leaves; the flowers come out at the ends of the branches, three standing upon each peduncle; they are small, white, and are succeeded by oval fruit.

Capraria; a genus of the class Didynamia, order Angiospermia. — Generic Character. *Calix:* perianth one-leafed, five-parted, oblong; divisions linear, erect, distant, permanent, shorter than the corolla. *Corolla:* monopetalous, bell-form, five-cleft, nearly equal; divisions oblong, acute, the two upper ones more erect. *Stamina:* filamenta four, subulate, inserted into the base of the corolla, shorter by half than the corolla, the two lower ones rather shorter than the others; antheræ cordate. *Pistil:* germen conical; style filiform, longer than the stamina; stigma cordate, bivalve, equal. *Pericarp:* capsule oblong-conical, compressed at the tip, bilocular, bivalve, with a contrary partition, which is doubled by the bending in of the edge of the valves. *Seeds:* very many, roundish. Essential Character. *Calix:* five-parted. *Corolla:* bell-form, five-cleft, acute.

Capsule: bivalve, bilocular, many-seeded.—Those plants of this genus which are natives of the Cape of Good Hope, may be increased by cuttings, and are not so tender as the first species.——The species are,

1. Capraria Biflora; *Shrubby Goatweed*, or *Sweetweed*. Leaves alternate; flowers in pairs. This is a shrub, seldom exceeding four feet in height; branches long, somewhat woody, erect, roundish, sometimes slightly hirsute; flowers without scent; corolla white; seeds very small.—It is very common in Jamaica, and in all the Caribbees, and the neighbouring continent; and is one of the plants formerly taken for the Tea of the Chinese, and hence, in the French West India islands, called *thée du pays*. It is propagated by seeds, which must be sown upon a hot-bed in the spring of the year; and the plants must be brought forward by planting them upon a second hot-bed: about the middle or end of June, they may be transplanted either into pots of rich earth, or a warm border, and may then be exposed to the open air, where they will perfect their seeds in autumn.

2. Capraria Durantifolia. Leaves in threes, toothed; peduncles solitary; branches alternate; stem about a foot high, obtusely hexangular.—Native of sloughs in Jamaica, where mud has been worked up by carriages.

3. Capraria Crustacea. Creeping: leaves opposite, ovate, subpetioled, crenated.—It is a native of Amboyna and China.

4. Capraria Lanceolata; *Willow-leaved Capraria*. Leaves opposite, linear-lanceolate, quite entire; racemes terminating, compound: shrubby.—Found at the Cape of Good Hope.

5. Capraria Undulata; *Waved-leaved Capraria*. Shrubby: Leaves opposite, ovate-oblong, quite entire, waved; the upper subcordate, verticelled; racemes spike-form; flowers in an almost simple terminating raceme.—It flowers from March to July.—Found at the Cape of Good Hope.

6. Capraria Lucida; *Shining Capraria*. Smooth; leaves opposite, oblong, acute, finely serrulate, glossy; petioles winged; peduncles three-flowered; stems quadrangular; corolla silver-form; tube cylindric, pale purple, a little longer than the calix, gibbous on the outside at the base, above that a little bent, then erect, a little elongated on the outside, so that the border is entirely horizontal; segments ovate, obtuse, equal, reddish purple, with a dark purple spot near the throat, which is hairy. It flowers in April and May; is biennial.—Native of the Cape.

7. Capraria Humilis; *Dwarf Capraria*. Pubescent: leaves opposite, or in threes, ovate, serrate, petioled; peduncles axillary, shorter than the petiole.—Annual; and a native of the East Indies.

Capsicum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, erect, permanent. *Corolla:* monopetalous, rotated; tube very short; border half five-cleft, spreading, plaited; divisions broad, acute. *Stamina:* filamenta five, subulate, very small; antheræ oblong, converging. *Pistil:* germen, superior, ovate; style filiform, longer than the stamina; stigma obtuse. *Pericarp:* berry without pulp, approaching to an ovate figure, bilocular, hollow, coloured; receptacles growing to the dissepiment, exsuccous. *Seeds:* very many, reniform, compressed. Essential Character. *Corolla:* rotated. *Berry:* exsuccous.—Most of the plants of this genus are natives of both the Indies, but they have been principally imported from America into Europe. They abound in all the Caribbee islands, and are greatly used in sauces, especially by the negroes, whence the fruit is called Negro and Guinea pepper. The well-known preparation called Cayenne Pepper, made from the pods of the smaller sorts of Capsicum, when used in moderation, is by no means unwholesome, especially to cold phlegmatic habits. In such temperaments, as well as in paralytic cases, it is used medicinally, in small quantities, as one of the highest stimulants. It has also been exhibited, in combination with aloetic medicines and the deobstruent gums, in uterine disorders. A small quantity of the powder of Capsicum has sometimes given almost immediate relief in the tooth-ache, when arising from a caries or rotten tooth; it is to be applied to the part affected, by introducing it into the cavity of the carious tooth.——The species are,

1. Capsicum Annuum; *Annual Capsicum*, or *Guinea Pepper*. Stem herbaceous; peduncles solitary; fruit oblong. An annual plant, two feet high, upright, branched; branches short, ascending; leaves ovate-lanceolate, quite entire, smooth, dark green; flowers white, lateral, solitary. The fruit is a berry, varying much in size and shape, extremely smooth and shining on the outside, scarlet or yellow, inflated or yellow, two-celled, sometimes three-celled; the partitions at top commonly failing towards the axis; receptacle at the bottom of the berry solid, ovate, conical, intimately connected with the partitions, so that some of the seeds are sometimes fixed to the partitions themselves; seeds kidney-shaped or round, beaked, smooth, whitish or pale straw-coloured. Two seems to be the natural number of the cells; for berries which are three-celled become two-celled towards the top. Long informs us, that there are fifteen varieties cultivated in Jamaica: the common long-podded Capsicum has been long cultivated in our gardens; it varies, 1. with oblong fruit, growing erect; 2. with a divided fruit; 3. with oblong and short pods growing erect; 4. with a taper fruit a span long. The Capsicum with heart-shaped pods has also several varieties; 1. with round hanging pods; 2. with larger and rounder pods; 3. with the largest round pods; 4. with upright heart-shaped pods; 5. with upright round pods: these also have both red and yellow fruit. Bonnet-pepper has small wrinkled leaves; the fruit is also furrowed and wrinkled; generally growing upright, and of a beautiful scarlet-colour; some of them have their tops compressed like a bonnet, whence the name; others are bell-shaped. Cherry-pepper was sent from the Spanish West Indies; it does not grow so tall as the others, but spreads near the ground; the leaves come out in clusters, are of a shining green, and stand on long footstalks; the fruit is round, smooth, of a beautiful red, and the size of a common cherry. Olive-pepper came from Barbadoes: this is like the first in stalk and leaves, but the fruit is oval, and about the size of a French olive. These are all annual with us, their stalk decaying soon after they are ripe, whatever they may be in their native countries.—They are propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants have six leaves, they should be transplanted on another hot-bed, at four or five inches' distance, shading them in the day-time from the sun until they have taken root, after which they must have a large share of air admitted to them in warm weather, to prevent their drawing up weak. Toward the end of May the plants must be hardened by degrees to bear the open air; and in June they should be carefully taken up, preserving as much earth about their roots as possible, and planted into borders of rich earth, observing to water them well, as also to shade them, until they have taken root, after which time they will require no other management, but to keep them clean from weeds, and in very dry seasons to refresh them three or four times a week with water; they will flower at the end of June and in July, and ripen fruit in autumn. The above directions are for the culture of the common sorts of Capsicum, which are generally planted for ornament.—Bonnet-pepper, cherry-pepper,

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

CARDUUS — *Woolly-headed Thistle.*

CASSIA — *Wild Senna.*

Published by Henry Fisher, Caxton, London, 1823.

and olive-pepper, being tender, the plants should be put into pots, and placed in an old hot-bed under a deep frame, where they may have room to grow; or if they are planted in the full ground, the plants should be each covered with a bell-glass, to screen them from cold; these glasses may be set off every day in warm weather, and placed over them in the evening again; and in unfavourable weather, the glasses should be raised on the side opposite to the wind, to admit fresh air. With these precautions the fruit will ripen in England, which seldom arrive at maturity without it; and never, except in very warm seasons. The beauty of these plants lies in their ripe fruit, which being of different forms and colours, intermixed with the green leaves and white flowers, which appear at the same time, make a pretty appearance at the latter part of the summer, when they are properly disposed in the borders of the flower-garden; or if planted in pots for the decoration of courts, and intermixed with other annual plants, which are in beauty at the same season, they will make a pleasing variety, especially if as many of the different-shaped fruits, of both red and yellow colours, as can be procured, are propagated.

2. Capsicum Baccatum; *Small-fruited Capsicum*, or *Bird-Pepper*. Stem shrubby, smooth, and even; peduncles in pairs. This differs but slightly from the fifth species; the stem is tenderer, more shrubby, and not roughish; the berries are very small, of an ovate form, and of the size of currants; the branches are divaricated, not spreading out at a right angle with the stem. According to Loureiro, the stem is three feet high, smooth, and upright, with longish, scattered, slender branches; leaves lanceolate, quite entire, smooth, scattered, small, petioled; berry roundish, very red, the size of a common cherry; the lower leaves opposite, the upper alternate. It is gathered when ripe, dried in the sun, pounded, and mixed with salt; it is then kept stopped in bottles, and is known by the name of *Cayenne-pepper*. A mixture of sliced cucumbers, eschalots, or onions, cut very small, a little lime juice and Madeira wine, with a few pods of this or bonnet-pepper, well mashed, and mixed with the liquor, seldom fails to excite the most languid appetite in the West Indies, and is therefore called *man-dram*. The pods, gathered fresh from the bush, are also liberally used in the West Indies, to assist digestion and correct flatulencies: both this and the common Guinea-pepper are given internally to horses and mules, to cure the dry gripes, occasioned by rank and sour grass: they are likewise externally applied in cataplasms. Miller enumerates four sorts with perennial shrubby stalks, and informs us, that they rise four or five feet high, and are not so hardy as the annual sort; hence, when they have been brought forward in the hot-bed, as was directed for the common sorts, they should be each planted in a pot filled with rich earth, and plunged into a very moderate hot-bed, under a deep frame, where they may have room to advance; and in warm weather, they should have a large share of air admitted to them, but must be covered with glasses every night in cold weather, and frequently watered. Thus managed, they will produce plenty of fruit in autumn, which ripen in winter; but they must be removed into the stove on the first approach of frost, and placed where they may have a temperate warmth, in which they will thrive better than in a greater heat; and the fruit will continue in beauty most part of the winter, making a pretty appearance in the stove during that season.

3. Capsicum Sinense; *Chinese Capsicum*. Stem shrubby; flowers and fruits pendulous; trunk perennial, woody, with an ash-coloured bark. The whole plant is smooth; fruit shining, ovate, obtuse, obscurely angular, yellow, very small; seeds pale.—Native of China; cultivated in Martinico, and used there for culinary purposes.

4. Capsicum Grossum; *Heart-shaped Capsicum*, or *Bell-pepper*. Stem undershrubby; fruits thickened, various. This bears a great resemblance to the annual Capsicum, and indeed seems to be the connecting link between the herbaceous and shrubby sorts. The stem is perennial, a span in height, and somewhat branching; the fruit is very large in proportion to the plant, being almost as big as an apple, but differing in shape; it is solitary and erect, from an inch and half to two inches long, swelling and wrinkled, flatted and angular at top. Bell-pepper is the sort most proper for pickling, the skin being fleshy and tender, whereas in the others it is thin and tough; the fruit should be gathered before it arrives at the full size, whilst the rind is tender; it should be slit down on one side, to get out the seeds; after which it should be soaked two or three days in salt and water; when drained from this, it must be covered with boiling vinegar, and closely stopped down for two months, and then boiled in vinegar to make it green; it wants no addition of spice. If the ripe fruit of this, or any of the Capsicums, be thrown into the fire, it will raise strong and noisome vapours, which occasion vehement sneezing and coughing, and often vomiting. The powder taken up the nose will excite violent and dangerous fits of sneezing.—These plants, which are propagated for pickling, should be planted in a rich spot of ground, in a warm situation, about a foot and a half asunder, and shaded until they have taken root, and afterwards duly watered in dry weather, which will greatly promote their growth, and cause them to be more fruitful, as also enlarge the size of the fruit; thus there may be at least two crops for pickling obtained in the same year, provided the season does not prove too cold, but there should be one plant with large and forward pods chosen, to save seeds; and the first fruits on this should be suffered to remain, that they may have time to perfect their seeds before the frost comes on in autumn, for the early frost generally destroys these plants: when the fruit is fully ripe, it should be cut off, and hung up in a dry room till the spring, when the seeds are wanted.

5. Capsicum Frutescens; *Shrubby Capsicum*. Stem shrubby, roughish; peduncles solitary; stem three feet high, and rugged; branches diffused, frequently scandent; leaves lanceolate, quite entire, waved, small, smooth, petioled, alternate or scattered; flowers axillary, small, white, five or six cleft; fruit at first green, but when ripe golden or saffron-coloured, crooked, and shaped like a horn, an inch long, usually solitary.

Capura; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* monopetalous, tubular; tube cylindric; border six-parted; divisions rounded, the exterior alternate ones narrower. *Stamina:* filamenta hardly any; antheræ six, oblong, within the tube; the alternate ones superior. *Pistil:* germen superior, triangularly roundish, truncate; style cylindric, very short; stigma nearly globose. *Pericarp:* berry. Essential Character. *Calix:* none. *Corolla:* six-cleft. *Stamina:* within the tube. *Germen:* superior. *Stigma:* globular. *Pericarp:* berry.——The species are,

1. Capura Purpurata. A tree with brachiate purplish branches; leaves opposite, subpetioled, ovate, quite entire, sharpish, deciduous; bunches of flowers axillary, shorter than the leaves, purple.—Native of the East Indies.

Caraway. See *Carus*.

Cardamine; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved;

leaflets ovate-oblong, obtuse, somewhat spreading, gibbous, small, deciduous. *Corolla:* four-petalled, cruciform; petals oblong-ovate, spreading much, ending in erect claws of twice the length of the calix. *Stamina:* filamenta six, subulate; of these the two opposite ones are twice the length of the calix, but the rest a little longer; antheræ small, cordate-oblong, erect. *Pistil:* germen slender, cylindric, length of the stamina; style none; stigma obtuse-headed, entire. *Pericarp:* silique long, cylindric, compressed, bilocular, bivalve; the valves on opening, rolling spirally backwards. *Seeds:* very many, roundish. ESSENTIAL CHARACTER. *Silique:* opening elastically; the valves revolute. *Stamina:* entire. *Calix:* rather gaping.—Few of the plants of this genus are admitted into gardens; they are mostly low plants, growing in wet or alpine situations. The perennials may be propagated by parting their roots in the autumn, and require a strong soil with a shady situation. All the species may be propagated by seeds sown in the autumn, on a shady border, where they require no care but to be kept clean from weeds, and will flower early in the following season. As they are very prolific in seed, and their pods are provided with a particular mode of dispersing them, by means of the twisting of the valves in opening; they will propagate themselves abundantly when once introduced, but they will thrive best in the shade. All the species of Cardamine are mild antiscorbutics, as the taste sufficiently indicates, but they are not received in practice. ——The species are,

* *Leaves simple.*

1. Cardamine Bellidifolia; *Daisy-leaved* or *Alpine Cress.* Leaves simple, ovate, quite entire; petioles long; root simple, white, very long. The plant has no smell, and flowers in July and August. On the highest Alps, at first it appears with a stem scarcely two inches high, yet with some-leaves on it.—It is frequent on the mountains of Lapland; on the Alps of Switzerland, Dauphiny, Austria, and Carniola; and upon the highest Alps between Savoy and Piedmont: there is some doubt whether it be a native of Great Britain. It is perennial, and flowers in April and May.

2. Cardamine Asarifolia; *Asarabacca-leaved Cress.* Leaves simple, subcordate; leaves round, a little sinuated; corolla white; siliques long, many, bursting at the least touch when ripe. This species has all the qualities of Scurvy-grass, and is substituted for it where it grows in abundance. It is found at Barga in Tuscany; in the Modenese: at the foot of Mount Cenis; in the Vandois Alps; above Tende, &c.

3. Cardamine Nudicaulis; *Naked-stemmed Cress.* Leaves simple, lanceolate, sinuate-toothed, smooth, firm, about three inches long; stems naked, about nine inches high.—Observed by Steller in Siberia.

4. Cardamine Petræa; *Rock Cress,* or *Alpine Ladies' Smock.* Leaves simple, oblong, toothed; roots perennial; stems from three to six inches high, reclining at the base, and increasing by offsets. Perennial; flowering in May and June.—Found upon lofty moist rocks in Wales, Scotland, Sweden, Denmark, and Silesia.

** *Leaves ternate.*

5. Cardamine Resedifolia; *Rocket-leaved Cress.* Lower leaves undivided, upper three-lobed and pinnate; root biennial.—Native of the south of France, the Swiss Alps, and the Pyrenees, Germany, Austria, Piedmont, on the highest rocks; flowering in July.

6. Cardamine Trifolia; *Three-leaved Cress.* Leaves ternate, obtuse; stem almost naked; root creeping. Stem branched, cicatrized with the fallen petioles; radical leaves often continuing to another year, ternate, on long reddish semicylindric petioles; leaflets rounded above the middle, with repand or suberenated edges, the notches ending in a point; flowers white or reddish.—Native of Lapland, and Westrogothia, Switzerland, Carniola, and Austria.

7. Cardamine Africana; *African Cress.* Leaves ternate, acuminate; stem very branching; leaflets stiff, large, roundish, with sinuated edges, the terminating one very large; stems a span or more in height, round, somewhat hairy, and striated towards the top; flowers in spikes, purple; siliques long. Perennial; flowering in May, and a native of Africa.

*** *Leaves pinnate.*

8. Cardamine Chelidonia; *Celandine-leaved Cress.* Leaves pinnate; leaflets in fives, gashed; stem herbaceous, eight inches high, with many ascending branches; leaflets seven, lanceolate, smooth; flowers purplish white, in simple terminating spikes.—Native of Italy, Siberia, and China.

9. Cardamine Impatiens; *Impatient Ladies' Smock.* Leaves pinnate, gashed, stipuled; flowers without petals; root annual. Stems from six to twelve or eighteen inches high, angular, hollow, stiff, erect, somewhat flexuose, simple, or but little branched; radical leaves have five pairs or more, ovate; pinnas obtusely lobed; stem leaves very numerous, growing without order, shortest towards the bottom of the stem, pinnate; pinnas nine pairs or more, oval-lanceolate, or lanceolate, deeply and acutely lobed or indented, especially on the lower edge, smallest towards the stem, and gradually larger; odd leaflet usually three-lobed; flowers in erect spikes; siliques numerous, almost parallel to the stem, long, stiff, swelling out a little. It is called *impatient,* from the elasticity of the siliques, which, if touched when they are ripe, spring open, and cast out their seeds with violence to a considerable distance.—It is found upon the Swiss mountains, and in Sweden, Denmark, Germany, the south of France, Austria, Carniola, Piedmont, the Pyrenees: in England, it grows in Derbyshire, Yorkshire, Westmoreland, Worcestershire, and Somersetshire; flowering in May and June.

10. Cardamine Parviflora; *Little-flowered Ladies' Smock.* Leaves pinnate, without stipules; leaflets lanceolate, obtuse; flowers corolled.—An annual plant, and native of most parts of Europe.

11. Cardamine Græca; *Greek Cress,* or *Ladies' Smock.* Leaves pinnate; leaflets palmate, equal, petioled. Root annual; height less than a span; stems slender, jointed, branched; leaflets nine, small, ovate, semipalmate, obtuse, divided about the edge; flowers few, at the tops of the branches; calix erect; corolla white.—Native of Sicily, Corsica, and the Greek islands.

12. Cardamine Hirsuta; *Hairy Ladies' Smock.* Leaves pinnate; flowers four-stamined and six-stamined. Root annual, fibrous; stem a span high or more, solid, upright, flexuose, grooved or angular, purple near the base, and commonly very hairy, above nearly smooth, branched, sometimes very much so; radical leaves numerous, forming a circle, pinnate; leaflets petioled, round, angular, generally five-lobed, hirsute, roughish, with little prominent points, the lobes unequal, blunt or pointed; stem leaves narrower, and more deeply indented, with fewer lobes; calix with a few white hairs; corolla almost twice the length of the calix, small, white; petals entire, obtuse; silique about an inch in length, upright; seeds twelve, flattened, smooth, yellowish-brown. Early in the spring, when the weather is cold, it has only four stamina, but as the summer advances it has constantly six; in a wet and luxuriant soil, it loses its hairiness in a great degree; in exposed situations, it seldom exceeds six or eight inches high, and is generally much more hairy, and when it grows singly, also much more branched; the

leaflets vary much in shape. The young leaves are a good salad in the spring.—It is a native of most parts of Europe, in wet shady places, and flowers in April or May.

13. Cardamine Pratensis; *Common Ladies' Smock*, or *Cuckoo Flower*. Leaves pinnate; the radical leaflets roundish, those on the stem lanceolate. Root perennial; stem nine inches or a foot high, upright, at top a little branched, round, scarce perceptibly angular, smooth, stiffish, with a purple tinge at bottom; radical leaves on petioles from an inch to two inches in length, having three or four pairs of leaflets, frequently imperfect, after the stem is advanced; the pinnas roundish, running out into three unequal angles or teeth, the outermost largest, and having for the most part five angles; calix yellowish green; corolla large, purplish or white; lamina ovate, emarginate, deeply veined; claws yellowish; nectary of four glands, two surrounding the base of the short filamenta, and two on the outside of the base of the long filamenta. Most authors speak of the corolla as being purple; it is singular, therefore, that our poets should allude to the *silvery whiteness* of it, when it is generally more or less tinged with purple till it has been bleached by the sun. —It is very common in moist meadows, and by the sides of ditches and streams, flowering in April and May. From its early appearance, the name of *Cuckoo-flower* has been given to it, as well as to other spring plants. The young leaves of this species, as well as several others, are gathered in the spring, and put into salads, instead of cress, of which they have the flavour, and the antiscorbutic quality. Cows seldom touch it; but sheep will eat it, at least when they are first turned into a meadow or marsh. The medical virtues of the flowers, in hysteric and epileptic cases, was first mentioned by Ray and Dale, from Dr. Tancred Robinson; and since by Dr. Baker. The dose is from twenty to ninety grains twice a day, of the powder of the dried flowers. Withering asks, if they do not act like the *Erysimum Cheiranthoides* in the epilepsies of children, and cure the disease by destroying the worms in the stomach and intestines? He adds: I have accounts, upon good authority, of their success in young epileptics, but have never been fortunate enough to see them of much use in hysteric cases. From the disuse into which this medicine has fallen, it would seem to have disappointed the expectations of practitioners. Cases have, however, occurred to some very eminent physicians, in which epilepsies and obstinate head-aches, even in old people, after resisting every other remedy, have been cured by this medicine, given in the quantity above prescribed, twice or thrice daily. It usually operates by occasioning a degree of hemorrhage *per anum*, and sometimes from the other emunctories. It seems particularly serviceable in those kinds of epilepsies which are brought on by the recess or want of the menses; and has also been considered as useful in scorbutic cases, like many other plants of the same natural order. Meyrick prescribes the expressed juice of the leaves, which he says operates powerfully by urine, and is good in the jaundice, and all other complaints arising from obstructions of any of the viscera, and in scorbutic disorders. A wine glass, is a sufficient quantity to be taken at a time. He adds, the flowers, carefully dried, are very efficacious in nervous disorders, such as convulsions, the falling sickness, palsy, and hysteric fits. The dose is from a scruple to half a drachm, twice a day.— The double varieties of this species, which have white and purple flowers, deserve a place in the shady moist borders of the flower-garden, where they will thrive, and make a pretty appearance during their continuance in flower. They are propagated by parting their roots in autumn; at which time they should be annually transplanted.

14. Cardamine Amara; *Bitter Cress*, or *Ladies' Smock*. Leaves winged; root leaflets roundish; stem leaves angularly toothed; stem taking root at the base; root perennial, toothed; leaves nearly smooth; flowers large, white, or cream-coloured, antheræ violet-coloured. The young leaves are acrid and bitterish, but do not taste amiss in salads; they are pungent, bitter, and aromatic, in such a degree as to promise very considerable medicinal uses.—This plant is a native of Sweden, Switzerland, Germany, France, and Piedmont. It is found near London, at Chelsea, Battersea, Lewisham, Uxbridge, Harefield; Dorking in Surry; Braintree in Essex; Middleton in Warwickshire; Aston near Birmingham; above Worcester; and Great Comberton in Worcestershire; near Norwich; Bungay, Suffolk; and in Scotland.—It grows near rivulets, on the banks of rivers, in boggy places, and moist meadows; flowering in April and May. Perennial.

15. Cardamine Virginica; *Virginian Cress*. Leaves pinnate; leaflets lanceolate, one-toothed at the base; radical leaves in a circle, pinnate; leaflets numerous, almost imbricate, sublanceolate, with one short toothlet from the hinder side near the base; stem with few leaves, generally linear and entire.—Native of Virginia.

16. Cardamine Thalictroides. Leaves ternate, pinnate and simple; leaflets obliquely lobed, roundish; petals thrice the length of the calix. Stem striated, branching, procumbent, the extreme branches bearing flowers on a short umbel; leaves tender, juicy, not hirsute, pinnate; the radical ones have often two pinnas: biennial.—Native of Mont Cenis, St. Bernard, and the Grand Chartreuse.

17. Cardamine Stolonifera. Stem leaves oblong, sinuate-toothed; runners from the root and base of the stem. Stem six inches high, erect, branching, moderately hirsute; radical leaves on long petioles, obtuse, repand, with one pinnule beneath, a line in length; leaves of the runners small, petioled, sharpish with acuminate angles behind.—Native of Carniola, Austria, and the borders of Bohemia.

18. Cardamine Scutata. Leaves ternate, scutate, curled; stem almost naked. Root fibrous: fibres very close, capillary; scapes naked, a finger's length; root-leaves very many, petioled, ternate, erect, loose; lower stem-leaves often solitary, sometimes opposite, in pairs, ovate, subpetioled, very small; the terminating one round, curled, smooth, dotted.—Native of Japan.

Cardamom. See *Amomum*.

Cardinal Flower. See *Lobelia*.

Cardiospermum; a genus of the class Octandria, order Trigynia.—Generic Character. *Calix*: perianth four-leaved; leaflets obtuse, concave, the alternative interior ones the size of the corolla, permanent. *Corolla*: petals four, obtuse, alternate with the larger leaflets of the calix; nectary four-petalled, coloured, inclosing the germen; leaflets obtuse, growing upon the petals, two upon the erect lip, callous at the tip, hooked at the side; the rest upon the closed lip, with equal sides. *Stamina*: filamenta eight, subulate, equal with the nectary; antheræ small. *Pistil*: germen three-sided; styles three, short; stigmas simple. *Pericarp*: capsule roundish, trilobate, inflated, trilocular, gaping at the tip. *Seed*: solitary, globular, marked at the base with a cordate scar. Essential Character. *Calix*: four-leaved. *Petals*: four. *Nectary*: four-leaved, unequal. *Capsule*: three, connate, inflated.—In both Indies, of which these plants are natives, they climb upon whatever shrubs are near them, and rise to the height of eight or ten feet; but in England they are seldom much above half so high; they send out many side branches, which spread to a considerable distance, and will fasten themselves to the neighbouring

plants by their small tendrils, if permitted. They are annuals, and die soon after they have perfected their seeds; and, being natives of hot countries, they will not thrive in England but in a stove. They are propagated by seeds, which should be sown upon a hot-bed in the spring; and when the plants are two inches high, they should be each transplanted into a pot filled with light sandy earth, not too rich, then plunged into a very moderate hot-bed, where they must be carefully shaded until they have taken fresh root; after which a large share of fresh air must be admitted, to prevent them from being drawn up tall and weak; and when their roots have filled the pots, they should be carefully shaken out, preserving all the earth to their roots, and put into pots which are a little larger, filling them up with the same light earth, and placing them either under a deep frame, or behind the plants in the stove, where they may be screened from the sun till they are well settled in the pots; after which they may be removed into the glass-case, where they may have room to grow, escape the cold of the nights, and enjoy the air in warm weather. With this management they will flower in July, and ripen their seeds in autumn. ——The species are,

1. Cardiospermum Halicacabum; *Smooth-leaved Heart Pea*, or, *Heart-seed*. Leaves smooth and even; stem herbaceous, twining, striated, unarmed, slender, long, branched; leaves broad-lanceolate, sinuate-gashed, smooth, biternate; flowers axillary, solitary, small, white, on long peduncles; calix five-leaved.—Native of both the East and West Indies, and the Society Isles in the South Seas. It flowers here in July.

2. Cardiospermum Corindum; *Woolly-leaved Heart Pea*, or *Parsley-leaved Heart-seed*. Leaves tomentose underneath. This rises, with a slender, channelled, climbing stalk, to the height of four or five feet, sending out many side-branches, with leaves upon very long footstalks, coming out opposite at the lower part of the stalk; but upward the leaves come out one side, and the peduncle at the opposite; the petioles are divided into three, each of which sustains small leaves, which are again divided into three parts, that are sharply cut on their edges, and end in sharp points. The peduncles are long, naked, and toward the top divided into three short ones, each sustaining a single flower; immediately under these divisions, come out tendrils or claspers, like those of the Vine, but smaller; these fasten themselves to whatever plants grow near them, and are thereby supported: the flowers are small, white, and composed of four small concave petals, two of which, standing opposite, are larger than the others; when these fall away, the germen becomes a large inflated bladder, having three lobes, in each of which is contained one, two, and sometimes three seeds, which are round, hard, and the size of small peas, each being marked with a black spot, in the shape of a heart.—It is a native of Brazil, and, according to Loureiro, of the suburbs of Canton in China. It flowers in July and August.

3. Cardiospermum Grandiflorum; *Great-flowered Heart-seed*. Leaves pubescent; capsules acuminate, very large, smooth and even.—Native of Jamaica.

Carduus; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common ventricose, imbricate; scales very numerous, lanceolate, acuminate, spiny. *Corolla:* compound, tubular, uniform; corollules hermaphrodite, subequal, reflected; the proper one monopetalous, infundibuliform; tube very slender; border erect, ovate at the base, quinquefid; divisions linear, equal, one more deeply separated than the rest. *Stamina:* filamenta five, capillary, very short; antheræ cylindrical, tubular, length of the corollule, five-toothed at the mouth. *Pistil:* germen ovate; style filiform, longer than the stamina; stigma simple, subulate, naked, emarginate. *Pericarp:* none; calix converging a little. *Seeds:* solitary, obovate, four-cornered, the two opposite corners obliterated; down sessile, very long. *Receptacle:* hairy, flat. Essential Character. *Calix:* ovate, imbricate with spiny scales. *Receptacle:* hairy.—It is scarcely necessary to say any thing concerning the propagation of Thistles, as they are justly considered as weeds demanding eradication, not as plants fit for cultivation. A small number only of them is admitted in gardens, and merely because they are foreign plants. The greater part of the species are biennial, and must be raised from seeds. The perennial sorts are also easily increased in the same manner, and by the roots.——The species are,

1. Carduus Leucographus. Leaves decurrent, toothed, spiny; peduncles naked, very long, one-flowered; calices spiny, inclined. Root annual; stem three feet high, flowers upright; down simple.—Native of the county of Nice and Campania.

2. Carduus Lanceolatus; *Spear Thistle*. Leaves decurrent, pinnatifid, hispid; divisions divaricate; calices ovate, spiny, villose; stem hairy. Root biennial; stem upright, three or four feet high, angular, downy, frequently purple; corolla purple, sometimes white; down plumose, almost as long as the blossom. It is sometimes found the height of a man, with heads twice the size of the common; as also with smaller heads, in all respects a less plant.—It is called the Burthistle in Yorkshire, and is found on road-sides, hedges, and fallows, flowering in July. Although this plant, in common with most of the Thistles, is merely regarded as a noxious weed, yet, as Linneus judiciously remarks, it preserves annual plants, by protecting them with its spines, and giving them opportunity to seed in quiet. If a heap of clay, says Dr. Withering, be thrown up, nothing would grow upon it for several years, did not the seeds of this plant, wafted by the wind, fix and vegetate thereon; under the shelter of this, other vegetables appear, and the whole soon becomes fertile. The seeds are eaten by birds; and the flowers, like those of the artichoke, have the property of curdling milk. This is the most common species of its genus, and is a large succulent plant, well known upon all strong lands. Mr. Miller says, "I have seen the air perfectly filled with the down of this Thistle, for miles together, flying along in windy weather, till it was intercepted by a hedge, bank, or rising ground. The greatest part of it indeed is down without seed; and for this the husbandman is obliged to the goldfinch and other small birds, who nevertheless generally leave enough to stock his ground; and the misfortune is, that let a farmer be ever so neat in himself, if he happen to live near a slovenly neighbour, he will be stocked annually from the other's neglected banks, headlands and fallows. Nothing is easier than to destroy these Thistles; for they are biennial plants, and only require to be mowed down before they perfect their seeds. It is better to do this while the plant is yet tender, for as it advances to maturity the stalk grows very hard; but if the operation have been neglected till the seeds are forming, it will be a proper precaution to rake the plants into heaps, and burn them. The ashes may be afterwards spread; and as they contain a considerable quantity of salts, will be of some advantage to the soil, which they had previously impoverished."

3. Carduus Arabicus; *Arabian Thistle*. Leaves decurrent, pinnatifid, lanuginously villose; divisions divaricate; calices oblong, spinulose, sessile, aggregate. Root annual, fusiform, white; stem erect, about a foot high, scarcely branched, lanuginous, and hoary; corollules purplish; an-

theræ dark purple; pappus hairy, sessile, brown; seeds smooth.

4. Carduus Nutans; *Musk Thistle.* Leaves semi-decurrent, spiny; flowers drooping; scales of the calix spreading at top. Stems from two to three feet high, overspread, as are also the leaves, peduncles, and calices, with a cottony down; peduncles one-flowered; flower hanging down, smelling very sweet, particularly in the evening. This plant is well known to entomologists, on account of the moths which feed upon it. The dried flowers of this species, as well as the former, are sometimes used to curdle milk.—It flourishes in a calcareous soil, upon road sides, in a sandy or gravelly soil, and is common on most of the fallows about Cambridge: it is biennial, flowers in June, the earliest of the Thistles, and is easily known by its nodding bright purple heads, and musky scent; it does not however confine itself to borders, but takes possession of the arable lands in good soils, and does real injury to the farmer.

5. Carduus Acanthoides; *Prickliest Thistle.* Leaves decurrent, sinuate, spiny about the edge; calices peduncled, solitary, erect, villose; flowers small, pale purple, crowded on the top of the stem; the colour of the whole plant ash or gray; down simple, nearly as long as the corolla. Gerarde calls it *Thistle upon Thistle,* and Parkinson, *the most prickly Thistle.*—It flowers from June until September, and is found in most parts of Europe, upon ditch-banks, road-sides, waste places, and borders of corn-fields. It is sometimes found with white flowers, and in different situations varies from two to five feet in height; is more or less hairy, and has its flowers more or less clustered.

6. Carduus Crispus; *Curled Thistle.* Leaves decurrent, sinuate, spiny about the edge; flowers aggregate, terminal; scales of the calix unarmed, subaristated, expanded.—It grows wild in the same soil and situations with the foregoing; flowers about the same time; and like that, is annual.

7. Carduus Polyanthemus. Leaves decurrent, sinuate, naked beneath; flowers peduncled, heaped, usually three or four at top, subsessile; peduncles curled, scarcely cobwebbed; corollas in the outside purple, in the disk red; antheræ violet; styles white; stigmas purple. Biennial.—Native of Rome.

8. Carduus Palustris; *Marsh Thistle.* Leaves decurrent, toothed, prickly at the edge; flowers in racemes, upright; peduncles unarmed. Root biennial; stem four, five, or six feet in height, in woods frequently ten or twelve, upright; branched, multangular, hirsute with numerous long white hairs, winged, prickly, variegated longitudinally with green and purple. It is called the Red Thistle in Yorkshire; and being never found except in wet places, it is not likely to be mistaken for any other Thistle; it has generally more purple about it than the other species; and formidable as its stems and leaves are from their numerous prickles, the heads of flowers and peduncles are perfectly harmless. The tender stalks of this plant, like most of the genus, are esculent when peeled and boiled, and are thus eaten, as Linneus informs us, by the inhabitants of Smoland.—It grows wild in most parts of Europe, in marshes, boggy woods, and moist heaths, commons, and meadows, flowering in July: it varies with a white flower, as most of the Thistles occasionally do.

9. Carduus Pycnocephalus; *Italian Thistle.* Leaves decurrent, pinnatifid-sinuate, pubescent, spiny; peduncles naked, tomentose; calices deciduous.—Native of the southern parts of Europe.

10. Carduus Argentatus. Leaves decurrent, runcinate, spiny; peduncles subtomentose, one-flowered; calices ovate mucronate, unarmed. Stem a foot high, flexuose, even, alternately branched; corolla very small, purple, mixed with the down, scarcely gaping; antheræ blue; down ash-coloured. It is an annual plant.—Native of Egypt.

11. Carduus Australis. Leaves decurrent, runcinate, spiny; calices subsessile, terminal. Stem a foot high, round, striated, woolly, villose; corolla consisting of about eight purple floscules.—Native of southern Europe.

12. Carduus Dissectus; *Meadow Thistle.* Leaves decurrent, lanceolate; toothlets unarmed; calices spiny; flowers red. The leaves are wholly destitute of prickles.

13. Carduus Cyanoides; *Bluebottle-leaved Thistle.* Leaves decurrent, pinnatifid, linear, quite entire, unarmed, petioled, tomentose beneath.—The leaves have a white cotton underneath.—Grows wild in Tartary.

14. Carduus Canus; *Hoary Thistle.* Leaves decurrent, lanceolate, erose-toothed, ciliate-prickled, cobwebbed, subvillose on both sides. Roots fusiform, aggregate, fleshy, white like skerrets; stem four feet high, green, angular, cob-webbed; flowers solitary, purple; calices unarmed, with a white line on the outside of the scales.—Perennial; flowering in July; and a native of Austria and Tende.

15. Carduus Pectinatus. Leaves decurrent, lanceolate, pinnatifid-pectinate; peduncles very long; heads, when past flowering, drooping. Stem two feet high, erect, even, unarmed, as is the whole plant; leaves uninterrupted, decurrent, with a pale keel beneath, pinnatifid or very deeply toothed; flowers the size of Burdock, purple, with a long pistil; filamenta white, erect. Biennial: sent from Pennsylvania.

16. Carduus Defloratus; *Various-leaved Thistle* Leaves decurrent, lanceolate, serrate, subspinose-ciliate, naked; peduncles very long, lanuginous, one-flowered. Stems many, angular, smooth, leafy, generally simple; peduncles leafless, somewhat woolly, very few; flower solitary, red. Perennial.—Native of Montpellier, Switzerland, Carniola, and Gorizia.

17. Carduus Monspessulanus; *Montpellier Thistle.* Leaves decurrent. lanceolate, subrepand, smooth, unequally ciliate; peduncles alternate; calices unarmed. Perennial.—Found about Montpellier, and in the county of Nice.

18. Carduus Pannonicus. Leaves semi-decurrent, naked, undivided, ciliate; flowers subsolitary. Unarmed; leaves smooth and even, with soft bristles; corolla pale purple.—Perennial: and a native of Austria.

19. Carduus Tuberosus: *Tuberous Thistle.* Leaves subdecurrent, petioled, subpinnatifid, spiny; stem unarmed; flowers solitary; corolla purple; down simple: perennial: flowering in July and August.—Native of Montpellier, Leipsic, Bohemia, the Palatinate, Austria, Geneva, Switzerland, and the county of Nice.

20. Carduus Chius. Leaves stem-clasping, the lower ones semidecurrent, semipinnatifid, ciliate-spinulose; stem unarmed; peduncles one-flowered. Stem the height of a man, branching from top to bottom, angular, villose, erect.—Native of Chios.

21. Carduus Parviflorus; *Small-flowered Thistle.* Leaves adnate at the base, lanceolate, naked, erose, ciliate-spinulous, unarmed. Stem erect; leaves repand-toothed, green on both sides; flowers terminal, peduncled, white, with very long styles. Perennial.—Native of the southern subalpine mountains.

22. Carduus Linearis. Leaves sessile, linear, ciliate-spiny, smooth; flowers terminal, solitary. Stem herbaceous, erect, round, striated, smooth, unarmed, a foot high and upwards; branches alternate, spreading, like the stem, a little tomentose at the end; flowers small; calices subtomentose at the base, smooth at the top.—Native of Japan.

23. Carduus Casabonæ; *Fish Thistle.* Leaves sessile,

lanceolate, quite entire, the edge with ternate spines. This is a biennial plant, which rises six feet high, with an upright stalk. The flowers come out in clusters from the top of the stalk; they are purple, and are succeeded by smooth, oval, black seeds.—Native of the south of Europe.

24. Carduus Stellatus; *Starry Thistle.* Leaves sessile, entire, lanceolate, unarmed, tomentose beneath; spines branched, axillary; flowers sessile, lateral. Stem a foot high, straight, round, cottony, it divides at top into several branches, each ending in a spiny head, under which are three leaves; floscules purple.—Annual; and a native of Sicily and the county of Nice. The seeds of this plant should be sown upon a bed of light earth in the spring, where the plants are to remain, for they do not bear transplanting unless performed when they are very young. The only care they require is, to keep them clear from weeds, and to thin them where they come too close together.

25. Carduus Marianus; *Milk Thistle* or *Ladies' Thistle.* Leaves stem-clasping, hastate-pinnatifid, spiny; calices leafless; spines channelled, doubly spined. The radical leaves spread on the ground, from one to two feet or more in length with white veins on the upper surface. The beautiful milky veins, forming an irregular net-work on the leaves, would form an obvious character to distinguish this species, if they were not sometimes found wholly green: in which case recourse must be had to the strong spines of the calix.—It is found upon banks, by road-sides, and in waste places; flowering from May and June till July and August. It is a biennial, and eaten when young as a salad, and is by some persons blanched, and dressed as a curious dish. The tender leaves stripped of their spines, are boiled and eaten as greens; the young stalks peeled, are excellent, after their bitterness is extracted by soaking them in water; and the scales of the calix are as good as those of Artichokes; the root is good to eat early in the spring. The seeds are large, and contain a portion of oil, whence they have sometimes been used in emulsions, to thin the blood, and to cure stitches and pleurisies, for which purpose they are still prescribed by the German physicians, in doses of from one to three drachms each. The Italian physicians give the expressed juice in agues. Granivorous small birds, particularly goldfinches, feed much upon the seeds of this and other Thistles. In Apulia this plant is grown in preference to grass, on account of its yielding a larger quantity of food for the cattle.—It makes a handsome appearance, and deserves a place in all large gardens.

26. Carduus Syriacus; *Syrian Thistle.* Leaves stem-clasping, angula-spiny; flowers solitary, subsessile, fortified with about five leaflets. Flowers white; in the Ægyptian variety purple.—It is annual; and a native of Syria, Crete, and Spain.

27. Carduus Eriophorus; *Woolly-headed Thistle.* Leaves sessile, pinnatifid, in two rows; divisions alternate, erect; calices globular, villose. Stem four or five feet high, angular, striated, woolly without thorns, much branched; floscules purple, sometimes white; style much longer than the antheræ; down shorter than the corolla, fringed with long hairs. The receptacle is pulpy and esculent, like that of the artichoke.—It is biennial; flowering from July till September, and frequents dry pastures, road-sides, and waste places, in Great Britain, France, Switzerland, Germany, Austria, Carniola, Spain, and Portugal. It is the most showy of all the Thistles, and ought therefore to be introduced into large gardens, where it will not flower until the second year; but when once admitted, will sow and maintain itself without requiring any further care.

28. Carduus Altissimus; *Giant Thistle.* Leaves sessile, pinnatifid, sinuate, serrate unarmed; stem very branching; calices villose, subserrate. Stature ten or twelve feet; corolla pale purple; down plumose.—Imported from Carolina.

29. Carduus Virginianus; *Virginian Thistle.* Leaves lanceolate, spinulous, tomentose, beneath; stem unarmed, leafy, one-flowered. Stem slender, a foot or eighteen inches high; corolla purple.—Imported from Virginia.

30. Carduus Heterophyllus. Leaves stem-clasping, lanceolate, ciliate, entire, and laciniate; stem with one or two flowers; calix unarmed. Root perennial, creeping; stem erect, quite simple, striated, tomentose, about eighteen inches high; leaves half stem-clasping, serrate, the serratures spiny, the middle nerve white, alternate, the bottom ones petioled; flower one, purple, terminal; calix ovate; scales acute, somewhat spined.—Perennial: flowering in July, and abounding in moist meadows and marshy places.

31. Carduus Helenioides; *Melancholy Thistle.* Leaves stem-clasping, lanceolate, toothed; spinules unequal, ciliate; stem unarmed. The stem is above a foot high when wild, but generally double that height in gardens; where the leaves grow so much larger, that it seems a different plant; they are of a shining green on the upper side. The roots creep far under the surface. It has been cultivated in the gardens of some quacks, who pretended to cure madness with it; and from that circumstance in all probability obtained the name of Melancholy Thistle.—It is found in mountainous pastures in Yorkshire, Westmoreland, Cumberland, and Wales; at Mulbarton near Norwich; Acton in Glocestershire; in a meadow near Highgate; on Hounslow Heath; near Croydon; and in Scotland. Perennial: flowering in July.

32. Carduus Serratuloides; *Saw-wort Thistle.* Leaves rather stem-clasping, lanceolate, entire; serratures spiny-setaceous; peduncles one-flowered. Stem solitary, from a foot and a half to three feet in height, simple, one-flowered, or divided into few elongated erect peduncles, striated, frequently flexuose, woolly as if covered with a cobweb, leafy to about half the height, the rest leafless and of a dusky purple; floscules purple; seeds pale shining; down plumose.—Native of Siberia, Switzerland, Austria, Carniola, Piedmont, and Montpellier.

33. Carduus Tatarieus; *Tartarian Thistle* Leaves stem-clasping, lanceolate; serratures spiny-setaceous; flowers three-leaved. Stem a foot and a half high, smooth, sometimes simple, sometimes branched, each bearing a yellowish-white flower. Perennial.—Native of Siberia.

34. Carduus Ciliatus; *Ciliate Thistle.* Leaves half stem-clasping, pinnatifid, lanciniate, spiny-tomentose beneath; scales of the calix ciliate, reflex at the base. Corolla purple-red; seeds scarcely four-cornered, and of a pale purple.—Native of Siberia.

35. Carduus Flavescens. Leaves lanceolate, entire, unarmed, toothed, smooth; flowers leafless, weak-spiny. Stem eighteen inches high, upright, grooved, smooth, sparingly branched; corolla yellowish white; seeds turbinate, four-cornered; down plumose, very abundant.—Found in Spain by Loefling, and in Silesia by Krocker.

36. Carduus Rivularis. Leaves at bottom pinnatifid into oblong divisions, at top entire and serrate, weak-spiny, sessile; stem unarmed; flowers in heads; root perennial. The stem is usually single, two or three feet high, erect, round, hollow, a little villose angular at bottom, striated at top, generally quite simple, but sometimes it puts forth short one-flowering branches from some, seldom from all the axils; corollules purple.—It is found in moist meadows, and begins to flower in the middle of May.

37. Carduus Mollis. Leaves pinnatifid, linear, tomentose

beneath; stem one-flowered, unarmed. Stem one, erect, a foot and a half or two feet high, round, a little angular, tomentose, sometimes tinged with red, the size of a pen or rather larger; radical leaves in a tuft; floscules deep purple, calix tomentose.—The whole plant smells strong of musk. It is found about Montpellier, in Germany, Austria, and Carniola; flowering in July and August.

38. Carduus Acaulis; *Dwarf Carline Thistle.* Stemless; calix smooth. Leaves lying close to the ground, with one purple flower in the midst of them; down long, plumose; root-leaves spreading in a circle on footstalks, pinnatifid; pinnas irregularly lobed and waved, angular, with sharp spines at the edge, green on both sides, hairy towards the base. Linneus justly observes, that this dwarf plant occupies a foot in diameter, not suffering any plant to grow beneath it; and that it is therefore injurious to pastures: it affects dry open situations, such as heaths and downs, particularly where the soil is calcareous.—It is a perennial, flowering in July; and is found in most parts of Europe. This Thistle is only to be destroyed by ploughing: it is common in the very dry light lands, beside being the great pest of the sheep downs.

39. Carduus Inclinans; *Thistle upon Thistle.* Leaves decurrent, thorny at the edge; calices roundish, lax; scales of the calix subulate, straight, the innermost unarmed, coloured. Corolla purple. It is an annual plant, growing upon ditch-banks and road-sides, in hedges, among briars, in waste places, and on the borders of corn-fields, flowering in July.

40. Carduus Pratensis; *English Soft* or *Gentle Thistle, Single-headed,* or *Meadow Thistle.* Leaves sessile, half stem-clasping, lanceolate, somewhat toothed, fringed with small unequal thorns; stem mostly one-flowered. Root perennial, fibrous, creeping; flower terminal, purple; calix ovate, tomentose; the scales imbricate, ovate, acuminate, purplish; seed very short; down nearly as long as the corolla, plumose with long hairs.—Found in marshy places and swampy meadows.

41. Carduus Carniolicus. Lower leaves pinnatifid, on short petioles, upper ones stem-clasping; heads (three or four) terminal, heaped; stem two feet high, striated, simple, not winged, the thickness of the little finger; heads of flowers sessile, floscules pale yellow; antheræ ferruginous, putting out two little bristles behind; filamenta brown; down plumose.—Native of Carniola, Austria, and Piedmont.

42. Carduus Carlinoides; *Pyrenean Thistle.* Leaves decurrent, decursively pinnate; pinnules palmate-quadrifid, aculeate, woolly; stem corymbed, many-flowered; flowers glomerate. Root perennial; stem a-cubit high, sometimes panicle-branched, woolly; branches axillary, alternate, solitary, from half a palm to a foot in length; corollas purple.—This is a very handsome species, native of the Pyrenees, and of the mountains about Tende.

43. Carduus Medius. Leaves decurrent, pinnatifid, thorny about the edge; stem one-flowered; peduncles very long; scales of the calix unarmed, spreading, bristle-shaped; stem a cubit high, very simple, erect; leaves lanceolate, an inch wide, three inches long; flower nodding, purple or deep red. Biennal.—Found upon the Pyrenees, and on the mountains of Piedmont.

44. Carduus Ochroleucus. Leaves pinnate; pinnas ciliate; scales of the calix recurved. Height two feet; flowers yellowish-white; down plumose. Perennial.—Native of Switzerland.

45. Carduus Pyrenaicus. Leaves decurrent, oblong-lanceolate, ciliate at the edge, spiny and tomentose on both sides; flowers subsessile; stem three feet high or more, striated, green, smooth; top of the stem almost naked; corolla purple; down plumose. Perennial.—Native of Provence, Austria, and Piedmont.

46. Carduus Paniculatus; *Panicled Thistle.* Leaves semi-decurrent, oblong-lanceolate, unequal, ciliate, smooth; the lower lyrate, waved; flowers panicled. This is a perennial plant, flowering in June and July.—Native of the south of Europe.

47. Carduus Rigens; *Upright Alpine Thistle.* Leaves oblong-lanceolate, smooth, thorny at the edge, pinnatifid; segments oblique, lobed; calices oblong, bracted. Calix oval, with close scales; corollules yellowish white. The whole plant has an ill smell. It is biennial or perennial, and is a large, thick, strong plant, but very low in proportion to the thickness of the stem, which is seldom more than a foot in height.—It flowers in July and August, and is a native of Switzerland and Dauphiny, in moist meadows exposed to the north.

48. Carduus Diacantha. Leaves sessile, lanceolate, tomentose underneath; spines in pairs, flowers corymbed; stem two feet high, straight, single, striated, tomentose; florets of a violet colour.—Native of Mount Libanus.

49. Carduus Pinnatifidus. Leaves pinnatifid, tomentose; nerves woolly; stem one-flowered. Root short, fibrous, annual; flowers terminating, solitary.—It flowers at the end of May and June, and is a native of Spain.

50. Carduus Gnaphaloides. Leaves sessile, in a sort of whorl, lanceolate, quite entire, tomentose beneath. Root perennial, woolly, adhering to the clefts of rocks, whence the plant hangs; flowers terminating, purple, an inch in length. It flowers early in the spring, and continues flowering through the summer to the autumn; the corolla smells sweet, the leaves are dry, and insipid to the taste. It is a native of the farther Calabria, where its leaves are only half the width, and much more tomentose: it grows very luxuriantly in gardens.

51. Carduus Tenuiflorus; *Slender-flowered Thistle.* Leaves decurrent, prickly about the edge; branches stiff; calices aggregate, sessile, oblong-conical; scales upright, spreading at top, and prickly at the end. Root annual; stem from two to three feet high, upright, branched at the base; branches few, long, upright, perfectly straight, roundish, slightly grooved, cottony, particularly towards the top, with broad spinous wings; flowers in clusters at the top of the branches, sessile, small, of a pale purple or flesh colour. It is very common in the neighbourhood of London, growing in the very suburbs, delighting in warm sheltered situations, and is frequently found under paling, walls, hedges, ditch-banks, and near the sea-side; flowering from June till August.

Carex; a genus of the class Monœcia, order Triandria.—Generic Character. *Male flowers,* disposed in a spike. *Calix:* ament oblong, imbricate, constant: scales one-flowered, lanceolate, acute, concave, permanent. *Corolla:* none. *Stamina:* filamenta three, bristle-shaped, erect, longer than the calix; antheræ erect, long, linear. *Female flowers* in the same plant. *Calix:* ament as in the male. *Corolla:* petals none; nectary inflated, ovate-oblong, bidentated at the tip, contracted upwards, gaping at the mouth, permanent. *Pistil:* germen three-sided, within the nectary; style very short; stigmas two or three, subulate, incurved, long, acuminate, pubescent. *Pericarp:* none; the nectary grown larger protects the seed. *Seed:* single, ovate-acute, three-sided, one angle being generally less than the others. Essential Character. *Ament:* imbricate. *Calix:* one-leafed. *Corolla:* none. *Female Nectary:* inflated, three-toothed. *Stigmas:* three. *Seed:* three-sided, within the nectary.—These plants are very neary allied to the Grasses, but are of a much harsher texture: the stem, which is fre-

quently three-cornered, is not hollow, but filled with a spongy substance; the difference in the fructification is very considerable, as will appear from a comparison of the generic character. Most of the species grow in wet swampy grounds, in bogs, fens, marshes, or by the sides of ditches and rivers, or in moist woods; some few, however, affect hilly pastures and heaths: they are perennial, and flower in May and June, or from April to July and August. Linneus has divided this genus into five sections, the two first comprising the species with androgynous spikes; and the three last, those which have the male or barren, and the female or fertile spikes distinct. The Carices or Sedges are classed rather among the noxious plants, than with such as are useful; because they yield a very coarse grass and fodder, to the exclusion of real grass, and other profitable plants, which they subdue by their strong creeping roots: but it should be considered that they grow chiefly on poor spongy land, on bogs, to which they give stability, or on the banks of streams, which they enable to resist the current; that they may be destroyed by draining and manuring; and hence, after all, are of considerable use: beside their common use for coarse fodder, they are employed for covering hovels and stacks, for lighting fires and heating ovens for tying the young hop-plant to the poles; the Italians use them to cover wine-flasks, for putting between the staves of casks to make them tight, and for chair bottoms. The Laplander combs and dresses some species of Sedge as we do flax, and in winter stuffs his shoes and gloves with it, as a defence against the extreme rigour of his climate. They cannot, upon the whole, be considered as useful plants, except in such situations as will not produce better fodder and herbage; or where they contribute to fill up marshes, and lay a foundation for their becoming hereafter dry land and useful meadows: wherever a meadow is capable of being drained, the Sedge may be destroyed, wet being necessary to the existence of those sorts which overrun pasture grounds. They are never cultivated, except in botanic gardens, for the determination of the species, and are then propagated by the roots; some few of them require a dry soil, and others a shady situation; but the greater part must be placed with water and bog plants, either by the side of ponds, or in pots or tubs filled with marsh or bog earth, and standing in water; and yet with all these advantages, some of them will scarcely flower in a garden.——The species are,

**With one simple Spike.*

1. Carex Dioica; *Small Sedge.* Spike simple, diœcous; margins of the capsules serrulate. Culm slender, upright, smooth, from four to six or even ten inches high, with three sharpish angles.—Found on boggy grounds, flowering in June.

2. Carex Capitata; *Round-headed Sedge.* Spike simple, androgynous, ovate; upper part male; capsules imbricate-expanding, with entire margins: very similar to the preceding species.

3. Carex Pulicaris; *Flea Sedge,* or *Flea Grass.* Spike simple, androgynous; upper part male; capsules divaricated, bent back, acuminated at both ends. Root not creeping, but fibrous.—Frequent in moorish and boggy places.

4. Carex Squarrosa. Spike simple, androgynous; lower part male; capsules imbricated, horizontal. Spike oblong, thick, consisting of horizontal imbricate capsules, with a linear tip as long as the capsule itself; the bottom of the spike is covered with dry barren chaffs. This is one of the largest species, and is a native of Canada.

5. Carex Uncinata. Spike simple, androgynous, linear; upper part male; awns of the females uncinated; males awnless. Fertile flowers constituting two-thirds of the spike, below the barren ones; small spicules sometimes hang down by the side, probably barren.—It is the handsomest of the genus, and a native of New Zealand.

6. Carex Cyperoides. Head terminal, roundish; flowers very simple, subulated; involucre long. Culms a foot high three-cornered; head consisting of several glomerules in a small umbel; the outer glumes of each barren, the inner fertile; filamenta white; pistil longer than the nectary, with a bifid style.—Native of Siberia and Bohemia.

***Spikes androgynous.*

7. Carex Baldensis. Spikes tern, heaped, sessile, ovate, three-cornered, androgynous; involucre two-leaved.—Native of Monte Baldo.

8. Carex Arenaria; *Sand* or *Sea Sedge.* Spike leafy, oblong, sharpish; spikelets several, the terminating ones male; the lower ones female; culm incurved. Roots creeping horizontally about four inches under ground, in a moveable sand upon the sea-shores; as at Yarmouth, Lowestoff, and in Scotland, also in the interior of Germany: it rarely flowers in a garden.

9. Carex Uliginosa. Spike compound; spikelets androgynous; the lower ones more remote, furnished with a longer leaflet; culm round.—Found upon turf-moors in Sweden.

10. Carex Leporina. Spike compound; spikelets ovate, sessile, approximate, alternate, androgynous, naked.—Native of the highest Alps.

11. Carex Vulpina; *Great Sedge.* Spike superdecompound, contracted, branched, blunt; spikelets male at top; capsules diverging; angles of the culm very sharp; culm thick, firm.—It flowers in May, and is common on the banks of rivers and ditches, and in marshes.

12. Carex Brizoides; *Rough Sedge.* Spike compound, distich, naked; spikelets androgynous, oblong, contiguous; culm naked. Stem slender, three-cornered, eighteen inches high; leaves scarcely a line wide.

13. Carex Muricata; *Spiked Sedge.* Spike oblong, superdecompound; spikelets distinct; capsules diverging, with a cloven mouth; root fibrous; leaves longer than the culm.—Found in moist woods and meadows; flowering in May and June.

14. Carex Loliacea. Spikelets subovate, sessile, remote, androgynous; capsules ovate, roundish, awnless, divaricate. Root creeping; leaves grassy, tender, smooth and even; culm smooth and even, the upper part naked; spikelets four or eight, small, scattered at the top of the culm, whitish.—Native of Sweden and Saxony.

15. Carex Remota; *Remote Sedge.* Spikelets axillary, solitary, subsessile, remote; leaflets very long; capsule undivided at the tip. A very elegant plant, stems several, one to two feet high, slender, weak, three-cornered, above the lowest floral leaf rough, below smooth.—This is found in moist woods, and by the sides of ditches; flowering in May and June,

16. Carex Elongata. Spikelets oblong, sessile, remote, androgynous; capsules ovate, acute. Culms two feet high rough, three-cornered, almost naked; glumes brown, sharp.

17. Carex Canescens; *Gray Sedge.* Spikelets roundish, remote, sessile, obtuse, androgynous; capsules ovate, bluntish.—Native of Lapland, Upland, &c.

18. Carex Paniculata; *Panicled Sedge.* Spike superdecompound, panicled-branched, acute; branches alternate, somewhat remote; capsules spreading; culm three sided. Stems numerous, from one to three and sometimes four feet high, naked in the upper part, three-cornered, with the angles minutely toothed; the lax branchy disposition of the spike sufficiently discriminates this species from the rest.—It is a native of bogs and marshes, flowering in June, and is admirably well qualified for planting in loose boggy ground; its

immense tufts affording a firm support for the heaviest bodies.

19. Carex Indica; *Indian Sedge.* Spikes androgynous, cylindric, panicled, pinnate; a few of the lower floscules female; culms subtriangular, smooth and even, a foot and half in height, erect; fruit ovate, three-cornered, acute.—Native of the East Indies.

20. Carex Brunnea; *Brown Sedge.* Spikes androgynous, peduncled, linear; in the upper part male; leaves linear, attenuated toward the end, entire, smooth, erect, longer than the culm, which is three-cornered, smooth, and a foot in height; spikes erect, acute, brown, smooth, about twelve in number; glumes ovate, acute.—Observed in Japan by Thunberg.

**** Male and Female Flowers on distinct Spikes; Females sessile.*

21. Carex Flava; *Yellow Sedge.* Sheaths short, nearly equalling the divaricate leaflet; male spike linear; females roundish; capsules rostrate-acuminate. Stems two inches to a foot high, numerous, declining; in the smaller plants leafy up to the spike, but in the larger usually naked upwards, triangular, not rough to the touch; leaves pale yellowish green.—Mr. Ray calls this species *Marsh Hedge-hog Grass:* it is common in boggy and wet meadows, marshes, and the boggy parts of barren heaths; flowering in May and June.

22. Carex Pedata. Female spikes, sessile, oblong, the lower axillary; leaves subfiliform. Leaves a foot long, very narrow, somewhat stiff, smooth and even at bottom; culm very solid, somewhat even, rounded on one side, longer than the leaves; spikes three, sessile; male terminal, oblong, ferruginous; females two, alternate, ovate-oblong, brown ferruginous; upper without any leaf under it; lower from the axilla the length of the culm; floscules less closely imbricate; capsules obscurely pubescent.—Native of Lapland.

23. Carex Digitata; *Digitated Sedge.* Spikes linear, erect; male shorter; bractes membranaceous, almost leafless, sheathing, halved; capsules distant. Leaves in a thick tuft; stems obscurely three-cornered, slender, not rough, from six to twelve inches high, entirely naked, except some reddish brown leafy sheaths at the base; male spike half an inch long, closely imbricate, from the same sheath with the uppermost female spike, and, being shorter, over-topped by it; scales numerous, yellowish brown, membranaceous, and shining at the ends, and so bluntly rounded as to seem truncate.—It flowers in May and June, and is native of many parts of Europe.

24. Carex Montana; *Mountain Sedge.* Female spikes sessile, subsolitary, ovate, approximating to the male; culm naked; capsules pubescent. Culms filiform, a short span high; leaves filiform, soft, of a yellower green than the other species; stem leaves very short; male spike terminal, peduncled, subcylindric, brown; female when ripe becomes black; scales brown; seeds scarce perceptibly hairy, gibbous, divaricate.—It is found on mountainous pastures and heaths.

25. Carex Tomentosa. Female spikes subpeduncled; capsules subglobular, tomentose. Culm three-cornered; leaves narrow; bractes the length of the upper culm; capsules from fifteen to twenty in a spike, pear-shaped, villose.

26. Carex Globularis. Male spike oblong; female sessile, ovate; floral leaf shorter approximating. Leaves in a thick tuft, firm, short, not more than half a line broad; culm three inches high, almost naked, three-cornered.

27. Carex Filiformis. Sheaths short, nearly equalling the peduncles; male spikes commonly two; females ovate, remote; capsules downy. Leaves slender upright, ending in a very taper point, roughish on the edges and along the keel, from one to three feet in length; culm upright, slender, almost equal to the leaves, the angles sharp and hispid.—It flowers in June, is a native of woods in several parts of Europe; and has been observed near Eaton in Shropshire, and at the south end of Ayr Links in Scotland.

28. Carex Pilulifera; *Round-headed Sedge.* Sheaths none; male spike sublinear; females rounded, sessile, crowded; culm weak. Leaves in a thick tuft, bright green; the longest scarcely half as long as the stem, which is three-cornered, slender, not rough, somewhat ascending at the base.—It is common in moist pastures and heaths; flowering in April and May.

29. Carex Saxatilis; *Rock Sedge.* Spikes three, ovate, sessile, alternate; male oblong, terminal. Male spike bay or pale ferruginous; female spikes two, black, and scaly; germina black, three-cornered; styles black, bifid, long; beneath the lowest spike is a setaceous leaf shorter than the spike.—Native of the mountains of Lapland and Switzerland.

30. Carex Tristachya. Spikes monœcous, three, sessile, linear; male longer. One leaf or two leaves at most, alternate, linear, smooth, reflected, short; culm three-cornered, capillary, striated, smooth, erect, four inches high; spikes terminal; females lower than the male, and only half the length.

***** Male and Female Spikes distinct: Females peduncted.*

31. Carex Atrata; *Black Sedge.* Spikes all androgynous, terminal, peduncled, when in flower erect, when in fruit pendulous; capsule ovate, sharpish; sheaths scarcely any. Stem three-cornered, smooth, with leaves from one inch and half to two inches from the root, naked upwards; the upper often longer than the stem. It is singular in this species, that it has for the most part only two stamina, and a few hermaphrodite flowers; its having no sheaths, or at least very minute ones, and black ovate spikes, are marks sufficient to distinguish it readily from all others with which it can come in any competition.—Native of most parts of Europe, on mountains; and found in Wales and Scotland; flowering from May till July.

32. Carex Limosa. Spikes ovate, pendulous when in fruit; male longer, more erect; root creeping. Styles three; root jointed, creeping. In a garden, where it will rarely flower, it frequently throws up barren leafy stalks, which will readily take root, if planted in pots plunged in water.—It is common in boggy ground, and flowers in June: found in Yorkshire, Lancashire, Westmoreland, &c.

33. Carex Capillaris; *Capillary Sedge.* Spikes pendulous; male erect; females oblong, distich; capsules naked, acuminate. Culm, when in flower, shorter than the leaf, scarcely a finger's breadth high, with a single leaf; from the end are produced four erect spikes, one of which is male; in a short time the culm becomes a span in height, filiform, erect, with one sheathing leaf in the middle of it, but shorter than the culm.—Native of the Highland mountains of Scotland.

34. Carex Pallescens; *Pale Sedge.* Sheaths very much abbreviated; female spikes subcylindric, when fruit-bearing pendulous; capsules oblong, blunt. Bractes permanent; capsules by no means acuminate; stems many, from one to two feet high, three-cornered, roughish, leafy below, naked upward, except that there is generally a kind of false floral leaf similar to the stem leaves, proceeding from a joint one or two inches below the spikes.—Native of woods, meadows, and moist pastures; flowering in May and June.

35. Carex Panicea; *Pink-leaved Sedge.* Spikes peduncled, erect, remote; females linear: capsules bluntish, inflated, somewhat distant. Stems bluntly three-cornered, smooth, twelve to eighteen inches high; leaves smooth, sea-

green, shorter than the stem.—It is found in moist meadows, flowering in May and June.

36. Carex Folliculata. Spikes terminal, peduncled, male and female; capsules subulated, the length of the spike. Culm three-cornered, two feet high, clothed with very narrow leaves.—Found in Canada by Kalm.

37. Carex Pseudo-Cyperus; *Bastard Sedge.* Sheaths scarcely any; female spikes cylindrical, peduncled, pendulous; capsules awned and beaked, somewhat divaricate. Bractes almost setaceous.—Found flowering in June, upon the sides of ditches and moist woods.

38. Carex Cæspitosa; *Turfy Sedge.* Styles two; spikes subsessile, subcylindrie, obtuse; leaves erect, softish. It is easily distinguished from the other species by its long narrow leaves, of a pleasant green, in fuller tufts than in any of the rest; by two female spikes, erect and blackish. Capsules yellowish, sessile, erect, obtuse, ovate, imbricate; culm naked, exactly three-cornered; under the lower spike a small leaf longer than the spike; that under the other is shorter. It fills up bogs by its large tufts or hassocks, and will speedily do this, as cattle will not eat it.—Grows in marshes and moist woods, flowering in May.

39. Carex Distans; *Distant-flowering Sedge.* Spikes very remote; bracte sheathing the peduncle; capsule angular, mucronate. Capsules acuminate; scales of the calix sharp; stems nine to eighteen inches high, sometimes two feet, or even a yard, leafy, very obscurely three-cornered.—It is found in marshes, especially salt-marshes, and usually flowers in May and June.

40. Carex Japonica. Spikes monœcous, peduncled, erect; females peduncled, ovate; male terminal, linear. Culm leafy, three-cornered, erect, weak, smooth, a span high.—Native of the island of Niphon, flowering in June.

***** *Spikes Male and Female, distinct; Males several.*

41. Carex Acuta; *Sharp Sedge.* Male spikes many; female subsessile; capsules bluntish. Style bifid, hispid, white, shrivelling; scales ovate, brown, with a longitudinal green line.—It is a very variable plant, an inch high, in dry meadows; but in watery situations often rises to the height of three feet.

42. Carex Vesicaria; *Bladder Sedge.* Male spikes linear; female spikes oblong, spreading; capsule inflated, oblong, acuminate-beaked, spreading. Stem three-cornered, leafy, finely serrate at the edges; leaves two lines broad, finely serrate, bright green.—It is found in bogs and marshes, and flowers in May.

43. Carex Hirta; *Hairy Sedge.* Hairy: all the spikes oblong: females remote, sheathed; capsules hairy. Leaves on the outside, and their sheaths white, villose; capsules villose, inflated, two-horned at the end; male spikes usually three; female very remote, erect, peduncled. It flowers in May and June, and grows in moist meadows, watery places, and marshes.

44. Carex Pumila; *Dwarf Sedge.* Male spikes two, terminal, sessile; females two, peduncled, oblong, erect. Culm very short, indeed scarcely any; leaves linear, attenuated, convolute, smooth.

45. Carex Pauciflora; *Few-flowering Sedge.* Spike simple, androgynous; female flowers two or three, remotish, spreading; one male flower, sometimes two in the upper part. Stem four inches high, obscurely three-cornered, smooth, striated, with two smooth grass-like leaves, the uppermost longest, but generally shorter than the stem.—Native of Scotland, and of the coast of Labradore, in a boggy soil.

46. Carex Hamata; *Hooked Sedge.* Spike simple, androgynous, linear; male at top; females awned; awns hooked at the tip and equal.—Native of Jamaica and New Zealand.

47. Carex Rupestris. Spike simple, androgynous, oblong, with male flowers in the upper part; female glumes awned. Culms scarcely four inches high, naked, three-cornered, twice as high as the leaves; spike an inch high; male glumes subovate, not awned; females broad, ovate, acute, bay-coloured, with a paler edge, and a broadish nerve ending in an awn.

48. Carex Bellardi. Spike one, androgynous, strigose; culm round; leaves capillary. From a brown fibrous root arises a tuft of many culms; leaves convoluted, striated, somewhat curved; culm near a span high, striated.

49. Carex Curvula. Spike one; glumes awned; culm and leaves hard, and a little curved.—This species forms little tufts, composed of hard round leaves, somewhat yellowish, resembling those of rushes, differing little from the culm, and about the same length, from three to six inches.—Native of the Alps, of Switzerland, Dauphiny, and Piedmont.

50. Carex Fœtida; *Stinking Sedge.* Spike conglomerate, brown, stinking. This plant is fœtid, both in a recent and in a dried state; culm naked, three-cornered, edges rough; spike one only, blackish, formed of very many small ones, irregularly conic, obtusely five-cornered, very broad.—Native of Switzerland, Dauphiny, and Piedmont.

51. Carex Psyllophora. Spike simple, androgynous; male at top; capsules reflex; seeds cylindric.—Native of Sweden, and Germany.

52. Carex Leucoglochin. Spike simple, androgynous, male at top; capsules reflex; seeds three-sided.—Native of Sweden and Germany.

53. Carex Uncinata. Spike simple, androgynous, linear, male at top; awns of the females hooked; males awnless.—This is the handsomest species of the genus; it is a native of New Zealand.

54. Carex Cyperoides. Head terminating, roundish; flowers quite simple, subulate; involucre, long.—Grows in various parts of Bohemia and Siberia.

55. Carex Disticha; *Soft Sedge.* Spike oblong, obtuse; spikelets very many; the lowest and end one females; the middle ones male; culm upright; style divided to the base.—It is found in marshes, flowering in June.

56. Carex Divisa. Spike ovate, subdecompound, with an upright leaflet; spikelets rather remote; capsules pressed close; root creeping. Leaves narrow, sometimes longer than the culm, which is from eighteen inches to two feet in height, and three-cornered.—It grows in salt marshes, where it flowers in May and June.

57. Carex Incurva. Spike conic; spikelets several, heaped, sessile; involucre none; culm incurved. Stems three or four inches high, obscurely three-cornered, smooth, and curved in the arc of a circle.—Native of Scotland, in deep loose sand; also of Denmark and Piedmont.

58. Carex Divulsa. Spike decompound, elongated, somewhat branched at the base; the lower spikelets remote, the upper ones contiguous; capsules somewhat erect. Leaves dark green, narrowish, sharp on the keel and along the edge, longer than the culm, which is from a foot to eighteen inches in height, weak, somewhat reclining, three-cornered, the corners acute and roughish.—Found in moist woods, flowering from May to July.

59. Carex Tripartita. Spike terminal, three-parted. Radical leaves shorter than the culm, a line or more in breadth; culm naked in the upper part, three-cornered, six inches high; neither that nor the leaves are rough.

60. Carex Bipartita. Spikes two, terminal, the upper compound; culm round, naked. Culms straight, twice as

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Syrian Bindweed, or Scammony.

P. 351.

P. 355.

Trailing Bindweed, or Convolvulus Minor.

P. 353

Jalap Bindweed.

Published by Nuttall, Fisher & Dixon, Liverpool, Nov.r 1806.

high as the leaves, striated; leaves smooth, a little convoluted, striated, acute, and almost pungent.

61. Carex Nigra. Spikes androgynous, erect, sessile, tern, terminal, black; culm three-cornered, leafy. Leaves shorter than the culm, which is from a finger's length to a foot high, and striated; glumes ovate acute, black, with a whitish edge.

62. Carex Bicolor. Spikes androgynous, sessile, tern, terminal; capsules longer than the glumes; culm round, naked, scarcely more than a finger's breadth in height.

63. Carex Stellulata. Spikelets subtern, remote; capsules diverging, acute; mouth entire. Leaves pale green, narrow, rough at the edges and keel, especially towards the tip.—Grows in marshes, flowering in May and June.

64. Carex Curta. Spikelets six or more, ovate, remotish, naked; scales ovate, sharpish, shorter than the capsule. Leaves of a pale subglaucous colour, rough along the edges and keel, upright, narrow.—It inhabits marshes and watery places, but is not very common, and flowers in June.

65. Carex Ovalis. Spikelets about six, oval, approximating, alternate; scales lanceolate, equalling the capsule. Leaves dark green, roughish along the edges and keel, narrow, nearly equalling the stem, which is upright, a foot high, triangular, with the angles sharp and roughish.—It is found in marshes and moist meadows; flowering in June.

66. Carex Teretiuscula. Spike superdecompound, contracted, branched, sharpish; spikelets glomerate, male at top; capsules spreading; culm roundish. Leaves green, upright, stiffish, sheathing near half the culm, at the base convex without, channelled within, rough along the edges and keel, longer than the culm when in flower; the upper leaf longer than the rest.—Found in marshes near the city of Norwich.

67. Carex Chordorhiza. Spike compound; spikelets androgynous, approximating, male at top; capsules compressed; root creeping, filiform.—Native of Sweden.

68. Carex Heleonastes. Spike compound; spikelets androgynous, approximating, female at top; capsules imbricated, with the sides quite entire.—Native of Sweden.

69. Carex Prostrata. Bractes membranaceous, almost leafless, sheathing; female spikes remote, scarcely surpassing the sheath; the calix very large; stem, when old, prostrate. Leaves slender, three or four times as long as the culm, channelled, at the edges and keel, towards the tip rough.—Observed upon St. Vincent's rocks near Bristol. It flowers in the very beginning of April.

70. Carex Conglobata. Spikes sessile, approximating, few-flowered; capsules ovate, hirsute. Leaves in tufts, resembling those of pinks, repand, marked with a line, rough about the edge, a line in breadth and more; culm six inches high.

71. Carex Mucronata. Spikes sessile, approximating, very short; glumes lanceolate, mucronate. Leaves rush-like; culms a foot high, naked at the top.

72. Carex Alba. Spikes peduncled, white; sheaths long, obtuse; filamenta and styles long, white. Culm round, slender with three white leafy sheaths; styles long, trifid.

73. Carex Fusca. Female spikes three, erect; capsules ovate, shortly mucronate, petioled, sitting on the leaf. Culm sheathed, six inches high; capsules pale; leaves long, less than a line wide, nearly the length of the stem, and rough.

74. Carex Trigonia. Male spike peduncled; females sessile, remote, three-cornered. Culms leafy, a foot high and more, three-cornered, striated, smooth; leaves linear, striated, dark green, shorter than the culm.

75. Carex Foliosa. Female spikes sessile, the lowest peduncled; glumes very narrow. A very distinct species. Culm a foot high, three-cornered; capsules slender, with very long points.

76. Carex Alpestris. The lowest female spike radical; capsules three-cornered, elongated. Leaves in tufts, firm, keeled, with a nerve standing out, two lines broad, smooth except the end of the nerve; culms naked, from three to nine inches in height.

77. Carex Obesa. Female spikes sessile, tern; capsules ovate, three-cornered; leaves short, not above a line in breadth, rough. Culms four inches high, naked.

78. Carex Ferruginea. Male spike one, acuminate; female spikes two or three, slender, pedicelled; scales ferruginous; capsules bifid. Culm half a foot high, pale green; the leaves are long and hard, but flexible. It forms large tufts on high mountains exposed to the north.

79. Carex Frigida. Female spikes in threes and fours, distich; capsules long-pointed. Glumes sharply lanceolate, shining bay, with a green or yellowish nerve.

80. Carex Extensa. Sheaths very short, equalling the peduncle; the leaflet somewhat reflex; spikes crowded; females roundish; capsules ovate, acute; root-leaves narrowish, shorter than the culm, (except those which embrace the base of it, which often equal and even surpass it,) roughish along the edges and keel towards the top.—Found in open places, as in the marshy ground near Harwich, and on the west side of Braunton Burrows in the north of Devonshire. It is not very common; and flowers in June.

81. Carex Fulva. Lowest sheath about half the length of the peduncle, upper one nearly equal to it; female spikes two, oblong, acute; capsules acuminate-beaked; leaves upright, narrow, rough along the edges and keel, shorter than the culm, which is upright, slender, about a foot in height, three-sided, with the angles acute and rough.—Native of Newfoundland and America; and found at Eaton, near Shrewsbury. It flowers in June and July.

82. Carex Rigida; *Rigid-leaved Sedge.* Two-stiled; sheaths none; spikes oblong, subsessile; leaves somewhat recurved, rigid; root thick, creeping very much.—Observed on the top of Snowden, and on the summits of the highest mountains in Scotland.

83. Carex Strieta; *Stiff-leaved Sedge.* Two-styled: sheaths none; spikes subsessile, cylindric, acute; male one or two; leaves upright, stiff. The root creeps very much.—It grows in marshes, and flowers in April. Mr. Pitchford observed it near Norwich.

84. Carex Præcox; *Vernal Sedge.* Sheaths short, nearly equalling the peduncles; spikes approximating; males subclavate; females ovate; capsules roundish, pubescent; leaves dark green, slender, rough along the edges and keel, shorter than the culm, which is upright, from six to twelve inches high, three-sided, with the angles bluntish and smooth.—It is a very common plant, growing on most of our heaths, and in meadows; flowering in April and May.

85. Carex Depauperata. Sheaths more than half the length of the peduncles; female spikes remote, few-flowered; capsules ovate, inflated, acuminate-beaked. Stem upright, leafy, three-cornered, from a foot to eighteen inches high. It flowers in May and June, and was discovered by Dr. Goodenough in Charlton-wood; and by Mr. Dickson in dry woods, near Godalmin in Surrey.

86. Carex Elata. Male spikes two, females sessile; capsules ovate, with a very short undivided point. Leaves very long, two or three lines broad, the edges and nerve rough; culm three-cornered, three feet high.

87. Carex Pendula; *Pendulous Sedge.* Spikes cylindric, very long, pendulous; capsules ovate, acute, very much crowded; sheaths long, nearly equal to the peduncles. Leaves half an inch broad, thick, stiff, very dark green, somewhat

glaucous underneath.—It is not uncommon in woods and hedges; flowering in May and June.

88. Carex Strigosa; *Loose Sedge.* Spikes filiform, loose, recurved; sheaths long, nearly equalling the peduncle; capsules oblong, subtriquetrous, acute; leaves broad.—It grows in woods and hedges; as in Witham and Nokewoods, Oxfordshire; flowering from April to June.

89. Carex Sylvatica; *Wood Sedge.* Sheaths shorter than the peduncles; spikes filiform, loosely pendulous; capsules ovate, awned and beaked; root creeping, and throwing out from the joints. Its pendent spikes, the elliptic bend of its stem, and the pale yellow green of its leaves, render it one of the most elegant ornaments of our woods.—It flowers in May and June.

90. Carex Recurva; *Heath Sedge.* Spikes crowded, peduncled, cylindric, rather pendulous; male terminal; capsules imbricate, rather obtuse. Culms erect, three-cornered, with obsolete angles; leaves and stem sea-green.—Found in meadows, woods, and heaths; flowering in May and June.

91. Carex Juncea. Spikes very remote; male longer than the females, which are subsessile; capsules bifid, three-cornered, smooth; seed three-cornered. Culm a foot high; leaves scarcely two lines broad.

92. Carex Leptostachys. Spikes sexually distinct; males single; females peduncled, remote, pendulous, filiform; capsules remote, entire at the end.—Native of Germany.

93. Carex Chinensis. Spikes erect; male terminating; females peduncled, four; capsules acuminate.—This is a span high, and a native of China.

94. Carex Riparia; *Common Sedge.* Spikes oblong, acute; scales of the males lanceolate, those of the females acuminate and awned; capsules lanceolate-ovate, with two teeth at the point. This is the largest and most common of all the Sedges; its spikes, especially the lowermost of the female ones, frequently become branched; the capsules are large, somewhat inflated, pointed and slightly bifid at the extremity.—It flowers in April and May; and is common by the sides of ditches, lakes, and rivers. The glass-makers of Italy use the leaves to bind their wine-flasks; the chair-makers to bottom their chairs; and the coopers, in heading their casks, in the same manner as the stalks of the Scirpus Lacustris is used in England.

95. Carex Paludosa; *Sharp Sedge.* Spikes oblong, bluntish; scales of the males blunt, of the females lanceolate; capsules ovate-lanceolate, somewhat toothed at the tip. This plant, which is so very common with us, does not appear to have been noticed by Linneus.—It is found in marshes, and by the sides of ditches; flowering in May and June.

96. Carex Gracilis; *Slender-spiked Sedge.* Spikes filiform; flowers two-styled; mouth of the capsules very entire. The female flowers are always digynious.

97. Carex Ampullacea; *Bottle Sedge.* Spikes filiform; males more slender; females round, upright; capsules inflated, globose, awn-beaked, divaricate. Root creeping very much; leaves glaucous, upright, narrow, longer than the culm, rough on a great part of the edges and keel.—It grows in fens, and flowers in May. Near London it is not common, but may be found in abundance at Virginia Water.

Carica; a genus of the class Dioecia, order Decandria.—Generic Character. *Male. Calix:* scarce manifest; it has, however, five very short sharp teeth. *Corolla:* monopetalous, funnel-form; tube slender, very long, gradually slenderer downwards; border five-parted; divisions lanceolate-linear, obtuse, obliquely and spirally revolute. *Stamina:* filamenta ten, in the top of the tube of the corolla; the five alternate ones inferior; antheræ oblong, fixed to the filamenta on the inner side. *Hermaphrodite. Calix:* perianth very small, five-toothed, permanent; teeth ovate, acute, spreading. *Corolla:* five-parted; parts lanceolate, sharp, erect below the middle, but reflected and twisted above. *Stamina:* filamenta ten; five alternate shorter subulate, all united by a membrane at the base; antheræ ovate, erect, two-valved, fertile. *Germen:* ovate; style none; stigmas three or five, broad, flat, expanding, multifid; segments very short, blunt. *Pericarp:* berry very large, angulated with three or five furrows, uniloecular, fleshy. *Seeds:* numerous, ovate, green, very smooth, truncated, nestling in the middle of the berry. Essential Character. *Male, Calix:* very small, five-toothed. *Corolla:* five-parted, funnel-form. *Filamenta:* in the tube of the corolla, alternately shorter. *Hermaphrodite. Calix:* five-toothed. *Corolla:* five-parted. *Stigmas:* five. *Berry:* one-celled, many-seeded.—These plants, being natives of hot countries, will not thrive in England, unless they are preserved in a warm stove; where there are such conveniencies of proper height to contain the plants, they deserve a place as well as almost any of the plants which are cultivated for ornament: for when they are grown to a large size, their strong upright stems make a noble appearance, as they are garnished on every side near the top with large shining leaves, spreading out near three feet all round the stems; the flowers of the male sort come out in clusters on every side; and the fruit of the female growing round the stalks between the leaves, being so different from any thing of European production, may entitle them to the care of the curious. They are easily propagated by seeds, which are annually brought in plenty from the West Indies. These should be sown in a hot-bed early in the spring, that the plants may obtain strength before the autumn; when they become nearly two inches high, they should be each transplanted into a separate small pot, filled with a light gentle loamy soil, and plunged into a hot-bed of tanner's bark, carefully shading them from the sun till they have taken root; after which they must be treated in the same manner as other tender plants from the same country; but as they have soft herbaceous stalks, and abound with a milky juice, they must not have too much water, for they are frequently killed with moisture: there should also be great care taken, when these plants are shifted from small pots into larger, to preserve the whole ball of earth to their roots, for they rarely survive their being left bare. As they grow, they will require larger pots, and when they are too tall to remain under frames, they must be placed in the tan-bed of the bark-stove, where they should constantly remain; they must have but little water during the winter, and in the summer small quantities, but frequently repeated, should be given. In the West Indies these trees are easily propagated by layers as well as by seeds.—The species are,

1. Carica Papaya; *Common Papaw Tree.* Lobes of the leaves sinuated. It rises with a thick, soft, herbaceous stem, to the height of eighteen or twenty feet, naked till within two or three feet of the top, and having marks of the fallen leaves great part of its length; the leaves are on foot-stalks nearly two feet long, the lower ones nearly horizontal, the upper ones erect. The whole plant abounds with a milky acrid juice, which is esteemed good for the ringworm; the stem of the plant, and also the footstalks of the leaves, are hollow in the middle. The male flowers stand in loose clusters, are of a pure white, and have an agreeable odour; sometimes they are succeeded by small fruit, about the size and shape of a Catherine pear. The flowers of the female, or rather hermaphrodite Papaw, also come out between the leaves, toward

the upper part of the plant, upon very short peduncles, singly sitting close to the stem; they are large and bell-shaped, composed of six petals, which are commonly yellow, but those of the pyramidal sort are purple; when these fall away, the germen swells to a large fleshy fruit, the size of a small Melon, but of different forms; some are angular, and compressed at both ends, others are oval and globular, and some pyramidal; the fruit also abounds with the same acrid juice as the plants: this fruit, when ripe, is eaten like Melons, with pepper and sugar, by the inhabitants of the Carribbee Islands; but it is much inferior to our common Melon in flavour, even in its native country, and those which have ripened in England were detestable. The best use that can be made of this fruit is, to soak them in salt water till the milky juice is extracted, and then to pickle them for mangos; for which they have been esteemed a good substitute. Long informs us, that the flowers, buds, and tender footstalks of the hermaphrodite or female trees, are preserved as a sweetmeat, and the long mango Papaw, or fruit, as a pickle, which is little inferior to the East Indian mango: the rounder fruit is boiled when green, and eaten with any kind of flesh meat, being looked upon as perfectly wholesome; but when eaten raw, contains an acrid juice, which is very destructive to the intestines. The negroes suppose, that Papaw trees conduce to the purification of the air, and therefore plant them near their houses. The blossoms are extremely odoriferous, and the trunks so succulent and so quick of growth, that they probably assist to drain off a large portion of superfluous moisture from the soil where they are planted.—Native of both Indies, America, and the Philippine Islands.

2. Carica Posoposa; *Dwarf Papaw Tree.* Lobes of the leaves entire. This was found growing in a garden at Lima, by father Feuillée, who remarks, that it was the only plant of its kind that he had seen in his travels. Brown says, that it is frequent in some parts of Jamaica, and that it seldom rises above four or five feet in height. It differs from the first species in having a branching stalk, the lobes or divisions of the leaves being entire, and the fruit shaped like a pear. Feuillée says, that the fruits were of different sizes: that which he designed was about eight inches long, and three and a half thick, yellow within and without, and of a sweet flavour; the flower of a rose-colour, and only divided into five parts.—Native of Surinam and Peru.

Carissa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth very small, five-parted, acute, permanent. *Corolla:* monopetalous, funnel-form; tuoe cylindrical, bellying at the mouth, longer than the border; border five-parted, flat; divisions oblong. *Stamina:* filamenta five, very short, in the top of the tube: antheræ oblong within the mouth. *Pistil:* germen roundish; style filiform, length of the stamina, stigma rather simple. *Pericarp:* berries two-celled, oblong, bilocular. *Seeds:* seven or eight, oval, compressed. Essential Character. *Coroila:* contorted. *Berries:* two-celled, many-seeded. ——The species are,

1. Carissa Carandas. Leaves elliptic, obtuse. A small tree, about six feet in height, with dichotomous branches; flowers like those of Jessamine; berry when ripe, black, and of a sweet acid flavour. The fruit is universally eaten by the natives, and is grateful even to the taste of an European. —Native of the East Indies.

2. Carissa Spinarum. Leaves ovate, acute. A tree with branches, first trichotomous then dichotomous, horizontal. —Native of the East Indies and Japan.

Carlina; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common ventricose, radiated, imbricated; scales numerous, loose, acute, of which the interior ones are disposed in a circle, very long, expanding, glossy, coloured, radiating the compound flower. *Corolla:* compound uniform, tubular; corollets hermaphrodite, equal; the proper one monopetalous, funnel-form; tube slender; border five-cleft. *Stamina:* filamenta five, capillary very short; antheræ cylindric, tubular. *Pistil:* germen short; style filiform, length of the stamina; stigma oblong, bifid or entire. *Pericarp:* none. *Calix:* remaining unchanged. *Seeds:* solitary, somewhat rounded; down plumose, branched, sessile. *Receptacle:* flat; chaffs ternate, cleft. Essential Character. *Calix:* radiated with long, coloured, marginal scales.—The plants of this genus may all be propagated by sowing their seeds in the spring, on a bed of fresh undunged earth, where they are to remain; for, as they send forth tap roots, they will not bear transplanting so well as most other plants. When they appear above ground, they should be carefully weeded, and, as they grow in size, thinned where they are too close, leaving them about ten inches or a foot asunder. The greatest part of them will flower in the second year; but unless the summer prove dry, they rarely produce good seeds in England, and most of them decay soon after they have flowered; and hence it is rather difficult to preserve a succession of them in this country.——The species are,

1. Carlina Acaulis; *Low Carline Thistle.* Stem one-flowered, shorter than the flower. Root an inch thick, black, woody, having an acrid penetrating smell, and a bitter aromatic taste; flower usually one, but sometimes more, three inches in diameter when expanded, for it closes during the night and in rainy weather; rays white, shining; floscules greenish yellow, with purple toothlets.--Native of Switzerland, Germany, Carniola, Italy, and south of France. Perennial. The receptacle and upper part of the root are eaten when tender; but the root of the adult plant becomes acrimonious, and is recommended as an alexipharmic. It contains an acrid resinous principle, by which it stimulates the solids, dissolves the humours, and promotes perspiration. The dose of the dried root is from one to two drachms; when fresh, from two drachms to half an ounce; but it is more frequently given in decoction, than in substance.

2. Carlina Lanata; *Woolly Carline Thistle.* Stem bifid; calices blood-red, terminal, the first axillary, sessile. When out of flower, it puts off the wool. The juice is blood-red: the true scales of the calix are all terminated by a very simple spine, but in the rest the spines are compound; ray purple on both sides. Annual; and a native of the south of France, and Italy.

3. Carlina Corymbosa; *Corymbed Carline Thistle.* Stem many-flowered, subdivided; flowers sessile; ray of the calices yellow. Stem purplish at top, scarcely pubescent; the leaves even, next the flowers subpinnatifid: ray yellow, on the outside and at the base only purplish. Native of the south of France, and Italy.

4. Carlina Vulgaris; *Common Carline Thistle.* Stem many-flowered, corymbed; flowers terminal; ray of the calices white or yellowish. Root long, fusiform, with a few stiff fibres; stem twelve to fifteen inches high, swelling just above the root, round, ribbed, purple, slightly downy, subumbelled at top; the chaffs of the receptacle are longer than the florets; the flowers expand in dry, and close in moist weather, which property they retain for a long time.—It indicates very barren soil, and is found in dry pastures all over Europe, and is biennial; flowering from June to September. It is serviceable in hysterical and other nervous complaints, and being of a diuretic nature, may be useful in the beginning of

dropsies. The powder of the dried root is said to kill worms, remove obstructions of the menses, and prove serviceable in defluxions on the lungs, or other parts of the body; but though it be not altogether destitute of virtues, more are evidently attributed to it than it really deserves.

5. Carlina Racemosa; *Racemed Carline Thistle.* Flowers sessile, lateral, very few. The leaves have three nerves; the two side-ones run distinctly from the base to the middle, and then unite with the other; in each, small nerves run parallel across, from the principal to the side-nerves.—Native of a dry soil in Spain and Provence.

6. Carlina Pyrenaica; *Pyrenean Carline Thistle.* Stem many-flowered; leaves decurrent, runcinated. Leaves tomentose on both sides; the pinnas hastate-toothed, with a yellowish spine at each apex.—Native of the Pyrenees towards Spain.

7. Carlina Xeranthemoides. Shrubby, branching, tomentose: leaves linear, subulate; serratures spinescent; panicle terminal; ray yellow. A handsome shrub; stem round, covered with wool pressed close; leaves scattered, not decurrent, terminating in a spine; upper surface green, smooth, lower white with wool.—Observed by Masson in Barancas about Chasna.

8. Carlina Atractyloides. Stem branching; calices with ciliate spines.—Native of the Cape of Good Hope.

9. Carlina Acanthifolia. Stemless: leaves sinuate, pinnatifid, tomentose; divisions half two-lobed, pungent; flower large, sessile, with white-coloured scales; bractes lanceolate having ternate diverging spines placed in a pinnate order, the middle one longer and stronger before the flower opens: these bractes represent a beautifully netted hemisphere, and when this is open they are reflected. This is the species, the receptacle of which is eaten, either as the artichoke, or preserved with honey and sugar.—Native of mountains of the Vaudois, and other high alps.

Carnation. See *Dianthus.*

Carob-tree. See *Ceratonia.*

Carolinea; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth one-leafed, bell-form, truncate, quite entire, very short, deciduous. *Corolla:* petals five, ensiform, very long, somewhat erect. *Stamina:* monadelphous; filamenta very numerous, connate at the base, filiform, very long; antheræ oblongish, erect. *Pistil:* germen inferior, oblong, cylindric; style filiform, the length of the stamina; stigma simple. *Pericarp:* pome ovate, five-grooved, two-celled. *Seeds:* twin, one above the other, ovate, gibbous, flattish within. Essential Character. Monogynous. *Calix:* simple, tubular, truncate. *Petals:* ensiform. *Pome:* five-grooved, two-celled.—The plants of this genus may be propagated by seeds or by cuttings, in a light loamy soil, plunged in the bark-stove, and watered moderately in summer, but sparingly in winter.——The species are,

1. Carolinea Princeps. Leaflets about five, ovate-lanceolate. It is a large thornless tree; leaves alternate, petioled, digitate; leaflets three or five, broad lanceolate, subpetioled, quite entire; stipules two, short, caducous; flowers solitary, axillary, sessile, very large and beautiful; petals yellow; filamenta red; antheræ purple. The fruit has the appearance of that of the Chocolate, (*Theobroma*) torulose and obovate, with seeds like almonds; the cotyledons plaited. The seeds are eatable, but are very flatulent when taken raw in any considerable quantity.—Native of Guiana, in salts by the banks of rivers.

2. Carolinea Insignis. Leaflets about seven, ovate-oblong.—Native of Tobago, and Vera Cruz.

Caroxylon; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth two-leaved, suborbiculate, rude, concave within, keeled on the outside, very thin at the edge, erect, shorter than the corolla. *Corolla:* one-petalled, five-parted; tube none; border segments obtuse, broad, roundish, concave, curled, membranous, expanding, yellowish or dusky purple; nectary scales five, inserted into the middle of the corolla, somewhat narrower and shorter, and connate with it at bottom; they are placed on the converging fruit, are ovate, sharpish, concave, membranous, yellowish with a greenish base. *Stamina:* filamenta five, inserted into the side of the germen, shorter than the corolla, white, capillary; antheræ very small. *Pistil:* germen superior, conic; smooth; style simple, shorter than the corolla, erect, white; stigmas two, revolute, whitish, seldom simple. *Pericarp:* none. *Seed:* one, depressed, round, green; spiral, clothed with a very thin membrane, covered with the permanent filamenta and nectary. Essential Character. *Corolla:* five-petalled. *Nectary:* five-leaved, converging, inserted into the corolla. *Seed:* clothed.—The only known species is,

1. Caroxylon Salsola. Root perennial; stem arboreseent, erect, very branching, naked; branches scattered, stiff, flexuose, spreading, subdivided. The Africans make soap with the ashes of this plant and mutton suet.

Carpesium; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common imbricate; the exterior leaflets larger, spreading, reflex; the interior ones equal, close, shorter. *Corolla:* compound equal; corollets hermaphrodite in the disk, female in the circumference; the proper one in the hermaphrodites funnel-form, border quinquefid, spreading; in the females tubular, quinquefid, converging. *Stamina:* in the hermaphrodites five, short; antheræ cylindric. *Pistil:* in the hermaphrodites, germen oblong; style simple; stigma bifid: in the females very similar to the hermaphrodites. *Pericarp:* none. *Calix:* unchanged. *Seeds:* in the hermaphrodites obovate, naked; in the females very similar to the hermaphrodites. *Receptacle:* naked. Essential Character. *Calix:* imbricate; the outer scales reflex. *Down:* none; receptacle naked.——The species are,

1. Carpesium Cernuum; *Drooping Carpesium.* Flowers terminal. Root perennial; stem leafy, erect, from one to two feet high, round, striated, hirsute, branched at top. According to Miller, it is a biennial plant; flowering in July, and ripening the seeds in September.—Native of the south of France, Italy, Carniola, Austria, Switzerland, and Japan. The seeds must be sown upon a bed of light earth in the spring; and when the plants come up, if they be thinned and kept clean from weeds, they will require no other culture. The second year they will flower and produce seeds; soon after which the plants decay.

2. Carpesium Abrotanoides. Flowers lateral. Stems branching, hardish; leaves alternate, seeds oblong, naked, smooth, smeared with a kind of balsam.—Native of China and Japan. The seed should be sown on a hot-bed in the spring, and when the plants are fit to remove, they should be each planted in a single pot; and when the weather becomes warm, they may be exposed, but in autumn they must be housed.

Carpinus; a genus of the class Monœcia, order Polyandria.—Generic Character. *Male flowers,* disposed in a cylindric ament. *Calix:* ament common on all sides, loosely imbricate, consisting of scales, ovate, concave, acute, ciliate, uniflorous. *Corolla:* none. *Stamina:* filamenta generally ten, very small; antheræ didymous, compressed, villose at the tip, bivalve. Female flowers, disposed in a long ament upon the same plant. *Calix:* ament common, loosely imbricate, consisting of lanceolate scales, which are villose,

reflected at the tip, uniflorous. *Corolla:* caliciform, monophyllous six-cleft; two of the divisions larger than the rest. *Pistil:* germina two, very short, two styles on each, capillary, coloured, long; stigmas simple. *Pericarp:* none; ament becoming very large, concealing the seed at the base of each scale. *Seed:* nut ovate, angular. Essential Character. *Calix:* one-leafed, with a ciliate scar. *Corolla:* none. *Male.* Stamina twenty. *Female.* Germina two, with two styles on each; nut ovate.——The species are,

1. Carpinus Betulus; *Horn-beam, Hard-beam, Horse-beech, Horn-beech, Wych-hasel.* Scales of the strobiles flat. Leaves ovate, acuminate, sharply serrate, strongly nerved, bright green, smooth, three inches or more in length, and nearly two in breadth, on round petioles which are slightly pubescent, half an inch in length, and having ovate red glandules at their base; they begin to open about the end of March, and are usually quite out by the middle of April: the flowers are in full blow towards the end of the same month. The Horn-beam is very common in many parts of England, but is rarely suffered to grow as a timber tree, being generally reduced to pollards by the country people; yet, where the young trees have been properly treated, they have grown to a large size. Mr. Miller says, "I have seen some of them in woods upon a cold stiff clay, which have been nearly twenty feet high, with large noble fine stems, perfectly straight and sound." The Eastern Hornbeam, which is a variety of this species, rarely rises above ten or twelve feet high.—As the common Hornbeam will thrive upon cold barren exposed hills, and in such situations where few other sorts will grow, the proprietors of such lands may cultivate it to great advantage: it will resist the violence of winds better than most other trees, and is by no means slow of growth. Those which are propagated for timber, should be raised from seeds upon the very spot where they are designed to be hewn down, and not brought from better soils and warmer situations, as is often the case: they should not be propagated by layers, according to the common method, when they are merely intended for hedges and underwood; which answers well enough for those purposes, but ought not to be preferred in raising timber trees. The seeds should be sown in autumn soon after they are ripe, for if they be kept out of the ground until the spring, the plants will not come up till the following year. When the plants appear, they must be kept clean from weeds, and treated as other forest trees: they will be fit to transplant in two years' time; for, like all timber trees, if they are at all transplanted, the sooner it is done the larger they will grow, and the more durable and firm will their wood become; and hence, as above stated, they ought if possible to be planted at first where they are always to remain. If these trees be not intermixed with others, they should be planted pretty close, especially on the outside of the plantations, that they may protect and draw each other up: and if they be kept clean from weeds three or four years, it will greatly promote their growth; after that they will have obtained sufficient strength to keep down the weeds themselves. For a wood of Hornbeam, Mr. Hanbury recommends to prepare the ground by a crop of Oats, Barley, or Turnips, to plough very deep when these are off, to harrow well, and just before planting to cross-plough and harrow as before. To plant from the seminary at two years old, in four-feet rows, at two feet distance in the rows. When they are too thick, to remove every other tree, and to thin them afterwards as often as their heads touch. Where hares and rabbits cannot be kept out, the plants must continue in the nursery, till their leading shoots are out of reach. As the trees advance in growth, they must be thinned with caution, cutting away the most unpromising plants gradually, so as not to let in too much cold at once, especially on the borders of the plantations. The timber of this tree is very tough and flexible, and might be converted to many useful purposes, if it were suffered to grow to a proper size; but as this is not allowed, the principal uses it is applied to is for turnery ware, for which it is an excellent wood; for mill-cogs, heads of beetles, stocks, and handles of tools, and yokes: it is also excellent for fuel. As the leaves remain till the young buds in the spring thrust them off, so they afford much shelter for birds in winter; this also renders them very proper to plant round the borders of other plantations in exposed situations, to defend and promote the growth of more tender trees: it also preserves itself well from the bruttings of deer, so that the clumps of this tree are proper in parks both for beauty and shelter. There is a variety with striped leaves, which is propagated by budding on the common sort, but the colours are neither strong nor lively.

2. Carpinus Ostrya; *Hop Horn-beam.* Scales of the strobiles inflated. This in general habit resembles the first species, but is smaller.—Native of Italy and Germany.

3. Carpinus Virginiana; *Flowering Horn-beam.* Leaves lanceolate-acuminate; strobiles very long. About 30 feet high, and of quicker growth than the former.—Native of Virginia and Canada.

4. Carpinus Duinensis. Scales subcordate, doubly toothed; female ament ovate. This is about two fathoms high.—Native of Carniola.

Carpodetus; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth turbinate, fastened to the germen, five-toothed; teeth subulate, deciduous. *Corolla:* petals five, ovate, small, inserted into the margin of the calix. *Stamina:* filamenta five, subulate, short, inserted into the margin of the calix; antheræ roundish. *Pistil:* germen inferior; style filiform, longer than the stamina; stigma flat-headed. *Pericarp:* berry dry, globular, surrounded with the margin of the calix, fastened to it like a ring, five-celled. *Seeds:* a few, slightly angular. Essential Character. *Calix:* five-toothed, fastened to the germen. *Corolla:* five-petalled. *Stigma:* flat-headed. *Berry:* globular, five-celled.——The only species known is,

1. Carpodetus Serratus.—Native of New Zealand.

Carrot. See *Daucus.*

Carrot Candy. See *Athamanta.*

Carthamus; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common ovate, imbricate; scales numerous, contracted below, increased at the tip by a foliaceous appendicle, which is subovate, flat, spreading, obtuse. *Corolla:* compound uniform, tubular; corollets hermaphrodite, equal; the proper one monopetalous, funnel-form; border five-parted, erect, subequal. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen very short; style filiform, longer than the stamina; stigma simple; pericarp none. *Calix:* converging. *Seeds:* solitary. *Receptacle:* flat, pilose, hairs longer than the seed. Essential Character. *Calix:* ovate imbricate with scales, which at the end are subovate-foliaceous.——The species are,

1. Carthamus Tinctorius; *Officinal Bastard Saffron,* or *Safflower.* Leaves ovate, entire, serrate-aculeate. This is an annual plant, which rises with a stiff ligneous stalk, two feet and a half or three feet high, dividing upwards into many branches, with ovate pointed sessile leaves. The flowers grow single at the extremity of each branch; the heads are large, inclosed in a scaly calix, the lower part of the calix spreads open, but the scales above closely embrace

brace the florets, which stand out nearly an inch above the culix; these are of a fine saffron colour: when the florets decay, the germina become oblong angular seeds, of a white colour, and having a pretty strong shell or cover to them. It flowers in July and August, and the seeds ripen in autumn; but, if the season prove cold and moist when the plant is in flower, it will produce no good seed, so that there are few seasons wherein the seeds of this plant come to perfection in England. It grows naturally in Egypt, and in some of the warm parts of Asia. Mr. Miller informs us, that he has frequently received the seeds from the British islands in America, but, whether they naturally grew there or not, he was never positively informed.—This plant was formerly cultivated in the fields in several parts of England for the dyer's use, and particularly in Gloucestershire, where the common people frequently gathered the florets and dried them, to give a colour to their puddings and cheesecakes; but by employing too great a quantity, they acquired a cathartic quality. If this plant were ever cultivated among us in large quantities, it is surprising how it came to be so totally neglected, that at present there are not the least traces of its cultivation to be met with in any part of England, insomuch that the commodity is scarcely known, except to those who deal in it. The quantity annually consumed in England is so great as to make it a considerable article of trade, so that it might be well worthy of public attention; for although the seeds seldom come to perfection in England, yet these might be procured from abroad, and the plants would constantly produce the flower, which is the only part used in dyeing. This plant is cultivated in great plenty in some parts of Germany, where the seeds constantly come to perfection; and a short account of their method of cultivation, by a curious gentleman of that country, is here inserted, for the benefit of those who may be induced to engage in cultivating it. The ground in which they purpose to sow, has always a double fallow given to it, first to destroy the weeds, and afterwards to make it fine: they make choice of their lightest land, and such as is clear from Couch-grass and other troublesome weeds. After the land has been fallowed a summer and winter, in which time they give it four ploughings, and harrow it between each, to break the clods and pulverize it: in the latter end of March, they give it the last ploughing, when they lay it in narrow furrows of about five feet or a little more, leaving a space of two feet between each; then they harrow these lands to make them level, and after it is finished they sow the seeds in the following manner: With a small plough, they draw four shallow furrows in each land, at near a foot and half distance, into which they scatter the seed thinly, then with a harrow, the teeth of which are little more than one inch long, they draw the earth into the drills to cover the seeds; after this they draw a roller over the ground, to smooth and settle it: when the plants are come up so as to be distinguished, they hoe the ground, to destroy the weeds; and at this operation, where the plants happen to be close, they cut up the least promising, leaving them all single, at the distance of three or four inches, which they always suppose will be sufficient room for their growth, till the second time of hoeing, which must be performed in about five weeks after the first, in which they are guided by the growth of the weeds; for as this work is performed with a Dutch hoe, so they never suffer the weeds to grow to any size before they cut them; in which they judge right, for when the weeds are small, one man will hoe as much ground in a day, as can be performed by three when they are permitted to grow large, and the weeds will also be more effectually destroyed: they give a third hoeing to the plants about five or six weeks after the second, which generally makes the ground so clean, as to require no further clearing until the Carthamus is pulled up. When the plants begin to flower, and have thrust out their florets or thrum to a proper length, they go over the ground once a week, to gather it; and as it is from time to time gathered, it is dried in a kiln for use; there is usually a succession of flowers for six or seven weeks. After the crop is gathered, the stalks are pulled, and tied in bundles for fuel; and after they have been set up a few days to dry, they are carried off, and the ground is ploughed for wheat, which they say always succeeds well after this plant.—The following is the method pursued in cultivating the Carthamus in British gardens: The seeds are sown in April, upon a bed of light earth, in drills drawn at two feet and a half distance from each other; the seeds are thinly scattered, as the plants must not stand nearer to each other than a foot in the rows; but, as some of the seeds will fail, a sufficient quantity to admit of thinning when the ground is hoed, should be sown. If the seed be good, the plants will appear in less than a month; and in a fortnight or three weeks after they appear, it will be proper to hoe the ground to destroy the weeds, and at the same time thin the plants wherever they may be too close; but at this time they should not be separated to their full distance, lest some of them should afterwards fail; if removed six inches asunder, there will be room enough for the plants to grow till the next time of hoeing, when they must be thinned to the distance they are finally to remain: after this they should have a third hoeing, which, if carefully performed in dry weather, will destroy the weeds and make the ground clean, so that the plants will require no further care till they come to flower; when, if the Saffower is intended for use, the florets should be cut off from the flowers as they come to perfection; but this must be performed when they are perfectly dry, and afterwards they should be dried in a kiln, with a moderate fire, in the same manner as the true Saffron, which will prepare them for use. If the plants be intended to seed, the plants should not be gathered; for if the florets be cut off, it will render the seeds abortive, though they may swell and grow to their usual size, for when they are broken they will prove to be a shell without a kernel; this is frequently the case in wet cold seasons; and in very wet ones the germen will rot, and never come so forward as to form a shell. The good quality of the Carthamus consists chiefly in the colour, which should be a bright saffron, in which that cultivated in England often fails. Great care must be taken not to gather it till the dew is dried off, nor should it be pressed together till it has been dried on the kiln; for which, see the genus *Crocus*. Great quantities of this plant are annually imported from England for dyeing and painting, from the Levant, where, as well as in many parts of Europe, it is at present cultivated. The Spaniards retain this plant in their gardens, to colour their soups, olios, and other dishes, in the same manner as the Marigold in England. The Jews also are very partial to it, and mix it in most of their viands, and probably were the first importers of the seed into America, and taught the inhabitants the use of it, for it is now as commonly used by the English there as in any part of Europe. The plant itself may be admitted to have a place in the borders of large gardens, where it will add to the variety during the time of its continuance in flower, which is commonly two months or ten weeks.

2. Carthamus Lanatus; *Yellow Distaff Thistle*, or *Woolly Carthamus*. Stem hairy, woolly towards the top; lower leaves pinnatifid, upper stem-clasping, toothed. The florets are first golden, then saffron-coloured, with the edges of the

segments black, and five black lines running down the corolla.—It grows naturally in the south of France, Spain, and Italy, where the women use the stalks for distaffs, whence it derived the title of Distaff Thistle; some call it Bastard Wild Saffron. The leaves are rather bitter, and are sometimes prescribed as a medicine, and are supposed to have the same virtues as Carduus Benedictus. It flowers in June and July, and ripens seed in autumn.—If the seeds be sown in autumn, the plants will flower early the following summer, so that there will be a certainty of good seeds: they may be sown in any situation, and require no other culture but weeding and thinning when too close together. There is a variety of this species, which grows much taller; the heads also are larger, and the leaves are placed closer upon the stalks. It was found by Tournefort in the Levant.

3. Carthamus Creticus; *Cretan Carthamus.* Stem somewhat glossy; calices a little woolly; floscules about nine; lower leaves lyrate. This is an annual plant, growing nearly four feet high; it differs from the foregoing in having a smooth stalk: the leaves are very stiff, deeply indented, smooth, and armed with very strong spines; the heads of flowers are oval, and the florets white.—Discovered in Candia by Tournefort. Cultivated in the same manner as the preceding species; which see.

4. Carthamus Tingitanus; *Tangier Carthamus.* Radical leaves pinnate; stem-leaves pinnatifid; stem one-flowered. This species has a perennial root; the stalks rise about a foot and a half high, seldom putting out any branches; the stalk is terminated by one large scaly head of blue flowers.—It is a native of Barbary, and was brought from Tangier: it is increased by parting the roots, the best time for which is in the beginning of March; it should have a dry soil and a warm situation, otherwise it will be liable to be destroyed in severe winters.

5. Carthamus Cœruleus; *Blue-flowered Carthamus,* or *Bastard Saffron.* Leaves lanceolate, spiny, toothed; stem one or two flowered. This rises with a single stalk about two feet high, of a purplish colour, hairy, and channelled, closely beset with broad spear-shaped leaves, sharply serrate, and covered with a short hairy down; flowers blue; outer calix-scales broad, long, with a sharp spine on their edges; inner ones narrow, terminated with a sharp thorn: it flowers in June and July, and the seeds ripen in autumn. It grows naturally in Spain, France, and Italy, on arable land. It may be increased by parting the roots in autumn when the leaves decay: in a light soil it will survive the cold of our winters, and last many years; it may also be propagated by seed.

6. Carthamus Mitissimus; *Small Carthamus.* Leaves unarmed, those next the root toothed, on the stem pinnate. Root-leaves, some lanceolate, dilated at the end, and very smooth, from the middle to the end toothed, the teeth turned upwards, sharp, ending in a small thorn, others pinnatifid; flower bright blue.—Found about Paris and Montpellier.

7. Carthamus Carduncellus; *Mountain Carthamus.* Stem-leaves linear, pinnate, the length of the plant; root perennial; stem, in gardens, about six inches high, channelled and hairy; each stalk is terminated by one large head of blue flowers.—Native of the south of France, Spain, and Italy. The root is eaten in Africa. It is difficult to propagate this species in England, the roots not putting out offsets, and the seeds ripening only in warm dry seasons; it requires a dry soil and warm situation.

8. Carthamus Arborescens; *Tree Carthamus.* Leaves ensiform, sinuate-toothed. The whole plant is pubescent; stem firm, the height of a man, evergreen; leaves a foot long, pinnatifid-sinuate, toothed, mostly spinous at the end; flowers terminal, sessile, yellow, sweet-smelling; down hairy.—Native of Andalusia. It is increased by the side-shoots slipped from the branches in the spring, and planted in pots filled with light sandy earth, which are to be plunged into a moderate hot-bed, observing to shade them till they have taken root; they then must be gradually hardened, and removed into the open air, and when they have acquired strength, some may be planted in a warm dry border, where they will endure the cold of our ordinary winters.

9. Carthamus Salicifolius; *Willow-leaved Carthamus.* Shrubby: petioles spiny; leaves lanceolate, entire, tomentose beneath, pungent at the end; branches one-flowered; florets white.—Native of Madeira.

10. Carthamus Corymbosus; *Corymbed Carthamus.* Flowers corymbed, numerous. Root perennial; stem single, white, smooth, and channelled, never putting out any side-branches; leaves long, narrow, pale green, closely armed on their edges with short stiff spines, which come out double; stems terminated by single, oval, scaly heads of white flowers, each scale ending with a purplish spike.—Native of Apulia, the Hellespont, Lemnos, and Thrace. It seldom perfects seeds in England, and is increased by parting the roots in the spring; and in a light soil and warm situation it will endure common winters in the open air, but in severe frost it is sometimes destroyed.

Carum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal long; rays ten, frequently unequal; umbel partial, crowded; involucre universal, often monophyllous; partial none; perianth scarcely manifest. *Corolla:* universal uniform; florets of the disk abortive; proper unequal; petals five, unequal, obtuse, carinated, inflex-emarginate. *Stamina:* filamenta five, capillary, length of the corolla, caducous; antheræ roundish, very small. *Pistil:* germen inferior; styles two, very small; stigmas simple. *Pericarp:* none; fruit ovate-oblong, striated, bipartile. *Seeds:* two, convex on one side, ovate-oblong, striated, flat on the other side. Essential Character. *Fruit:* ovate-oblong, striated. *Involucre:* one-leafed. *Petals:* keeled, inflex-emarginate.——The only known species is,

1. Carum Carui; *Common Caraway.* It is a biennial plant, has a taper root like a Parsnip, but much smaller, running deep into the ground, sending out many small fibres, and having a strong aromatic taste.—It grows naturally in rich meadows, in Lincolnshire, in Yorkshire near Hull, in Norfolk, near Cambridge, Bury, &c. and is cultivated in some counties, particularly in Essex: it flowers in May and June, and the seeds ripen in autumn. Parkinson says, the young roots are better eating than Parsnips: the tender leaves in the spring are boiled in soup. The seeds, it is well known, are much used in cakes, and incrusted with sugar for comfits; they are also distilled with spirituous liquors for their flavour: they were formerly recommended by Dioscorides for pale-faced girls; and it is said, that modern ladies have not despised his recommendation: they are a good remedy in tertian agues, and abound with an essential oil which is antispasmodic and carminative. Lewis says, that about one ounce in thirty of essential oil arises from the seeds in distillation: this oil is of a bright yellow colour, hotter, and more pungent to the taste, than what is obtained from most other warm seeds, and is given from one to five drops as a carminative, and is supposed to be of peculiar efficacy in promoting urine: the herb affords a similar oil, but sixteen pounds of it, stripped from the stalks, scarcely yield an ounce. The seeds are the part commonly employed in medicine; they are of an agreeable aromatic smell, and a

warm pungent taste: given in substance from a scruple to half a drachm, they dispel wind from the stomach, and greatly strengthen that organ: the seeds bruised, and made into a poultice, will remove the marks occasioned by blows, falls, or bruises; and are good in hysteric fits. The best season for sowing the seeds of Caraway is in autumn, soon after they are ripe, when they will more certainly grow than those sown in the spring; and the plants which rise in the autumn generally flower the following season, so that a summer's growth is hereby saved: when the plants come up, the ground should be hoed to destroy the weeds, and where the plants are too close they must be thinned, in the same manner as is practised for Carrots, leaving them three or four inches apart: in the following spring they will require to be twice more hoed, which will keep the ground clean till the seeds are ripe, then the stalks must be pulled up and tied in bundles, setting them upright to dry, when the seeds may be threshed out for use. The method of culture in Essex, where it has long been cultivated, is, about the beginning of March to plough some old pasture land; (if it have been pasture for a century, the better, especially if the soil be a strong clayey loam) twelve pounds of Carraway seeds are mixed with ten of Coriander, and twelve pounds of Teasel seed; this is sufficient for one acre, and is sown directly after the plough, harrowing the land well: when the plants appear of sufficient strength to bear the hoe, which will not be till about ten weeks after sowing, it must not be omitted; and in the course of the summer the crop will require three hoeings, besides one at Michaelmas, each costing about eight shillings an acre. The Coriander being annual, will be fit to cut about the beginning of July, and is reaped at four shillings the acre; it is left in the field after cutting, and threshed by the day on a cloth, in the same manner as rape seed. About April following, the Caraway and Teasel will want a good hoeing, done deep and well, and another about the beginning of June, which hoeings are performed at the rate of seven shillings each per acre: the Caraway will be fit to cut the beginning of July, and must be threshed in the same manner as the Coriander. The Teasel will not be ready till the middle of September. Some of the plants of Caraway and Teasel do not perfect their seeds till the third or fourth year, though in general there is a crop the second year, yet enough is left for a crop the third year; and the seeds that are scattered from the crop the second year, often come to perfection in the fourth; and there are several instances of its being continued for seven years: the usual way, however, is to plough directly after the crop is gathered the third year, and to sow Wheat, of which commonly a very good crop is obtained, the land being in fine order from the rotting of the turf, and repeated hoeings. The produce of Caraway on the very rich old lays, in the hundreds or low lands of Essex, has often been twenty hundred-weight to an acre. There is always a demand for the seed in the London market, where it sometimes sells as low as twelve shillings the hundred-weight, and has been up to fifty shillings, but is mostly on an average at twenty-one shillings. The land can only be filled with plants; and the more one predominates, the less must reasonably be expected of the others. This compound crop is mostly sown on land so strong, as to require a little previous exhaustion to prepare it for corn. Caraway and Coriander are oftenest sown without Teasel, the latter being a troublesome and uncertain crop, and the produce of Caraway much greater without it.

Caryocar; a genus of the class Polyandria, order Tetragynia.—Generic Character. *Calix:* perianth quinquepartite, coloured; divisions obtuse, concave, deciduous. *Corolla:* petals five, oval, concave, large. *Stamina:* filamenta numerous, filiform; antheræ oblong. *Pistil:* germen globose; styles four; stigmas obtuse. *Pericarp:* drupe fleshy, spherical, very large. *Seed:* nuts one to four, oval-triquetrous, reticulated with furrows, angulated with a suture on one side. Essential Character. *Calix:* five-parted. *Petals:* five. *Styles:* usually four. *Drupe:* with four nuts, reticulated with furrows.——The only known species is,

1. Caryocar Nuciferum. A tall tree, with ternate leaves; calix and corolla purple; drupe the size of the human head; nuts esculent, having the taste of almonds.—Native of Berbice and Essequibo.

Caryophyllus; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth of the fruit superior, quadripartite, acute, small, permanent; perianth of the flower superior, tetraphyllous; leaflets roundish, concave, deciduous. *Corolla:* petals four, roundish, crenate, smaller than the calix of the flower. *Stamina:* filamenta numerous, capillary; antheræ simple. *Pistil:* germen inferior, oblong, large, terminating in the calix of the fruit; style simple, inserted into the quadrangular receptacle; stigma simple. *Pericarp:* oval, unilocular, terminated by the hardened converging calix of the fruit, umbilicate. *Seed:* single, oval, large. Essential Character. *Calix:* four-leaved, duplicate. *Corolla:* four-petalled. *Berry:* one-seeded, inferior.——The only known species is,

1. Caryophyllus Aromaticus; *Clove Tree.* According to Mr. Miller, this tree rises to the height of a common Apple-tree, but the trunk generally divides at about four or five feet from the ground, into three or four large limbs, which grow erect, and are covered with a smooth thin bark, which adheres closely to the wood; these limbs divide into many small branches, which form a sort of conical figure: the leaves are like those of the Bay-tree, and are placed opposite on the branches. The flowers are produced in loose bunches at the end of the branches; are small, white, and have a great number of stamina, which are much longer than the petals; they are succeeded by oval berries, which are crowned with the calix, divided into four parts, and spreading flat on the top of the fruit; which, when beaten from the trees before it is half grown, is the Clove so commonly used all over Europe.—The Clove-tree is not confined to Banda and Amboyna, but is found in all the Moluccas, in many of the South Sea islands, New Guinea, and the neighbouring isles: it also grows wild in Cochin-china, where it has scarcely any smell or taste. There are no plants of this remarkable tree in either the English or Dutch gardens; indeed the Dutch have ever been particularly jealous lest other nations should share the spice-trade with them, and will not suffer them to grow wild any where if they can prevent it. Captain Rofy told Dampier, that he was sent to the uninhabited islands on purpose to cut them down, and that he actually destroyed seven or eight hundred trees at different times. But notwithstanding the unremitting caution and watchfulness of Dutch avarice, the French, at Cayenne and elsewhere, have had this valuable tree for some time in their possession. It has been received into the British botanic garden in the island of St. Vincent, and was sent thence to Barbadoes in 1794.—The Clove is esteemed one of the hottest and most acrid substances of the aromatic class; and is often used, not only internally but externally, as a stimulant; as, for example, in paralytic cases, wherein the oil of Cloves has been advantageously administered. It is often used in the tooth-ache, and frequently succeeds in suddenly subduing the pain. A tincture of Cloves in rectified spirits, and an essential oil extracted from them, are kept in the shops, but the latter is

not often unsophisticated. The culinary uses of Cloves are almost innumerable.

Caryota; a genus of the class Monœcia, order Polyandria. —Generic Character. *Male Flowers. Calix:* spathe universal, compound; spadix ramose. *Corolla:* tripartite; petals lanceolate, concave. *Stamina:* filamenta very numerous, almost longer than the corolla; antheræ linear. *Female Flowers*, in the same spadix with the males. *Calix:* common with the males. *Corolla:* tripartite; petals acuminate, very small. *Pistil:* germen roundish; style acuminate; stigma simple. *Pericarp:* berry roundish, unilocular. *Seeds:* two, large, oblong, roundish on one side, flat on the other. Essential Character. *Male. Calix:* common. *Corolla:* tripartite. *Stamina:* very many. *Female. Calix:* as in the male. *Corolla:* tripartite. *Pistil:* one. *Berry:* dispermous. ——The species are,

1. Caryota Urens; *Burning Caryota.* Fronds bipinnate; leaflets sessile; berry two-seeded. This palm becomes a lofty tree; the trunk is frequently so large as scarcely to be embraced by two men: it is covered with a sort of cinereous crust, which is quite smooth; leaves or fronds large, forming an ample head, twice winged; pinnules small with respect to the size of the leaf, wedge-shaped; spathe many-leafed, axillary within the lowest leaf; the corolla, which is sometimes bipartite, but commonly tripartite, is at first green, then red or purple, and finally yellow: the fruit is a succulent globular berry, a little flatted, terminated by a triangular twin stigma; at first it is hard and green, next yellow, then red, and, when quite ripe, dark red, (almost black) and shining: the rind is thin, and the pulp is soft and red, very sharp and acrid: within are two stones or seeds, (sometimes only one) hard, roundish or oblong, convex on one side, flat on the other, wrinkled; they are of a dark red or blackish colour on the outside. The Ceylonese know this tree by the name of *kettule*; it yields a sort of liquor, which they call *tellegie*, sweet and pleasing to the palate, wholesome, and not stronger than water: it is taken from the tree twice, and sometimes thrice a day, and the quantity obtained is three or four gallons; they boil this liquor, and thus make a kind of brown sugar, called *jaggory*, of it; but if they manage it skilfully, can make it as white as the second-best sugar. When the tree is come to maturity, there comes out a bud from the top, which if it be suffered to grow, will bear the fruit, but this is only fit to set for increase; this bud is cut and prepared, by putting salt, pepper, lemons, garlic, leaves, &c. upon it, which keep it from ripening: they then daily cut off a thin slice from the end, and the liquor drops into a vessel which they set to catch it. This tree bears a leaf like that of the Betel-nut tree, which is fastened to a skin as that is, only this skin is hard and stubborn like a piece of board; the skin is all full of strings as strong as wire, and is used for making ropes. While the tree grows, the leaves shed; but when it is come to its full growth, they remain many years before they fall. As the top bud withers, other buds come out lower and lower every year, till they come to the bottom of the boughs, and then, having done bearing, may stand seven or ten years, when it dies. The wood is not above three inches thick, very strong and hard, but apt to split; being very heavy, they make pestles of it to beat their rice with; the colour is black, but it looks as if it were composed of several pieces. The buds of this tree, like those of the Cocoa and Betel-nut tree, are excellently well tasted, resembling walnuts or almonds.

2. Caryota Mitis; *Mild Caryota.* Fronds bipinnate; petioles of the leaflets nodding; berries one-seeded. The trunk of this palm is fifteen feet high, two inches thick, very straight and regular; fronds four feet long, reclining on roundish unarmed stipes. The berry is round, coriaceous, smooth, black, the size of a musket-bullet; containing one globular pale softish seed; pulp mild.—It is a most beautiful palm, and grows in the woods of Cochin-china.

Cassada, or *Cassava.* See *Jatropha.*

Cassia; a genus of the class Decandria, order Monogynia. —Generic Character. *Calix:* perianth pentaphyllous, lax, concave, coloured, deciduous. *Corolla:* petals five, roundish, concave; the inferior ones more distant, more spreading, larger. *Stamina:* filamenta ten, declined; the three inferior ones longer, the three superior shorter: antheræ, the three inferior very large, arcuate, rostrate, gaping at the tip; the four lateral ones without the rostrum, gaping; the three superior ones very small, sterile. *Pistil:* germen subcolumnar, long, peduncled; style very short; stigma obtuse, ascending. *Pericarp:* legume oblong; partitions transverse. *Seeds:* many, roundish, affixed to the superior suture. Essential Character. *Calix:* pentaphyllous. *Petals:* five. The three superior *Antheræ* sterile; the three inferior beaked. *Fruit:* a legume.—Many of these plants are preserved in curious gardens, though several of them have little beauty to recommend them. The handsomest are the eighth, fourteenth, thirty-first, thirty-ninth, fortieth, and forty-first species; these all make a good appearance in the stove when in flower, and, as they retain their leaves all the year, form an agreeable variety in winter. All the species contract their leaves every evening as the sun declines, and open them when he re-appears: the under surface of the leaflets is turned outward, the upper surfaces being clapped close together. Most plants whose under surface is thus turned outward, grow on dry sandy land, where the roots do not find a sufficient supply of moisture; the lower surface of the leaves being generally covered with a short soft down, detain and imbibe the nightly dews. Those which have the upper surface of the leaves turned outward, do not stand in need of this supply; and accordingly that surface being smooth, the moisture is cast off, and not imbibed. All the species of this genus are propagated by seeds, which, as they mostly come from very hot climates, must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they must be each planted in a separate pot, filled with light earth, and plunged into a moderate hot-bed, where they should be shaded until they have taken fresh root; after which they must have the air admitted to them every day, in proportion to the warmth of the season, and should be frequently watered. When the plants have filled the pots with their roots, they should be shifted into larger, and if they be too tall to remain in the hot-bed, they must be placed either in the stove, or in a glass-case, where they may be defended from cold, and have plenty of fresh air in warm weather: they will flower in July or August, and perfect their seeds in October, and may be preserved through the winter in a stove, where they will continue flowering a long time. In warm summers they may be placed in the open air, where they will flower very well about the end of June, but will not perfect their seeds, unless they are removed into the stove in autumn.——The species are,

1. Cassia Diphylla; *Two-leaved Cassia.* Leaves conjugate; stipules cordate-lanceolate. A shrub with a round stem. Annual.—Native of the West Indies.

2. Cassia Bacillaris. Leaflets two pairs, ovate, oblique, an obtuse gland between the lowest; racemes axillary, peduncled; silique round, long. A shrub of twelve feet in height, and very smooth.—Native of Surinam.

3. Cassia Absus; *Four-leaved Cassia.* Leaflets two pairs, obovate; glands two, subulate beneath the lowest.—A hairy

plant, with a slender striated stem. Annual.—Native of India, Ceylon, and Egypt.

4. Cassia Viminea; *Weakly Senna Shrub*, or *Twiggy Cassia*. Leaflets two pairs, ovate-oblong, acuminate, an oblong gland between the lowest; spines subpetioled, obsolete, three-toothed. Stem shrubby, climbing to the height of forty or fifty feet, striated, stiff; branches divaricate, loose, stiffish, round, striated, smooth; flowers large, on peduncles longer than themselves.—Native of Jamaica, in the woods of the higher mountains in the interior of that island; it is also called *atao* or *attoo*. Half a pint of the decoction of the root, taken three or four times daily, is prescribed as a cure for the dry belly-ache; ground into a paste, and plastered over the body, it cures the head-ache and fevers.

5. Cassia Tagera. Leaflets three pairs; gland petiolar; stipules ciliated, cordate, acuminate. A small procumbent shrub, with filiform branches.—Native of India.

6. Cassia Tora; *Oval-leaved Cassia*, or *Wild Senna*. Leaflets three pairs, obovate; the outer ones larger, a subulate gland between the lower. Stem erect, less woody, roughish, knotty from the scars of the leaves; flowers pale yellow.—Native of the East Indies, Japan, and Cochin-china. Annual; the leaves are substituted for Senna, in the natural place of its growth.

7. Cassia Bicapsularis; *Six-leaved Cassia*. Leaflets three pairs, obovate, smooth, the interior ones rounder and less, a globular gland interposed. A shrub, six or eight feet bigh, branched near the summit; with bright yellow flowers.—Native of South America.

8. Cassia Emarginata. Leaflets three or four pairs, obovate, almost entire; flowers in racemes, irregular; stem arboreous. Height from ten to twelve feet.—Native of Jamaica, where it is called the Senna tree. Its leaves are purgative, and are sometimes used instead of the true Senna.

9. Cassia Obtusifolia; *Round-leaved Cassia*. Leaflets three pairs, obovate, blunt.—Native of Jamaica.

10. Cassia Falcata; *Sickle-leaved Cassia*. Leaflets four pairs, ovate-lanceolate, back-sickled; a gland at the base of the petioles. Stem erect, roundish, obtusely grooved; branches scarcely pubescent. Perennial.—Native of America.

11. Cassia Longisiliqua; *Long-podded Cassia*. Leaflets four pairs, the outmost lanceolate, a subulate gland below the inmost, and between the outmost.—Native of America; and perennial.

12. Cassia Occidentalis; *Occidental Cassia*. Leaflets five pairs, ovate-lanceolate, scabrous about the edge, the outer ones larger; a gland at the base of the petioles. Stem a foot and a half high; flowers pale yellow without any spot.—It is very common about Kingston in Jamaica, and is there called *stinking weed*. The tops of it are commonly employed in all resolutive baths; and it is accounted a very powerful ingredient on such occasions. According to Dr. Barham, the whole plant is cooling and cleansing, and the decoction of the root diuretic, and a powerful antidote against poison. An infusion of it in water with juice of Tansy, and a small quantity of garlic, is a good vermifuge.

13. Cassia Planisiliqua. Leaflets five pairs, ovate-lanceolate, smooth; a gland at the base of the petioles.—Native of South America.

14. Cassia Fistula; *Alexandrian Purging Cassia, Cassia Stick*, or *Pudding-pipe Tree*. Leaflets five pairs, ovate-acuminate, smooth; petioles without glands. This tree rises to the height of forty or fifty feet, with a large trunk, dividing into many branches; the flowers are produced in long spikes at the end of the branches, each standing upon a pretty long peduncle; they are of a deep yellow colour, and are succeeded by cylindric pods, from one to two feet long, having a dark brown woody shell, with a longitudinal seam on one side, divided into many cells by transverse partitions, each containing one or two oval smooth compressed seeds, lodged in a sweetish black pulp; this pulp is an easy gentle laxative, opening the passages without irritating the intestines; but it grows rancid when it has been long out of the cells, and then acquires an acrimony that renders it precarious, and even dangerous.—Native of both Indies: the seeds may be procured from the druggists, who import the pods for use.

15. Cassia Atomaria. Leaflets five pairs, ovate, subtomentose; petioles round, without glands. Stem the height of a man, woody, ash-coloured, very branching.—Observed by Jacquin in America.

16. Cassia Pilosa. Leaflets four or five pairs, with very minute glands; stipules semicordate, acuminate; stem stiff, hairy, from one to two feet high.—Native of Jamaica; flowering toward the end of the year.

17. Cassia Senna; *Egyptian Cassia* or *Senna*. Leaflets four to six pairs, subovate; petioles without glands. The plant which produces the leaves commonly known in medicine by the name of Senna, is annual, and rises with an upright branching stalk about a foot high; the flowers are yellow, and produced in loose bunches at the top of the stalk; it grows naturally in Persia, Syria, and Arabia, whence the leaves are brought, dried and picked from the stalk, to Alexandria in Egypt, and being thence imported into Europe, acquires the additional title of Alexandria. Senna is one of the most general purgatives in the materia medica; for this purpose it is used in infusion, and is not unfrequently mixed with other substances, as manna, &c. it operates without violence, and is sufficiently efficacious, but is sometimes apt to excite tormina, and has the disadvantage of being nauseous to the taste. But to remedy this inconvenience, compositions of various kinds are prepared in the shops; thus, for example, six drachms of tamarinds, and two of crystals of tartar, are boiled in a pint and half of water till half a pint is exhaled, and the strained liquor poured boiling hot upon one, two, or three drachms of Senna; after maceration for four hours, the strained infusion is sweetened with an ounce of syrup of violets, and flavoured with half an ounce of simple cinnamon-water: or three drachms of Senna are infused in a quarter of a pint of boiling water for four hours, or till the liquor has grown cold, with the addition of a scruple of ginger; or with half a drachm of lesser cardamom seeds, husked, and three-fourths of a drachm of crystals of tartar, which last are previously boiled in the water till dissolved; or with two drachms of fresh lemon-peel, and the same quantity by measure of lemon-juice: the latter, which is the *infusum sennæ limoniatum*, is considered the most agreeable form in which the infusion of Senna can be contrived. Meyrick and Hill observe, that the dried leaves of this plant are imported by our druggists from the East, and that they are a moderately strong and safe purgative; they may be taken wherever cathartics are necessary, either in substance reduced to powder, or in a strong infusion; but it will be advisable to add a little of some warm aromatic to the dose, as they are otherwise apt to gripe during the operation.—It requires the same treatment as the other sorts; but being an annual plant, unless it is brought forward in the spring, it will not flower.

18. Cassia Biflora; *Two-flowered Cassia*. Leaflets six pairs, rather oblong, smooth; the lower ones smaller, a subulate gland between the lowest; pedicels two-flowered; flowers yellow; pods linear, compressed.—Native of the West Indies.

19. Cassia Ruscifolia. Leaflets six pairs, lanceolate, acute,

smooth, a gland above the base of the rib; flowers racemed. —This is an elegant shrub, the height of a man; gathered on the rocks of Madeira.

20. Cassia Hirsuta. Leaflets six pairs, broad-ovate, acuminate, woolly.—Native of America.

21. Cassia Multiglandulosa; *Glandulous Cassia.* Leaflets six pairs, villose beneath and about the edges, obtuse; a gland between each pair of leaflets.—Brought from Teneriffe to England, where it flowers most part of the summer.

22. Cassia Tomentosa. Leaflets six or eight pairs, linear, obliquely rounded at the base, rough with hairs on the upper surface; panicles axillary; legumes villose. This is a tree with round flexuose branches, covered with a thick soft white pile, which is yellow when they are dry; flowers pale yellow. —Found in South America by Mutis.

23. Cassia Serpens. Leaflets seven pairs; flowers pentandrous; stems filiform, prostrate, herbaceous.—This is an annual plant, native of Jamaica, where it is found in dry pastures, creeping among the grass.

24. Cassia Ligustrina; *Privet-leaved Cassia.* Leaflets seven pairs, lanceolate, the outmost smaller; a gland at the base of the petioles. Stem six or seven feet high or more, the thickness of the little finger, slightly angular, putting forth many deeply striated branches from top to bottom; flowers many, terminating, yellow: the leaves and flowers have somewhat of a fœtid smell.—Native of the isle of Providence, and other islands in the West Indies.

25. Cassia Alata; *Broad-leaved Cassia.* Leaflets eight pairs, oval-oblong, the lowest smaller; petioles without glands; stipules spreading. Stem subherbaceous, six feet high and more, branched, upright, furrowed, smooth, with simple striated branches; leaves alternate, a foot or a foot and half long; leaflets near two inches and a half long, one-inch broad, near together, quite smooth; flowers yellow, in terminal racemes. It lives but a few years, though it puts out the appearance of a shrub in its growth; and when cultivated, rises sometimes to the height of seven or eight feet, but seldom exceeds four in its native soil. Ants are very fond of the flowers: the juice of the leaves or buds is said to cure the ring-worm, whence it is called the *ring-worm bush,* in Jamaica. It flowers in the spring; and, according to Mr. Miller, has a strong fœtid odour.

26. Cassia Marilandica; *Maryland Cassia.* Leaflets eight pairs, ovate-oblong, equal; a gland at the base of the petioles. Root perennial; calix pale or greenish-yellow; flowers two or three together, from the axils of the upper leaves, and in loose spikes at the end of the stem, bright yellow.—Native of North America.

27. Cassia Tenuissima. Leaflets nine pairs, oblong, a subulate gland between the lowest.—Native of the Havanna.

28. Cassia Sophera. Leaflets ten pairs, lanceolate; an oblong gland at the base; corolla very pale yellow with brown veins.—Native of the East Indies, China, and the island of Tongataboo in the South Seas.

29. Cassia Bracteata. Leaflets ten pairs, oblong, obtuse, without glands; racemes elongated; bractes ovate, swelling, imbricate; legume quadrangular, compressed. Corollas yellow.—Found at Surinam by Dalberg.

30. Cassia Auriculata; *Eared Cassia.* Leaflets twelve pairs, obtuse, mucronate; several subulate glands; stipules kidney-form, bearded.—Native of the East Indies.

31. Cassia Javanica; *Java Cassia.* Leaflets twelve pairs, oblong, obtuse, smooth; no gland. This rises to a great magnitude, with a large trunk, dividing into many branches. The flowers are in loose spikes of a carnation colour; and are succeeded by large cylindrical pods two feet long, divided by transverse partitions into many cells, in which the seeds are lodged, surrounded with a black purging pulp; this is called *horse-cassia,* because it is generally given to horses, but is seldom used by the human species, on account of its griping quality.—Native of the East Indies.

32. Cassia Grandis. Leaflets twenty pairs, somewhat silky, without glands. This is a stout tree, and the branches are covered with a purple silky down.—Native of Surinam.

33. Cassia Chamæcrista; *Dwarf Cassia.* Leaflets many pairs; a petiolar pedicelled gland; stipules ensiform. Stem herbaceous, a foot high or more, diffused, smooth, round, with hirsute branches; corolla small, yellow; legume compressed. Annual.—Native of dry pastures in the West Indies. Dr. Wright says, that two quarts of a decoction of this plant, taken daily, is an antidote to the poison of Night-shade.

34. Cassia Glandulosa. Leaflets many pairs, with many glands; stipules subulate. Stems suffruticose, with almost naked branches.—Native of the West Indies.

35. Cassia Mimosoides. Leaflets many pairs, linear; an obscure gland at the base of the petioles; stipules setaceous. Stem erect, two feet high.—Native of Ceylon.

36. Cassia Flexuosa. Leaflets many pairs; stipules half-cordate.—This is an annual plant, and native of Brazil.

37. Cassia Nictitans. Leaflets many pairs; flowers pentandrous; stem somewhat erect.—Annual; and a native of Virginia.

38. Cassia Procumbens. Leaflets many pairs, without glands; stem procumbent.—An annual plant; and a native of both Indies, Cochin-china, Africa, and Virginia.

39. Cassia Fruticosa. Leaflets two pairs, ovate-lanceolate, smooth; flowers terminal; pods long, round; stem shrubby. This grows upwards of twenty feet high, with several stems, covered with brown bark, and dividing into many branches at top; the flowers are produced in loose spikes at the extremity of the branches; they are large, of a gold colour, and succeeded by taper brown pods about nine inches long, having many transverse partitions, in which the seeds are lodged in a thin pulp.—Native of La Vera Cruz.

40. Cassia Arborescens. Leaflets two pairs, oblong-ovate, villose beneath; flowers corymbed; stem erect, arboreous. Trunk 25 to 30 feet high.—Native of La Vera Cruz.

41. Cassia Villosa. Leaflets three pairs, oblong-ovate, equal, villose; pods jointed; stem erect, arboreous. This rises with a woody stem to the height of fourteen or sixteen feet, sending out many lateral branches; flowers in loose bunches, pale straw-colour.—Native of Campeachy.

42. Cassia Uniflora. Leaflets three pairs, ovate-acuminate, villose; flowers solitary, axillary; pods erect.—Annual; and a native of Campeachy.

43. Cassia Frutescens. Leaflets five pairs, ovate, smooth, the outer ones longer; stems shrubby.—Native of Jamaica.

44. Cassia Tetraphylla. Leaflets two pairs, ovate; flowers solitary, axillary siliques hirsute; stems procumbent. Annual.—Native of La Vera Cruz.

45. Cassia Minima. Leaflets four pairs, oblong-ovate; stems procumbent; flowers axillary; peduncles two-flowered. Annual.—Native of Jamaica.

46. Cassia Patula; *Shining Cassia.* Leaflets five pairs, oblong, sharpish, smooth; a gland at the base of the petioles; branches even. It flowers in August and September. —Native of the West Indies.

47. Cassia Stipulacea; *Large-stipuled Cassia.* Leaflets about eight pairs, ovate-lanceolate; a gland between the lower; stipules ovate, very large.—Native of Chili.

48. Cassia Frondosa; *Smooth-leaved Cassia.* Leaflets nine

pairs, oval-oblong, smooth, bluntish; a cylindric gland between the lower; petiole without any gland at the base. It flowers in March and April.—Native of the West Indies.

49. Cassia Sericea. Leaflets about four pairs, ovate, hirsute; a subulate gland between the leaflets; peduncles four-flowered; legumes four-cornered.—Native of Jamaica.

50. Cassia Lincata. Leaflets five pairs, somewhat oblong, pubescent beneath, equal; an obsolete gland beneath the lowest; peduncles one-flowered.—Native of Jamaica.

51. Cassia Virgata. Leaflets ten pairs, ovate-lanceolate, villose; a petiolar pedicelled gland; peduncles one-flowered, longer than the leaves.—Native of Jamaica.

Cassia, Poet's. See *Osyris.*

Cassine; a genus of the class Pentandria, order Trigynia.—Generic Character. *Calix:* perianth quinque-partite, inferior, very small, obtuse, permanent. *Corolla:* quinque-partite, spreading; divisions subovate, obtuse, larger than the calix. *Stamina:* filamenta five, subulate, spreading; antheræ simple. *Pistil:* germen superior, conic; style none; stigmas three, reflex, obtuse. *Pericarp:* berry roundish, trilocular, umbilicated with the stigmas. *Seeds:* solitary, subovate. Essential Character. *Calix:* quinquepartite. *Petals:* five. *Berry:* trispermous.——The species are,

1. Cassine Capensis; *Cape Cassine,* or *Phillyrea.* Leaves petioled, ovate-oblong, retuse, crenate. It has a woody stalk, which seldom rises above five or six feet high in this country, with brown or purplish bark; flowers white, in axillary branched corymbs.—Native of the Cape. It is too tender to live abroad in England, but as it requires no artificial heat, may be preserved throughout the winter in a good green-house, where it deserves a place for the beauty of its leaves: it may be propagated by laying down those shoots which are near the root, but they are long in putting out roots; to facilitate this, the shoots should be twisted in the part which is laid; they should be laid in autumn, as they will then put out roots sufficient to remove in the following autumn. They may also be propagated by cuttings; but this is a tedious method, as they are seldom rooted enough to transplant in less than two years.

2. Cassine Peragua. Leaves petioled, serrate, elliptic, somewhat acute; branchless ancipital.—Native of Virginia and Carolina. It is propagated by laying down the branches, which afford shoots in plenty for that purpose from the root and lower part of the stem, so as to become very bushy and thick if they are not cut off; there are numbers of those shrubs which produce flowers in England every year, but none of them ripen their seeds; the leaves are frequently pinched by the frost in March, when they appear so soon: it loves a light soil, not too dry, and should have a warm situation; for in exposed places, the young shoots are frequently killed in the winter, whereby the shrubs are rendered unsightly; but where they are near the shelter of trees or walls, they are very rarely hurt.

3. Cassine Barbara. Leaves sessile, serrate-toothed, cordate, oblong; branchlets quadrangular.—Native of the Cape

4. Cassine Maurocenia; *Great Hottentot Cherry.* Leaves sessile, quite entire, obovate, coriaceous.—Native of the Cape of Good Hope. For the propagation and culture of this plant, see the first species. It ripens its fruit in the winter; and having remarkably stiff and fine green leaves, makes a good appearance when fruit abounds.

Cassioberry Bush. See *Viburnum.*

Cassyta; a genus of the class Enncandria, order Monogynia.—Generic Character. *Calix:* perianth triphyllous, very small, permanent; leaflets semi-ovate, acute, concave, erect. *Corolla:* petals three, roundish, acute, concave, permanent; nectary of three glands, oblong, truncate, coloured, length of the germen, standing round it. *Stamina:* filamenta nine, erect, compressed; two globular glands seated on the sides of the base of the three interior filamenta; antheræ adjoined to the filamenta below the tip. *Pistil:* germen ovate, within the corolla and calix; style thickish, length of the stamina; stigma obscurely trifid, obtuse. *Pericarp:* receptacle growing out into a depressed globular drupe, crowned with the converging calix and corolla, perforated with a navel. *Seeds:* nut globular, acuminate with the converging stamina. Essential Character. *Corolla:* calicine, sexpartite: nectary of three truncate glands, surrounding the receptacle; interior filamenta glanduliferous. *Drupe:* monospermous.—These may be propagated by cuttings, taken a week before planting, that they may have time to dry; then to be put into small pots of light sandy earth, and plunged into a moderate hot-bed.——The species are,

1. Cassyta Filiformis. Filiform, lax. Stems parasitical, twining, slender, succulent, branched, leafless, putting out numerous warts, resembling the feet of caterpillars, by which they adhere strongly to the stems and leaves of shrubs; flowers small, white, with a tinge of red; fruit about the size of a pea, white, shining, and sweet to the taste. This plant grows naturally in both Indies: Jacquin found it in the island of Tierra Bomba near Carthagena; it also occurs in the Society and Friendly islands.

2. Cassyta Coniculata. Branches woody, spinous.—Native of the mountains of the island of Celebes, among rotten trunks of trees; and of Java.

Castilleia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* one-leafed, rubular, longitudinally cloven in front beyond the middle, nerved, pubescent, coloured, somewhat swelling at the base, compressed at top; upper lip bifid, obtuse; lower none. *Corolla:* monopetalous, ringent; upper lip very long, curved inwards, emarginate, pubescent on the back; lower very short, trifid, with acute segments; nectary two glandular corpuscles, inserted into the throat of the corolla between the divisions of the upper lip. *Stamina:* filamenta four, inserted into the base of the corolla, the length of the upper lip, filiform, smooth, the lower pair a little shorter; antheræ twin, linear, oblique. *Pistil:* germen superior, oblong, compressed; style filiform, the length of the stamina; stigma simple, obtuse. *Pericarp:* capsule ovate, acuminate, compressed, even, two-celled, the partition contrary to the valves. *Seeds:* numerous, small. Essential Character. *Calix:* tubular, compressed; upper lip bifid; lower none. *Corolla:* lower lip trifid, with two glands between the segments. *Capsule:* two-celled.——The species are,

1. Castilleia Fissifolia. Leaves pinnate, gashed at the tip; root branched, fibrous. Stem four or five feet high, rather herbaceous, erect, roundish, with few branches, pubescent.—Grows in New Granada.

2. Castilleia Integrifolia. Leaves linear-lanceolate, entire; stem herbaceous, round, upright, branched, leafy, slightly rough with hairs.—Grows in New Granada.

Casuarina; a genus of the class Monœcia, order Monandria.—Generic Character. *Males,* in a filiform ament, *Calix:* common ament loosely imbricate, consisting of small one-flowered one-leafed scales. *Corolla:* scales two-parted, ovate, minute. *Stamina:* filamenta capillary, longer than the calix; antheræ twin. *Females,* on the same plant. *Calix:* ament, ovate-cylindric; with ovate, acute, keeled, imbricate scales. *Corolla:* none. *Pistil:* germen minute; style filiform, longer than the calix, bifid; stigmas two. *Pericarp:* strobile of bivalve scales, gaping perpendicularly. *Seeds:* solitary conic, with a membranaceous edge. Es-

SENTIAL CHARACTER. *Male. Calix:* of the ament. *Corolla:* scalelets two-parted. *Female. Calix:* of the ament. *Corolla:* none. *Style:* bifid. *Strobile:*——The species are,

1. Casuarina Equisetifolia; *Horsetail Casuarina.* Monœcous: whorls of the stamina approximating. A very large, spreading, and lofty tree. The leaves, or rather branchlets, so called, hanging down in bunches from twelve to eighteen inches in length, like a long head of hair, or a horse's tail, all jointed from top to bottom, like the Equiseta or Horse's-tails, is a very remarkable character of this singular tree.—It is a native of the East Indies, and the South Sea islands; and flowers in October and November.

2. Casuarina Nodiflora. Monœcous: whorls of the stamina remote. A lofty tree; the branches and branchlets more deeply striated.—Native of the East Indies and New Caledonia.

3. Casuarina Stricta; *Upright Casuarina.* Diœcous: branchlets erect; scales of the strobiles unarmed, smoothish; male sheaths multifid, smooth.—Native of New South Wales.

4. Casuarina Torulosa; *Cork-barked Casuarina.* Diœcous: branchlets flaccid; scales of the strobiles villose, roughened with tubercles; male sheaths quadrifid.—Native of New South Wales

5. Casuarina Africana. Fronds filiform, swelling at the tip, and floriferous; strobiles roundish, axillary. This is a tree above the middle size, with few, long, diffused branches, and leaf-bearing reclining branchlets; the wood is very hard and heavy.—Native of the sandy east coast of Africa.

Catananche; a genus of the class Syngenesia, order Polygamia Æqualis.—GENERIC CHARACTER. *Calix:* common imbricate, turbinate; leaflets very many, loosely incumbent, acute, scariose; the squamule ovate-acuminate, concave, lax, glossy, permanent. *Corolla:* compound generally imbricate, uniform; corolla hermaphrodite, very many, the exterior ones longer; proper monopetalous, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen oblong; style filiform length of the stamina; stigma bifid, reflex. *Pericarp:* none. *Calix:* unchanged. *Seeds:* solitary, turbinate-ovate; down from a five-awned calicle. *Receptacle:* chaffy. ESSENTIAL CHARACTER. *Receptacle:* chaffy. *Calix:* imbricate. *Down:* awned from a five-bristled calicle.——The species are,

1. Catananche Cœrulea. The lower scales of the calix ovate. This sends out narrow hairy leaves, which are jagged on their edges like those of Buckthorn Plantain, lying flat on the ground, with their points turned upward: between the leaves come out the flower-stalks; these stalks rise nearly two feet high, dividing into many small branches upwards, with leaves like those below, but smaller; each of the peduncles is terminated with single heads of flowers, having a dry, silvery, scaly calix, in which are included three or four florets, whose petals are broad, flat, and indented at their ends; these are of a fine blue colour, having a dark spot at bottom in each of the stamina, and with their yellow summits standing a little above the petal, make a pretty appearance.—It is perennial; a native of the south of Europe; and flowers from July till October. It may be propagated by heads taken off the mother plant, either in spring or autumn; but those plants which are raised from seeds are much stronger than those which are raised from slips: they are commonly planted in pots filled with light sandy soil, in order to shelter them in the winter from severe frosts; but if they are planted in warm borders, near walls, pales, or hedges, in a moderately dry soil, they will endure abroad very well. It may also be propagated by seeds sown in March.

2. Catananche Lutea. The lower scales of the calix lanceolate. The flowers are yellow, and small; the leaves green, flexile, and three-nerved, smaller, smoother, and less jagged on their edges, than the first sort: the later flowers are sessile at the root, hardly unfolded, but more fertile.—Native of the island of Candia; it flowers in June and July. It is an annual plant, and therefore only propagated by seeds. Sow them early in March, in beds or borders of light earth; they will come up in a month or five weeks' time, and require no other care but to keep them clean from weeds, and thin them when they grow too close together.

3. Catananche Græca. Leaves gashed.—Native of the south of France, Spain, Italy, and Candia, from whence it derived the title of Candia Lion's foot.

Catchfly. See *Lychnis.*

Caterpillars. See *Scorpiurus.*

Catesbæa; a genus of the class Tetandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth four-toothed, superior, very small, acute, permanent. *Corolla:* monopetalous, funnel-form; tube extremely long, straight, gradually widening upwards; border semiquadrifid, broad, erect, flat. *Stamina:* filamenta four, growing within the neck of the tube; antheræ oblong, erect, almost longer than the corolla. *Pistil:* germen roundish, inferior; style filiform, length of the corolla; stigma simple. *Pericarp:* berry oval, crowned, unilocular. *Seeds:* many, angulate. ESSENTIAL CHARACTER. *Corolla:* monopetalous, funnel-form, extremely long, superior. *Stamina:* within the mouth. *Berry:* polyspermous.——The species are,

1. Catesbæe Spinosa; *Lily Thorn.* Tube of the corolla very long; berries oval. Discovered near Nassau Town in Providence, one of the Bahama islands. Mr. Catesby says, that the largest of the trees which he saw was about four inches thick, and twelve or fourteen in height; the bark smooth, of a greenish russet colour, and the wood seemingly tough and hard; the leaves like those of Box, but smaller, growing in clusters at intervals of about an inch; from every cluster two sharp pliant spines shooting out: the flowers are about six inches long, of an orange colour, in form of a Roman trumpet, except that they are divided at the verge into four deep segments, usually reflex; the fruit is the size of a pullet's egg; the pulp like that of a ripe apple, with an agreeable tartness, and a smooth yellow skin.—This shrub is propagated by seeds, which must be procured from the country where it naturally grows; if the entire fruit be brought over in sand, the seeds will be better preserved; and must be sown in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tanner's bark, and now and then moderately watered; if the seeds be good, the plant will appear in about six weeks after sowing, when, if the heat of the bed declines, the tan should be turned over to the bottom, and, if necessary, some fresh added to renew the heat, for these plants make but little progress the first year.—As these plants grow slowly, they will not require to be removed out of the seed-pots the first year: in the autumn the pots should be removed into the stove, and plunged into the tan-bed; they must be watered with great caution during the winter, and should be carefully taken up in spring, and separately planted in a small pot filled with light sandy earth, and plunged into a fresh hot-bed of tanner's bark, where they should be shaded until they have taken fresh root, and gently refreshed with water as they may require it: in warm weather a considerable share of fresh air should be admitted to them, but in autumn they must be removed into the stove, where they should constantly remain, and must be treated afterwards in the same manner as other tender exotic plants.

2. Catesbæa Parviflora. Tube of the corolla four-cornered, abbreviated; berries roundish.—Native of Jamaica. This as well as the first plant may be propagated by planting cuttings in small pots, filled with light earth, during the months of June and July; the pots should be plunged into a moderate hot-bed of tanner's bark, and the cuttings closely covered with small bell-glasses, to exclude the external air. If this be properly performed, the cuttings will put out roots in about two or three months, when they may be carefully separated, planting each into a small pot filled with light earth, and plunged into the hot-bed again, and must afterwards be treated as the seedling plants.

Cat-Mint. See *Nepeta.*

Cat's-Tail. See *Typha.*

Cat's-Grass. See *Phleum.*

Cat-Thyme. See *Teucrium.*

Caturus; a genus of the class Diœcia, order Triandria.—Generic Character. *Male. Calix:* none. *Corolla:* monopetalous, tubular, semitrifid; divisions ovate, concave, acute, permanent. *Stamina:* filamenta three, capillary, longer than the corolla; antheræ roundish. *Female. Calix:* perianth tripartite; leaflets ovate, flat, permanent. *Corolla:* none. *Pistil:* germen villose; styles three, long, pinnate-multifid; stigmas acute. *Pericarp:* capsule roundish, tricoccous, trilocular. *Seed:* solitary, round.——The species are,

1. Caturus Spiciflorus. Spikes axillary, pendulous. This is a tree about twenty feet in height, with many branches diffused all round; the wood is white and close, with a thick, dusky, unctuous, inodorous bark, and a yellow pith within; flowers small, of an herbaceous colour.—Native of the East Indies; where a conserve of the flowers is used in the diarrhœa, and all disorders arising from a laxity of the vessels.

2 Caturus Scandens. Spikes axillary, upright; leaves oblong, subserrate; stem scandent. This is an unarmed shrub, with a long branching stem, climbing, but without tendrils. Flowers very small, white, in close short spikes, with small subulate bractes. The male flower has three petals, and three filamenta longer than the petals, both diverging elastically.—Native of the woods of Cochin-china.

Caucalis; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal unequal, with very few rays; umbel partial unequal, with more copious rays, of which the five exterior are longer. Involucre universal with leaflets of the number of the rays, undivided, lanceolate, membranaceous at the edge, ovate, short Involucre partial, with consimilar leaflets, longer than the rays, often five; perianth proper five-toothed, protruded. *Corolla:* universal difform, radiate; disk florets abortive; proper one male, small; petals five, inflected-cordate, unequal, the exterior one very large, bifid. *Stamina:* in all the flowers; Filamenta five, capillary; antheræ small. *Pistil:* germen of the ray oblong, rugged, inferior; styles two, subulate; stigmas two, spreading, obtuse. *Pericarp:* fruit ovate, oblong, with longitudinal streaks, hispid with little rigid bristles. *Seeds:* two, oblong, convex on one side, armed in the direction of the streaks with subulate points, flat on the other side. Essential Character. *Corolla:* radiated in the disk, male. *Petals:* inflex emarginate. *Fruit:* hispid, with bristles. *Involucres:* entire.—These plants are all annual, or at most biennial, and are seldom cultivated except in botanic gardens. They will rise readily from seeds, where they are permitted to scatter; or if any person be desirous of raising them, the seeds should be sown in autumn, or soon after they are ripe. They will grow in any soil or situation.——The species are,

1. Caucalis Grandiflora; *Great-flowered Bastard Parsley.* Each involucre five-leaved; one leaflet double the size of the rest. Stem very smooth and even, nearly two feet in height, and branched; leaves twice or thrice winged, finely cut, pale green, slightly villose; umbels two inches or more in diameter, of from five to eight rays; flowers white.—Native of the south of Europe.

2. Caucalis Daucoides; *Carrot-leaved Bastard Parsley.* Umbels trifid, leafless; umbellules three-seeded, three-leaved. Stem a foot high, upright, angular-grooved, branched, and even. the joints white with bristles.—Native of the south of Europe.

3. Caucalis Latifolia; *Broad-leaved Bastard Parsley.* Involucres and involucrets membranaceous; universal umbel with about four rays; bristles of the seeds clustered and hispid; leaves pinnate, gashed, and hairy. This is the most beautiful of our native umbelliferous plants; stem from a foot to eighteen inches, or sometimes nearly two feet in height, branched, angular, set with short prickles pointing upwards. Corolla purplish; the outer petal large, the rest small.—Native of Germany, Switzerland, Italy, France, and England. It is one of our rare plants, and has been observed in Cambridgeshire and Hampshire, in corn-fields, flowering from June to August.

4. Caucalis Mauritanico; *Barbary Bastard Parsley.* Universal involucre one-leafed; partial involucres three-leaved.—Native of Barbary.

5. Caucalis Orientalis; *Eastern Bastard Parsley.* Umbels spreading, partial; leaflets superdecompound, lacinated; small divisions linear. Stem herbaceous, round, straight, streaked. branching, three feet high.—Native of the Levant and China.

6. Caucalis Leptophylla; *Fine-leaved Bastard Parsley.* Universal involucre scarcely any; umbel bifid; involucrets five-leaved. Stem low, round, rugged backwards.—Native of the south of Europe, and of England, in corn-fields, and by way-sides; in Cambridgeshire, Lincolnshire, Norfolk, &c. flowering in June and July.

7. Caucalis Arvensis; *Corn Bastard Parsley.* Universal involucre scarcely any; seeds ovate; styles reflex; leaves decompound; outmost leaflet linear-lanceolate; stem branching very much. Common in England; and growing wild in Switzerland.

8. Caucalis Anthriscus; *Hedge Bastard Parsley.* Involucres many leaved; seeds ovate; styles reflex; leaves decompound; outmost leaflet linear, lanceolate. Stem from four to six feet high, upright, somewhat flexuose, round, purplish, rough, covered with minute white rigid bristles, pressed downwards to the stem, and scarcely visible. Dr. Withering says, that horses are fond of it.—It is common in hedges and bushes, flowering in July and August.

9. Caucalis Nodosa; *Knotted Bastard Parsley.* Umbels simple, subsessile; leaves superdecompound. Stems two, three, or more, round, striated, rough, branched, commonly prostrate, from a span to a cubit in length.—Native of the south of Europe, and of England, on the borders of corn-fields, and on banks; flowering from May till August.

Cauliflower. See Brassica.

Ceanothus; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed. turbinate; border five-parted, acute, close, converging, permanent. *Corolla:* petals five, equal, roundish, of an arched saccular shape, compressed, very obtuse, spreading, smaller than the calix, seated on claws the length of the petal, growing from the interstices of the calix. *Stamina:* filamenta five, subulate, erect, opposite to the petals, the length of the corolla; antheræ roundish. *Pistil:* germen superior, triangular; style cylindric, semitrifid, the length of the stamina; stigma obtuse. *Pericarp:* berry dry, three-grained or three-celled, obtuse, retuse, set with tubercles. *Seed:* soli-

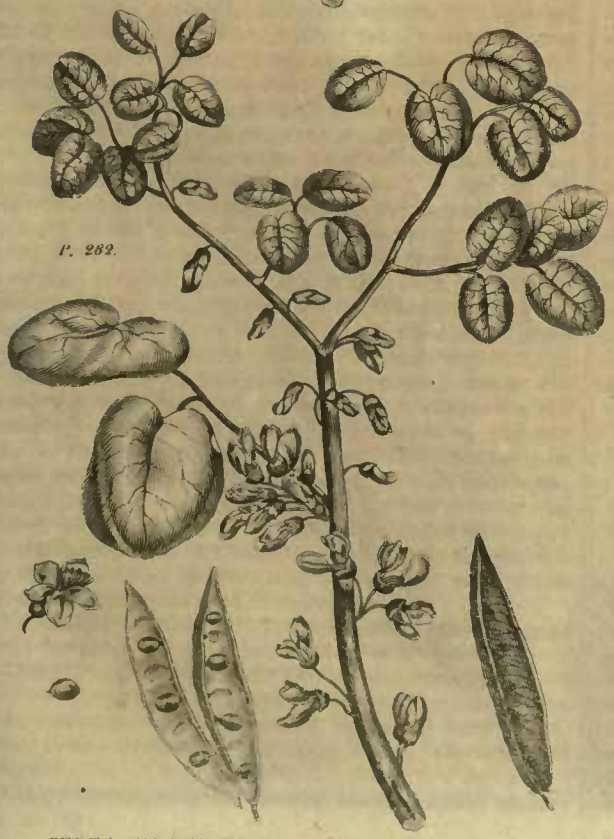
CAUCALIS ___ Bread-leaved Bastard Parsley.

P. 268.

CEANOTHUS _____ New Jersey Tea.

P. 269.

P. 282.



CERES SILIQUASTRUM ___ Common Judas Tree.

P. 286.

CHELIDONIUM ___ Common or Great Celandine.

Published by Nuttall Fisher & Dixon, Liverpool Nov.r 1816.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

tary, ovate. ESSENTIAL CHARACTER. *Petals*: five, saccular, vaulted. *Berry*: dry, three-celled, three-seeded.——The species are,

1. Ceanothus Americanus; *American Ceanothus,* or *New Jersey Tea.* Leaves three-nerved. In England this shrub seldom rises more than three or four feet high, sending out branches on every side, from the ground upward; leaves alternate, deciduous, on short petioles: at the extremity of each shoot, the flowers are produced in close thick spikes, and are composed of five small petals of a clear white; they appear in July, and make a pretty appearance during their continuance; for as every shoot is terminated by one of these spikes, the whole shrub is covered over with flowers, the branches commonly growing very close to each other; and when the autumn proves mild, they often flower again in October.—Native of most parts of North America. The leaves dried, are used in America for the same purpose as tea. The Canadians use the root in venereal cases: it dies wool a fine strong Nankin cinnamon colour. These are best propagated by seeds, which should be sown in the autumn in small pots, and plunged into an old hot-bed, where they may remain during the winter. In the following summer, place them in the open air during mild weather, but screen them from the cold. The following spring they should be transplanted before they begin to shoot, in which state they may remain a year or two; when they may be finally removed to the places where they are designed to remain. They require a dry soil and sheltered situation.

2. Ceanothus Asiaticus; *Asiatic Ceanothus.* Leaves ovate, nerveless; branches alternate, flexuose, striated, smooth.—Native of Ceylon and Japan. It may be increased by layers or cuttings, and must have the protection of a bark-stove.

3. Ceanothus Africanus; *African Evergreen Ceanothus.* Leaves lanceolate, nerveless; stipules roundish. It rises to the height of ten or twelve feet, with a woody stem, covered with a rough dark-coloured bark, and sends out many weak branches, which hang downward; these while young are green, but afterwards change to a purplish colour: they are garnished with oblong pointed leaves of a lucid green, smooth and slightly serrate on their edges: the flowers are small, of an herbaceous colour, coming out from the side of the branches: they sometimes appear in July, but are not succeeded by seeds in this country, nor do the plants often produce flowers; so that they are merely preserved for the beauty of their shining evergreen leaves, which make a variety in the green-house during the winter season. They are generally propagated by cuttings, as that is the surest and most expeditious way: they should be planted in spring, in pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed, observing to shade them in the heat of the day, and now and then to refresh them with water; in two months, or less, they will have taken root, when they must be gradually inured to the open air, placing them in a sheltered situation till they have obtained strength, when they may be separated, and each planted in a small pot filled with light earth, placing them in the shade until they have taken fresh root; then they may be removed, intermixed with other exotic plants, and treated in the same manner.

4. Ceanothus Reclinatus. Leaves ovate, entire, many-nerved; branches hanging down.—Native of Jamaica.

5. Ceanothus Circumscissus. Leaves obcordate, opposite, in two rows; prickles solitary, recurved, opposite to the leaves; branches simple, opposite, spreading very much, angular, even.—Native of the East Indies, Ceylon, and Mauritius.

6. Ceanothus Capsularis. Leaves ovate-cordate, acuminate, serrate; capsules three-valved, gaping.—Native of Otaheite.

Cecropia; a genus of the class Diœcia, order Diandria.—GENERIC CHARACTER. *Male. Calix:* spathe ovate, bursting, caducous; aments very many, fasciculate, columnar, imbricate with scales; the scales (receptacles) copious turbinate, compressed-quadrangular, obtuse, with a double perforation. *Corolla:* none, unless the scales be called nectaries. *Stamina:* filamenta two, capillary, very short, from the perforations of the scales; antheræ oblong, quadrangular. *Female. Calix:* spathe; aments four, columnar, imbricate, with germina. *Corolla:* none. *Pistil:* germina many, imbricate, compressed-quadrangular, obtuse; styles solitary, very short; stigmas somewhat headed, lacerated. *Pericarp:* berry the form of the germen, one-celled, one-seeded. *Seed:* oblong, compressed. ESSENTIAL CHARACTER. *Male. Spathe:* caducous. *Ament:* imbricate with turbinate scales, compressed-quadrangular. *Corolla:* none. Female as in the Male. *Germina:* imbricate. *Style:* one. *Stigma:* lacerated. *Berry:* one-seeded.——The only known species is,

1. Cecropia Peltata; *Trumpet-tree,* or *Snake-wood.* This tree seldom falls short of thirty-five or forty feet high, in the most perfect state: trunk a foot in diameter, hollow, stopped from space to space with membraneous septa, which form slight annular marks on the surface; leaves in clusters at the ends of the branches, large, divided into nine or ten oblong lobes, on long petioles: the fruits rise four, five, or more, from the very top of a common peduncle, and shoot into so many oblong cylindric berries, composed of a row of little *acini,* something like our raspberry, which they resemble in flavour when ripe, and are on that account agreeable to most European palates. The wood of this tree, when dry, is very apt to take fire by attrition. The native Indians have taken the hint, and always kindle their fires in the woods, by rubbing a piece of it against some harder wood. The bark is strong and fibrous, and is frequently used for all sorts of cordage. The trunk is very light, and for that reason much used for bark logs, and fishing floats. The smaller branches, when cleared of the septums, serve for wind-instruments. Both trunk and branches yield a great quantity of fixed salt, which is much used among the French to despumate and granulate their sugars. The fruit is much fed upon by pigeons and other birds; and thus the tree is spread and propagated.—Native of Jamaica, and other West India Islands, and also of South America. It may be propagated by seeds, procured from the places of natural growth. They should be brought over in sand; for if they be put up in moist papers, they will be apt to grow mouldy. It requires the same treatment as other tropical plants.

Cedar, Barbadoes. See *Cedrela.*

Cedar, Bermudas and Carolina. See *Juniperus.*

Cedar, Jamaica. See *Theobroma.*

Cedar, Libanus or *Lebanon.* See *Pinus Cedrus.*

Cedar, Lycian, Phœnician, and Virginian. See *Juniperus.*

Cedar, White. See *Cupressus.*

Cedrela; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth monophyllous, campanulate, very small, five-toothed, withering. *Corolla:* funnel-form, pentapetalous, the tube bellied below; petals linear-oblong, obtuse, erect, adjoined to the receptacle at one-third beneath. *Stamina:* filamenta five, subulate, seated on the receptacle, shorter than the corolla; antheræ oblong, bent outwards at the tip. *Pistil:* receptacle proper, five-cornered; germen globular; style cylindric, length of the corolla; stigma headed, depressed. *Pericarp:* capsule superior, woody, roundish, five-celled, five-valved, the

valves deciduous. *Seeds:* numerous, fleshy, imbricate downwards, terminated by a membranaceous wing; receptacle woody, five-angled, free. ESSENTIAL CHARACTER. *Calix:* withering. *Corolla:* five-petalled, funnel-form, fastened by the base to the receptacle to one-third of its length. *Capsule:* woody, five-celled, five-valved. *Seeds:* imbricate downwards, with a membranaceous wing.——The only species known is,

1. Cedrela Odorata; *Barbadoes Bastard Cedar.* Flowers panicled. This tree rises with a straight stem, to the height of seventy or eighty feet: while young, the bark is smooth, and of an ash-colour, but becomes rougher and darker by age; leaves near three feet long, winged with 16 or 18 pairs of leaflets without an odd one; corollas whitish, flesh-coloured, liliaceous, resembling that of the hyacinth. The fruit is oval, about the size of a partridge's egg, smooth, of a very dark colour, and opens in five parts, having a five-cornered column standing in the middle, between the angles of which the winged seeds are closely placed, lapping over each other like the scales of fish. The trunk is covered with a rough bark, marked with longitudinal fissures, and, as well as the berries and leaves, has a smell like assafœtida when fresh; the wood has, notwithstanding, a pleasant smell.—This tree is commonly known under the name of Cedar, in the British West India islands: the trunk is so large, that the natives hollow it out into canoes and periaguas, for which purpose it is extremely well adapted, the wood being so soft that it may be cut out with great facility, and so light that it will carry a great weight upon the water. There are canoes in the West Indies, which have been formed out of these trunks, forty feet long, and six broad: the wood is of a brown colour, and has a fragrant odour, whence the title of Cedar has been given to it: it is frequently cut into shingles for covering houses, and is found very durable; but as the worms are apt to eat this wood, it is not proper for building ships, though it is often used for that purpose, as well as for sheathing them: it is often used for wainscoting of rooms, and to make chests, because vermin do not so frequently breed in it, as in many other sorts of wood, owing to its very bitter taste, which is communicated to whatever is put into the chests, especially when the wood is fresh; for which reason it is never made into casks, because spirituous liquors will dissolve part of the resin, and thereby acquire a very bitter taste: it yields a fine essential oil, and a spirit not inferior to that which is drawn from Rosemary.—It is propagated by seeds, which may be easily procured from the West Indies: they must be sown upon a hot-bed in the spring, and the plants treated in the same manner as the Mahogany.

Cedrota; a genus of the class Octandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, six-parted; parts ovate, obtuse, concave. *Corolla:* none. *Stamina:* filamenta eight, short; antheræ roundish. *Pistil:* germen superior, roundish, surrounded by a gland; style short; stigma obtuse. ESSENTIAL CHARACTER. *Calix:* six-parted. *Corolla:* none. *Germen:* superior, surrounded by a gland. *Style:* short.——The only known species is,

1. Cedrota Guianensis. A tree forty feet high, and two in diameter, with a thick, unequal, wrinkled bark, full of clefts; and a yellow, heavy, aromatic wood, which however becomes light when dry. Branches near the top of the trunk, numerous; leaves about seven inches long, and two broad; flowers very small, green, loosely racemed, on a long, weak, axillary peduncle.—It grows in the forests of Guiana, flowering in May: the inhabitants call it *bois de cedre,* and use it for making their *pirogues;* it is also fit for masts.

Celastrus; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, half five-cleft, flat, small; divisions obtuse, unequal. *Corolla:* petals five, ovate, spreading, sessile, equal, reflected at the borders. *Stamina:* filamenta five, subulate, length of the corolla; antheræ very small. *Pistil:* germen very small, immersed in a large flat receptacle, which is marked with ten streaks; style subulate, shorter than the stamina; stigma obtuse, trifid. *Pericarp:* capsule coloured, ovate, obtusely triangular, gibbous, trilocular, trivalvular. *Seeds:* few, ovate, coloured, smooth, half involved in an unequal coloured *arillus,* with a four-cleft mouth. ESSENTIAL CHARACTER. *Corolla:* five-petalled, spreading. *Capsule:* triangular, trilocular. *Seed:* calyptrated.—This genus consists of shrubs or small trees, with alternate leaves, and the flowers many together, on axillary subdichotomous peduncles.——The species are,

1. Celastrus Bullatus; *Virginian Staff Tree.* Unarmed: leaves ovate, quite entire. It rises to the height of eight or ten feet; but in England there are few of these shrubs much more than half that height. This shrub flowers in July, but rarely produces good seeds in England. The flowers come out at the ends of the branches, in loose spikes, and are white; the capsule is of a scarlet colour, set full of small protuberances, opening into three cells, each containing a hard oval seed, covered with a thin red pulp.—It grows naturally in Virginia, and many other parts of North America. It is propagated by layers, which will take root in one year; the young branches only are proper for this purpose, so that when there are not any of these near the ground, the main stalks should be drawn down and fastened with pegs to prevent their rising, and the young shoots from them should be laid: the best time for doing this is in autumn, when they begin to cast their leaves, and by that time twelvemonth they will be sufficiently rooted, and should be cut off from the old plant, and be replanted in the nursery for two or three years to get strength, after which they must be removed to the places where they are to remain: it grows naturally in moist places, and will not thrive in a dry soil, although it be very hardy, and bears the cold of our winters very well. It is also propagated by seeds brought from America, but as these rarely arrive in time to sow before the spring, the plants never come up the first year; therefore the seeds may be sown either in pots or in a bed of loamy earth, keeping them clean from weeds during the summer, and those in the pots in the shade till the autumn, when the pots should either be plunged into the ground in a warm situation, or placed under a common frame, to prevent the frost from penetrating through the side of the pots; and if the surface of those which are plunged into the ground, and also the beds where the seeds are sown, be lightly covered with some old tan from a decayed hot-bed, it will secure the seeds from being hurt by severe frosts. If the plants make a good progress the first summer, they may be transplanted into a nursery in autumn, otherwise they should remain in the seed-bed till the second year, when they may be treated in the same manner as the layers.

2. Celastrus Scandens; *Climbing Staff Tree.* Unarmed; stem twining. It sends out several woody stalks, which are flexible, and twist themselves round trees and shrubs, or round each other, to the height of twelve or fourteen feet or more, girding trees so closely as in a few years to destroy them. Leaves alternate, petioled, smooth; flowers small, whitish green. It flowers in the beginning of June, and the seeds ripen in autumn.—Native of North America and Japan. The seeds of this species generally ripen well in England, and

this may be propagated from these or by layers, as in the former; it delights in a strong loamy soil, rather moist than dry, and will grow in woods among other trees and shrubs; where, when the fruit is ripe, it makes a pretty appearance, and is remarkably hardy.

3. Celastrus Myrtifolius; *Myrtle-leaved Staff-Tree.* Unarmed; leaves ovate, finely serrate; flowers racemed; stem erect.—Native of North America.

4. Celastrus Procumbens; *Procumbent Staff Tree.* Unarmed, procumbent: leaves ovate, serrate; flowers axillary, subsolitary.—Native of the Cape of Good Hope. This, as well as all the Cape sorts, may be propagated by cuttings, which is more expeditious than raising them from seeds, which rarely come up the same year: the cuttings may be planted any part of the summer, but those which are planted early will have more time to acquire strength before the winter: let them be put into small pots filled with good kitchen-garden earth, four together; plunge them into a moderate hot-bed, shade them from the sun, and occasionally refresh them with water, expose them gradually to the open air when they have taken root, and then place them in a sheltered situation until they become strong. After which, plant each in a small pot; place them in the shade till they have taken root; and then treat them as other exotics.

5. Celastrus Filiformis; *Filiform-branched Staff Tree.* Unarmed: leaves lanceolate, entire; branches filiform; peduncles axillary, one-flowered.—Found at the Cape.

6. Celastrus Acuminatus; *Acuminate-leaved Staff Tree.* Unarmed: leaves ovate, acuminate, serrate; peduncles axillary, one-flowered; stem erect, lax.—Found at the Cape.

7. Celastrus Microphyllus. Unarmed: leaves ovate, obtuse, entire; cymes terminal, dichotomous.—Found at the Cape, as also the three former, by Thunberg.

8. Celastrus Articulatus. Unarmed: leaves rounded, acuminate, serrate; peduncles axillary, subtrifid; stem shrubby, erect.—Observed by Thunberg in Japan.

9. Celastrus Dilatatus. Leaves obovate, cusped, serrate at the tip, and smooth; stem unarmed.—Observed by Thunberg in Japan.

10. Celastrus Striatus. Unarmed: branchlets erect, striated; leaves ovate, acuminate, serrate; peduncles scattered, one-flowered.—Observed by Thunberg in Japan.

11. Celastrus Alatus; *Wing-branched Staff Tree.* Unarmed: branches winged; stem shrubby, a fathom in height; seeds arilled. This is a handsome shrub, singular for its winged branches; the Japanese frequently cultivate it in their gardens, and the young men hang bunches of the flowers before the doors of the houses where the young women reside, when they wish to signify their desire to pay their addresses to them.—Grows in Japan.

12. Celastrus Buxifolius; *Box-leaved Staff Tree.* Spines leafy; branches angular; leaves obtuse. It flowers in May and June, and is a native of the Cape.

13. Celastrus Pyracanthus; *Pyracantha-leaved Staff Tree.* Spines naked; branches round; leaves acute. A loose irregular shrub, three feet high; flowers from the sides of the branches in loose tufts; fruit large, about the size of a cherry, egg-shaped, with three obtuse angles, pendent.—It is a native of the Cape; whence the seeds were first brought to the gardens of Holland, and thence distributed among most of the curious gardens in Europe.

14. Celastrus Lucidus; *Shining Staff Tree,* or *Small Hottentot Cherry.* Leaves oval, shining, quite entire, margined. It is an upright shrub, with brown hard branches. It flowers in April and September, and is a native of the Cape.

15. Celastrus Linearis; *Linear-leaved Staff Tree.* Spines leafy; leaves linear, entire. Found by Thunberg at the Cape of Good Hope.

16. Celastrus Integrifolius; *Entire-leaved Staff Tree.* Spines leafy; leaves ovate, obtuse, quite entire; cymes lateral.—Found at the Cape.

17. Celastrus Crenatus; *Notch-leaved Staff Tree.* Unarmed: leaves ovate, crenulate; cymes axillary.—Native of the Marquesas Islands in the South Seas.

18. Celastrus Corniculatus. Leaves oval, quite entire, perennial; capsule three-horned.—Native of the Cape.

19. Celastrus Cassinoides; *Crenated Staff Tree.* Unarmed: leaves ovate, acute both ways, loosely toothed; perennial; flowers axillary.—It flowers in August and September; and is a native of the Canary Islands.

20. Celastrus Phyllacanthus. Thorns leafy; leaves lanceolate, serrate, perennial; flowers lateral, very small. A bushy shrub, two or three feet high; young branches reddish; leaves on short petioles. Found in Senegal.

21. Celastrus Octogonus; *Angular-leaved Staff Tree.* Unarmed: leaves elliptic, angular, almost nerveless. Perennial; capsules bivalve, one-seed; leaves glaucous.—Found in Pegu by Dombey, flowering in October.

22. Celastrus Undulatus: *Wave-leaved Staff Tree.* Unarmed: leaves nearly opposite, lanceolate, waved; capsules bivalve, many-seeded.—Found by Commerson in the island of Bourbon, where they call it *bois de joli cœur,* and use it as an antisiphylitic.

Celeri, or *Celery.* See *Apium.*

Celosia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth three-leaved; leaflets lanceolate, dry, acute, permanent, stiffish, caliciform; nectary a margin surrounding the germen, very small, five-cleft. *Stamina:* filamenta five, subulate, conjoined at the base to the plaited nectary, length of the corolla; antheræ versatile. *Pistil:* germen globular; style subulate, straight, length of the stamina; stigma simple. *Pericarp:* capsule globular, surrounded by the corolla, one-celled, circumcised. *Seeds:* few, roundish, emarginate. Essential Character. *Calix:* three-leaved; leaflets similar to those of the five-petalled corolla. *Stamina:* conjoined at the base to the plaited nectary. *Capsule:* gaping horizontally.—The Celosias are all herbaceous plants, and annuals; the flowers are glomerate, in spikes or panicles, some of which are flatted, and shaped something like the comb of a cock, and hence they have been called *Cockscombs.* ——The species are,

1. Celosia Argentea; *Silvery-spiked Celosia.* Leaves lanceolate; stipules subfalcated; peduncles angular; spikes scariose.—Native of the East Indies, China, Cochin-china, and Japan: it flowers from June to September.

2. Celosia Margaritacea. Leaves ovate; stipules falcated; peduncles angular; spikes scariose.—Native of America.

3. Celosia Cristata; *Crested Amaranth,* or *Cockscomb.* Leaves oblong-ovate: peduncles round, substriated; spikes oblong. This is a plant, well known by its common appellation of Cockscomb, which it especially received from the form of its crested head of flowers, resembling the comb of a cock. There are many varieties, differing in form, size, and colour, from the same seed: the principal colours of their heads are red, purple, yellow, and white; but some are variegated with two or three colours.—It is a native of Asia. Thunberg informs us, that the crests or heads of flowers are frequently a foot in length and breadth in Japan, where they are extremely beautiful, but that they degenerate in other countries.—*Propagation.* In order to have fine large Ama-

ranths, great care should be taken in the choice of seed, for if they be not carefully selected, the whole expense and trouble of raising them will be lost: they must be sown on a hot-bed which has been prepared a few days before, that the violent heat may abate, about the beginning of March; and if the bed be in good temper, in about a fortnight's time the plants will rise; but as they are tender when they first appear, they require great care for a few days, till they get strength; first in giving them a due proportion of air, to prevent their drawing up weak, and next to keep them from too great moisture, a small quantity of which will cause their tender stems to rot: in sowing the seeds, care must be taken not to put them too close, for when the plants come up in clusters, they frequently spoil each other for want of room to grow; in a fortnight or three weeks' time, they will be fit to remove, when you must prepare another hot-bed, covered with good light rich earth, about four inches thick; which should be made a few days, that it may have a proper temperature of heat; then raise up the young plants with your finger, so as not to break off the tender roots, and prick them into the new hot-bed about four inches' distance every way, giving them a gentle watering, to settle the earth to their roots; but in doing this be very cautious not to bear the young plants down to the ground by hasty watering. After the plants are thus replanted, they must be screened from the sun till they have taken fresh root; but as there generally is a great steam arising from the fermentation of the dung, which condenses against the glasses, and dropping upon the plants, very frequently destroys them; the glasses should be frequently turned in the day-time, whenever the weather will permit; but if the weather happen to prove bad, it will greatly assist the plants to wipe off all the moisture two or three times a day with a woollen cloth, to prevent its dropping upon the plants: when your plants are firmly rooted and begin to grow, you must observe to give them more or less air every day, let the weather be cold or hot, to prevent their drawing up too fast, which greatly weakens their stems: in about a month or five weeks these plants will have grown so as to meet; therefore another hot-bed, of a moderate temperature, should be prepared, and covered with the same rich earth, about six inches thick, in which they should be planted (observing to take them up with as much earth about their roots as possible) at seven or eight inches' distance every way, giving them some water to settle the earth about their roots, but taking care not to water them heavily, so as to bear them down: they must be kept shaded in the heat of the day, until they have again taken root, and should be gently refreshed with water in proportion to the heat of the weather, covering the glasses with mats every night, lest the cold chill your beds, and stop the growth of the plants. In the middle of May you must provide another hot-bed, which should be covered with a deep frame, that your plants may have room to grow: upon this hot-bed you must set as many threepenny pots as can stand within the compass of the frame; these pots must be filled with good rich earth, and the cavities between each pot filled up with any common earth, to prevent the heat of the bed from evaporating, and filling the frame with noxious steams; then with a trowel take up the plants, with as much earth as possible to the roots, and place each plant in the middle of one of the pots, filling the pot up with the earth before described, and settling it close to the root of the plant by the hand; then water them gently as before, and shade them in the heat of the day from the violence of the sun, by covering the glasses with mats; refresh them often with water, and give them a good quantity of air in the day-time: in about three weeks more these plants will have grown to a considerable size and strength, so that you must now raise the glasses very much in the day-time; and when the air is soft and the sun is clouded, draw off the glasses, and expose them to the open air, and repeat it as often as the weather will permit, which will harden them by degrees, and prepare them to be removed abroad into the plants where they are to remain the whole season; but it is not advisable to set these plants out till some time in July, observing to do it when the air is perfectly soft, and, if possible, in a gentle shower of rain. Let them be at first set near the shelter of a hedge for two or three days, where they may be screened from the violence of the sun and strong winds, to which they must be inured by degrees: these plants perspire very freely when they have grown to a good stature, and must be refreshed every day with water, if the weather prove hot and dry, otherwise they will stunt, and never produce their plumes so fine as when they are taken care of.—The above is the proper management in order to have fine Amaranths, which, if rightly followed and the kinds be good, in a favourable season will produce wonderfully large fine heads, and are the greatest ornament to a good garden for upwards of two months: by this method plants five or six feet high, with crests nearly a foot in breadth, have been raised; and if the kind be good, and there be no want of dung or conveniences, in a kindly season they will grow much larger. By the middle or end of September, the Amaranths will have perfected their seeds, so that you must make choice of the largest, most beautiful, and least branching plants, of each kind, for seed; which you should remove under shelter, especially if the weather prove wet or the nights frosty, that the seeds may be perfectly ripened. The seeds should not be taken from side-branches or the neck of the plume, but those only which are produced in the middle of the plant, which, though generally few in number, are the only ones that can be depended upon for producing good plants in the succeeding year.

4. Celosia Paniculata; *Panicled Celosia.* Leaves ovate-oblong; stem rising, panicled; spikes alternate, terminal, remote. Mr. Miller says, that the stems are nearly four feet in length, and that the slender spikes are of a pale yellow, shining with a gloss like silk; that it grows naturally in most of the sugar islands, and that Dr. Houston sent him the seeds from Jamaica.

5. Celosia Coccinea; *Scarlet Celosia,* or *Chinese Cockscomb.* Leaves ovate, stiff, earless; stem grooved; spikes manifold, crested. It has a furrowed stalk, four or five feet high, and terminated by several spikes of flowers variously formed, some being crested, others plumed like feathers, of a bright scarlet colour, and making a good appearance.—Native of China.

6. Celosia Castrensis; *Branched Celosia,* or *Cockscomb.* Leaves lanceolate-ovate, marked with lines, very much acuminated: stipules falcated; spikes crested.—Native of the East Indies; cultivated generally in China and Cochin-china.

7. Celosia Trigynia; *Oval-leaved Celosia.* Leaves ovate-oblong; raceme lax; pistil trifid. Stem upright, simple, slightly angular, striated, stiff, a foot and half high; corolla ovate, acute, scariose, permanent.—Native of Senegal.

8. Celosia Lanata; *Woolly Celosia.* Leaves lanceolate, tomentose, obtuse; spikes crowded; stamina woolly. This rises with a white woolly stalk from two to three feet high.—Native of the island of Ceylon.

9. Celosia Gnaphaloides. Shrubby, woolly: leaves opposite, ovate, white beneath; head globular, peduncled.—It was found on Monte Video in Brasil.

10. Celosia Nodiflora; *Knotted Celosia.* Leaves wedge-

form, somewhat acute; spikes globular, lateral.—There are two varieties; the one comes from Sumatra, and the other from Malabar. It flowers in July and August.

11. Celosia Procumbens; *Procumbent Celosia.* Stems decumbent; peduncles very long, leafless; spikes ovate, approximating; capsules compressed, crested, winged. Stems two feet high.—Native of St. Domingo.

12. Celosia Monsoniæ; *Downy Celosia.* Spikes compact, cylindric; branches brachiate; leaves subulate. Stems prostrate, branching.—Native of the East Indies.

13. Celosia Polygonoides. Leaves cordate; stem hispid; raceme spiked; loose; flowers three-styled. Stem almost upright, striated.—Sent by Kœnig from Tranquebar.

14. Celosia Baccata. Flowers three-styled; fruits berried; stem upright; flowers small, on very short peduncles. —Found in the East Indies,

Celsia; a genus of the class Didynamia, order Angiospermia.—Generic Character *Calix:* perianth five-parted; divisions lanceolate, obtuse, length of the corolla, permanent. *Corolla:* monopetalous, rotated; tube extremely short; border flat, half five-cleft, unequal; divisions roundish, of which the two superior ones are smaller, the inferior one larger. *Stamina:* filamenta four, capillary, inclined towards the smallest divisions of the corolla, of which the two longer ones are shorter than the corolla, and are outwardly woolly; antheræ roundish, small. *Pistil:* germen roundish; style filiform, length of the stamina; stigma obtuse. *Pericarp:* capsule roundish, compressed at the tip, acuminate, sitting on the calix, bilocular. *Seeds:* very many, small, angular; receptacles solitary, hemispherical. Essential Character. *Calix:* five-parted. *Corolla:* rotated. *Filamenta:* bearded. *Capsule:* two-celled.——The species are,

1. Celsia Orientalis; *Oriental Celsia.* Leaves bipinnate. It flowers in June, and the seeds ripen in September. Stem a foot and a half high, upright, herbaceous, cylindrical, simple or furnished with short branches; leafy from the top; leaves alternate, scattered, those from the root oblong, lying flat on the ground; flowers pale yellow, small, solitary, sessile, axillary. Annual.—Native of the Levant. If the seeds be sown on a warm dry border as soon as they are ripe, the plants will often come up and live through the winter, if the soil be poor; on rich ground they are apt to grow rank, and then they are generally destroyed by the early frosts, or will rot with much wet; but if the plants should not rise the same autumn, there will be little hazard of their not growing in the following spring. They only require to be weeded, and thinned when too close; for as they do not bear removing well, they should be sowed where they are intended to remain: sometimes when the season proves warm, the plants sown in the spring produce ripe seeds; but they cannot be depended upon.

2. Celsia Arcturus; *Scollop-leaved Celsia.* Radical leaves lyrate-pinnate; peduncles longer than the flowers; corolla yellow. Biennial.—Native of Crete. It requires the protection of a green-house.

3. Celsia Cretica; *Great-flowered Celsia.* Radical leaves lyrate; stem-leaves subcordate, embracing; flowers subsessile; corolla yellow, with two ferruginous spots at the upper part of the tube. Biennial.—Native of the East Indies, flowering in July. It also requires the protection of a green-house.

4. Celsia Linearis. Leaves tern, linear, toothletted. This is an elegant evergreen smooth shrub; the trunk is woody, but weak, the thickness of a quill, striated, pale brown, three feet high, putting out numerous spreading branches its whole length; the younger ones green, grooved, and very leafy; leaves growing three together, spreading much, the largest two inches long; corolla brilliant scarlet, with a blood-red throat.—Found in Peru by Dombey. It may be propagated both by seeds and cuttings; and though it succeeds best in a moderate stove, will bear to be treated as a green-house plant.

Celtis; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite Flowers,* solitary, superior. *Calix:* perianth one-leaved, five-parted; divisions ovate, patulous, withering. *Corolla:* none. *Stamina:* filamenta five, very short, concealed at first by the antheræ, but growing longer after the shedding of the pollen; antheræ oblong, thickish, quadrangular, four-furrowed. *Pistil:* germen ovate, acuminate, length of the calix; styles two, spreading, variously inflected, subulate, pubescent on every side, very long; stigmas simple. *Pericarp:* drupe globular, one-celled. *Seed:* nut roundish. *Male Flowers,* on the same plant, inferior. *Calix:* perianth six-parted; the rest as in the hermaphrodites. *Corolla:* none. *Stamina:* six; the rest as in the hermaphrodites. Essential Character. *Hermaphrodite. Calix:* five-parted. *Corolla:* none. *Stamina:* five. *Styles:* two. *Drupe:* one-seeded. *Male. Calix:* six-parted. *Corolla:* none. *Stamina:* six. These trees are all propagated by seeds, which should be sown soon after they are ripe, when they can be procured at that season; for such frequently come up in the following spring; whereas those which are sown in the spring, will not come up till a twelvemonth after: therefore it is the best way to sow them in pots or tubs, that they may be easily removed; for those which are sown in the spring should be placed in a shady situation in summer, and constantly kept clean from weeds, but in autumn they should be placed in a warm situation, plunging the pots into the ground; and if they be covered over with a little tan from a decayed hot-bed, it will prevent the frost from penetrating the earth to injure the seeds; and if these pots be placed on a gentle hot-bed in the spring, it will greatly forward the vegetation of the seeds, whereby the plants will have more time to get strength before the winter: but when the plants appear above ground, they must have a large share of air admitted to them, otherwise they will draw up weak; and as soon as the weather is warm, they must be exposed to the open air, and in summer they must be constantly kept clean from weeds; if the season prove dry, they will require water two or three times a week. In autumn it will be proper to remove the pots, and place them under a hot-bed frame, to shelter them in winter from severe frost; or, where there is not that convenience, the pots should be plunged into the ground near a wall or hedge; and, as the plants when young are full of sap, and tender, the early frosts in autumn frequently kill the upper part of the shoots; therefore the plants should be either covered with mats, or have a little straw or pease-haulm laid over to protect them. In the following spring the plants should be taken out of the seed-pots, and planted in the full ground; this should be done about the middle or latter end of March, when the danger of the frost is over; therefore a bed or two should be prepared according to the number of plants raised, in a sheltered situation, and, if possible, in a gentle loamy soil. The ground must be well trenched, and cleared from the roots of bad weeds, and when levelled, should be marked out in lines at one foot distance; then the plants should be carefully turned out of the pots and separated, so as not to tear their roots, and planted in the lines at six inches asunder, pressing the earth down close to their roots. If the ground be very dry when they are planted, and there be no appearance of rain soon, it will be proper to water the beds to settle the ground to the roots of the plants; and after this, if the surface of the ground be covered with some old tan or rotten dung, it will keep it moist, and prevent the drying winds from penetrating to the

roots of the plants. The following summer the necessary care must be to keep them constantly clean from weeds; but after the plants are pretty well established in the ground, they will not require any water, especially toward the latter end of summer, for that will occasion their late growth, whereby they will be in great danger of suffering by the autumnal frosts; for the more any of these young trees are stopped in their growth by drought towards autumn, the firmer will their texture be, and the better able to bear the cold. The plants may remain in these nursery beds two years, by which time they will have acquired sufficient strength to be transplanted where they are designed to remain, because these plants extend their roots wide every way; so that if they stand long in the nursery their roots will be cut in removing, which will be a great prejudice to their future growth.——The species are,

1. Celtis Australis; *European Nettle Tree.* Leaves ovate-lanceolate. The European Nettle-tree, or Lote-tree, rises with an upright stem, to the height of forty or fifty feet, with many slender branches, and a smooth dark-coloured bark with some grey spots; leaves alternate, nearly four inches long and two broad; flowers axillary all along the branches, composed of a green calix without any corolla; fruit the size of a small cherry, black.—It grows naturally in the south of Europe, where it is one of the largest trees: the wood is one of the hardest we are acquainted with. Evelyn says that it was anciently used for flutes and other musical instruments, and that hafts for knives and tools were made of the root. Whenever it arrives at any considerable size, its hardness, toughness, and flexibility, must fit it for important services: its fine regular spreading head, of a cheerful green colour, renders this tree extremely proper for clumps in parks, groves, single trees, or avenues. The branches are converted into hoops for casks; the berries are eaten by birds, and also by children in the south of Europe.

2. Celtis Occidentalis; *American Nettle Tree.* Leaves obliquely ovate, serrate-acuminate. This tree rises with a straight stem, which in young trees is smooth, and of a dark colour; but as they advance it becomes rougher, and of a lighter green. The fruit when ripe is of a dark purple colour. It grows naturally in North America, and in a moist rich soil becomes a very large tree; the wood of which being tough and pliable, is esteemed by coach-makers for their carriages.

3. Celtis Orientalis; *Oriental Nettle Tree.* Leaves obliquely cordate, serrate, villose underneath. It rises with a stem about ten or twelve feet high, dividing into many branches, which spread horizontally on every side, and have a smooth greenish bark. The fruit is oval and yellow; when fully ripe it turns to a darker colour: the wood is very white; it yields gum like the Cherry-tree.—Native of the Levant, the East Indies, Japan, and the Society Isles.

4. Celtis Americana. Leaves oblong, ovate, obtuse, nerved, smooth above, golden beneath. This rises with a straight trunk nearly twenty feet high, covered with a grey bark, and dividing at the top into many branches; the fruit is round and red.—It was first discovered by Father Plumier in the French West India islands. The seeds rarely come up the first year; so that they may be sown in pots, and plunged into the tan-bed in the stove, where they should remain till the plants come up. They must be constantly kept in the bark-stove, and treated in the same manner as other tender exotics.

5. Celtis Micrantha; *Jamaica Nettle Tree.* Leaves obliquely cordate, ovate-lanceolate, serrulate, somewhat rugged on the upper surface. This shrubby tree seldom rises above ten or twelve feet, and throws out a great number of loose branches. It flowers in August and September.—Native of Jamaica.

6. Celtis Aculeata. Leaves cordate-ovate, blunt at the tip, almost entire, very smooth; branches prickly. This inelegant little tree has very long, pliant, scarcely divided, and reclining branches; drupe roundish or ovate, crowned with the withering style, yellow, double the size of a pea, containing a sweet pulp, which is eaten by the inhabitants of the Caribbee islands; of which, and also of the neighbouring continent, this tree is a native.

7. Celtis Lima. Leaves ovate-lanceolate, acuminate, obliquely cordate, serrate, very rugged above. Height fifteen feet; trunk straight, with a smooth, reddish, or light brown bark.—Native of the West Indies.

Cenchrus; a genus of the class Polygamia, order Monœcia.—Generic Character. *Calix:* involucres many, laciniate, echinate, gathered into a head, each sessile, including three calices, biflorous; perianth a bivalve glume, lanceolate, concave, acuminate, biflorous, shorter than the corolla. *Corolla:* one male, the other hermaphrodite; proper, each bivalve; valves lanceolate, acuminate, concave, awnless; the interior one smaller. *Stamina:* to each three filamenta, capillary, length of the corolla; antheræ sagittate. *Pistil:* germen of the hermaphrodite roundish; style filiform, length of the stamina; stigmas two, oblong, hairy, spreading. *Pericarp:* none. *Seed:* roundish. Essential Character. Involucre laciniate, echinate, two-flowered. *Calix:* glume two-flowered, one male, the other hermaphrodite. *Hermaphrodite. Corolla:* glume awnless. *Stamina:* three. *Seed:* one. *Male. Corolla:* glume awnless. *Stamina:* three. ——The species are,

1. Cenchrus Racemosus; *Branching Cenchrus.* Panicle spiked; glumes muricated with ciliary bristles.—Native of the southern parts of Europe, the coast of Egypt, and the East Indies. It flowers in July and August.

2. Cenchrus Lappaceus; *Bur Cenchrus.* Branches of the panicle very simple; corollas hispid backward; calices three-valved, two-flowered; culm branching, even.—Native of the East Indies.

3. Cenchrus Muricatus. Spike muricated; scales various, mucronated; culm procumbent, a short span in length, branching, leafy.—Native of the East Indies.

4. Cenchrus Capitatus; *Oval-spiked Cenchrus.* Spike ovate, simple. The culm is only three or four inches high, and has only one joint.—Native of the south of France, and Italy.

5. Cenchrus Echinatus; *Rough-spiked Cenchrus.* Spike oblong, conglomerate.—Native of Virginia and Jamaica.

6. Cenchrus Tribuloides. Spike glomerate; female glumes globular, muricate, spiny, hirsute; culms many, trailing, round, 18 inches long.—Native of Virginia and Jamaica.

7. Cenchrus Ciliaris; *Ciliated Cenchrus.* Spike with setaceous, ciliated, four-flowered involucels. Culm ascending, glossy, the thickness of a thread, a short span in length, with inflected joints.—Observed at the Cape of Good Hope.

8. Cenchrus Granularis. Racemes double; fruits globular, wrinkle-netted; fruits minute, scarcely so big as a cabbage seed.—Native of the East Indies.

9. Cenchrus Frutescens. Heads lateral, sessile; leaves mucronated; stem shrubby.—Found by Tournefort in Armenia.

10. Cenchrus Setosus. Spike linear, oblong; involucres bristly; bristle unarmed, the interior ones villose at the base; hairs ciliate; glumes even.—Native of the West Indies.

11. Cenchrus Purpurascens. Raceme spiked, simple; florets surrounded with very long awns; culm erect, two feet high; awns purple.—Native of Japan.

Centaurea; a genus of the class Syngenesia, order Polygamia Frustranea.—Generic Character. *Calix:* common imbricate, roundish; scales often variously terminated. *Corolla:* compound flosculous, difform; corollules hermia-

phrodite, very many in the disk; females fewer, larger, lax in the ray. Proper of the hermaphrodite monopetalous; tube filiform; border ventricose, oblong, erect, terminated by five divisions, which are linear, erect. Of the females monopetalous, funnel form; tube slender, gradually enlarged, recurved; border oblong, oblique, unequally divided. *Stamina:* in the hermaphrodites: filamenta five, capillary, very short; antheræ cylindric, tubular, length of the corollule. *Pistil:* in the hermaphrodites: germen small; style filiform, length of the stamina; stigma very obtuse, projecting in a point which in many is bifid: in the females; germen very small; style scarcely any; stigma none. *Pericarp:* none; calix unchanged, converging. *Seeds:* in the hermaphrodites solitary; down or egret, in most plumose or pilose; in the females none. *Receptacle:* bristly. ESSENTIAL CHARACTER. *Receptacle:* bristly. *Down:* simple. *Corolla:* of the ray funnel-form, longer, irregular.—The numerous species of this genus may be increased without great difficulty: those which are annual, by seeds; and such as are perennial, both that way and by parting the roots. The seeds of the greater part may be sown either in spring or autumn in a bed of light earth, either to remain where they are; and in that case only to be thinned and kept clean from weeds; or to be pricked out when of a proper size, into a bed of fresh earth, about six inches asunder, there to remain till autumn, when they should be planted where they are to continue: most of them are hardy, and none of them very tender, although some require a little protection in this climate.——The species are,

* Jaceas: *Calices even, unarmed.*

1. Centaurea Crupina; *Black-seeded Centaury*, or *Bearded Creeper*. Scales lanceolate; leaves pinnate, serrate, subciliate. Stem striated, three feet high, almost quite simple.—Native of the south of France, Tuscany, the Levant, &c. Annual.

2. Centaurea Moschata; *Purple Sweet Centaury*, or *Sweet Sultan*. Calices roundish, smooth; scales ovate; leaves lyrate-toothed. This is annual; and has long been propagated in the English gardens, under the name of Sultan-flower, or Sweet-Sultan. It was brought from the Levant, where it grows naturally in arable land among the corn. It sends up a round channelled stalk nearly three feet high, which divides into many branches, with jagged leaves, of a pale green, smooth, and close to the branches; from the side of the branches come out long naked peduncles, each sustaining a single head of flowers, which are purple, white, or flesh-coloured, and have a very strong odour, which is as offensive to some as it is agreeable to others.—The seeds of this species are commonly sown upon a hot-bed in the spring, to bring the plants forward, and in May they are transplanted in the borders of the flower-garden; but if the seeds be sown in a warm border in autumn, they will live through the winter; and these plants may be removed in the spring into the flower-garden, and will be stronger and come earlier to flower than those which are raised in the spring. The seeds may also be sown in the spring on a common warm border, where the plants will rise very well, but will be later in flowering than any of the rest. The autumnal plants will begin to flower in the middle of June, and will continue flowering till September. The spring plants will flower a month later, until the frost stops them. The seeds ripen in autumn. The *yellow* Sweet Sultan is much tenderer than the former; its seeds must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they should be transplanted into a fresh hot-bed to bring them forward; and when they have taken root in this bed, they must have air admitted to them every day, to prevent their drawing up weak, and be sparingly refreshed with water, because they are very apt to rot with much wet.

3. Centaurea Crucifolia. Scales lanceolate; leaves lanceolate, somewhat toothed. Root annual; stem a foot high, rough with hairs; corolla bright purple; calices pubescent.

4. Centaurea Lippii; *Egyptian Centaury.* Scales mucronate; leaves subdecurrent, lyrate-toothed; corollas purple, with a large ray.—Native of Egypt, between Alexandria and Rosetta.

5. Centaurea Alpina; *Alpine Centaury.* Scales ovate-obtuse; leaves pinnated, smooth, quite entire, the odd leaflet serrated. Root perennial, striking deep into the ground.—It grows naturally upon the Alps and in Italy.

6. Centaurea Centaurium; *Great Centaury.* Scales ovate; leaves pinnated; leaflets serrated, decurrent. The flowers are purple, and come out in June.—This has a strong perennial root, and grows naturally on the mountains of Italy, Spain, and Tartary. It is supposed to be the *tristia centaurea* of Lucretius, and the *graveolentia centaurea* of Virgil, recommended by the latter in disorders of the bees. It may be propagated by parting the roots: as it requires much room, it is not proper for small gardens; but in large open borders, or on the edges of plantations, with other tall growing plants, it makes a good figure.

** Cyani: *With Scales of the Calix serrate-ciliated.*

7. Centaurea Phrygia; *Austrian Centaury.* Calices recurve-plumose; leaves undivided, oblong, scabrous. Stem somewhat shrubby, upright, from eight or ten inches to a cubit in height, often branched, furrowed, hispid, but not tomentose; corolla a fine red.—Native of Germany, Austria, and Switzerland.

8. Centaurea Capillata; *Feathered Centaury.*—Calices recurved, plumose; bottom leaves pinnated, toothed; upper lanceolate. Stem four or five feet high, angular, hard, branching.—Native of Spain and Siberia.

9. Centaurea Uniflora; *One-flowered Centaury.* Calices recurve-plumose; leaves lanceolate, somewhat toothed, tomentose. This is a palm or foot in height; corolla purple; leaves very narrow, lanceolate, quite entire, covered with a very white pile.—Native of the south of Europe.

10. Centaurea Linifolia; *Flax-leaved Centaury.* Calices recurve-plumose; leaves linear, scattered. Stem a palm in height, often decumbent, branching from the bottom, furrowed, angular, rough with stiff hairs; corolla purple.—Perennial; and a native of Spain and Italy.

11. Centaurea Pectinata. Calices recurve-plumose; leaves lyrate, toothletted; branch-leaves lanceolate, quite entire; corollets pale purple, or white, all equal.—Native of Spain, south of France, and Silesia.

12. Centaurea Nigra; *Black Centaury*, or *Knapweed.* Calices ciliate, with the little scale ovate; cilias capillary, erect; leaves lyrate, angular; flowers floscular. Stem from two to three feet in height; florets all alike; tube whitish, long, and narrow; border purple. This plant has many provincial names, as knap-weed, knop-weed, knob-weed, horse-knops; all from *knob* or *nob*, a head; also hard-heads, hard-irons, and matfellon; in Scotland, horse-knot.—It is found in Germany, Austria, and France. It is a bad weed in the English meadows and pastures, being a harsh stubborn plant, seldom touched by cattle either green or in hay, and being very difficult to extirpate.

13. Centaurea Pullata. Calices ciliate, vertical, leafy; leaves lyrate, toothed, obtuse. It is a low plant; corolla purplish, with a large ray. It flowers in June and July, and the seeds ripen in autumn.—Native of the south of France, Spain, and the Levant.

14. Centaurea Montana; *Mountain Centaury, Perennial Blue Bottle*, or *Batchelor's Buttons.* Calices serrate; leaves lanceolate, decurrent; stem quite simple. Root perennial,

running deep into the ground; corollets in the ray very long, blue, with a white tube, neuter; in the disk short, purple, fertile.—It flowers in May and June, and is a native of the south of Europe. It is now become a common plant in large gardens, from the facility with which it is increased; the roots indeed creep so much, that it is apt to become troublesome: it will grow in any soil and situation.

15. Centaurea Cyanus; *Corn Centaury*, or *Annual Blue Bottle*. Calices serrate; leaves linear, quite entire, the lowest toothed. Stem one to two feet high, angular, slightly tomentose, branched at top.—It is a common weed among corn, flowering from June till August; the wild flower is usually blue, but sometimes white or purple. Our old English writers, besides *blue-bottle*, a name it has commonly obtained, call it *blue-ball*, *blue-blow*, *corn-flower*, and *hurt-sickle*; in the Booke of Husbandrye, ascribed to Fitzherbert, it seems to be called *hadods* or *haudod*: some modern agriculturists speak of it under the name of *buddle*, which is evidently nothing more than a corruption of *bottle*. It is called *batchelor's buttons* in Yorkshire and Derbyshire, but that name is given to many other flowers: in Scotland, it is called *blue bonnets*; the Germans, Dutch, Swedes, and Danes, call it *korn-blume*; the French, *bluet*; the Italians and Portuguese, *ciano*; and the Spaniards, *aciano*, and *azulcio*. The expressed juice of the neutral florets makes a good ink; it also stains linen of a beautiful blue; but the colour is not permanent in any mode hitherto used. Mr. Boyle says, that the juice of the central florets, with the addition of a very small quantity of alum, makes a lasting transparent blue, not inferior to ultramarine. A water distilled from the flowers of this plant is good in inflammations and weakness of the eyes; and the leaves which grow on the stems; fresh gathered and bruised, will stop the bleeding of a wound, even if a large vessel be cut; their use in such cases, is but little known, but they surpass all other things of the kind, and may often be the instrument of saving life, where a surgeon's assistance is not to be procured in time: it is good for wounds or bruises in the breast, spitting of blood, &c. The juice dropped into old ulcers, cleanses and disposes them to heal. I have known it, says Meyrick, to be made use of by the country people for the jaundice; and, infused or boiled in white wine, it is an exceedingly good diuretic.—There are great varieties of colours in the flowers of the common annual blue-bottle, and some of them are finely variegated. The seeds are sold under the name of *bottles* of all colours; they will rise in any common border, and require no other care but to be kept clean from weeds, and thinned where they are too close. If the seeds be sown in autumn, they will succeed better, and the plants will flower stronger, than those which are sown in spring.

16. Centaurea Paniculata; *Panicled Centaury*. Calices ciliate; scales flat; leaflets bipinnate; branch-leaves pinnatifid, linear. Stem panicled, almost woody, stiff, striated, or angular, whitish, branched, from a foot to eighteen inches and two feet in height; florets flesh-coloured, or pale purple.—Native of the south of France, Switzerland, Germany, Austria, Carniola, Italy, and Spain: annual.

17. Centaurea Spinosa; *Prickly-branched Centaury*. Calices subciliate; branches spinous. The whole plant is tomentose.—Native of the island of Candia.

18. Centaurea Ragusina; *Cretan Centaury*. Calices ciliate; leaves tomentose, pinnatifid; leaflets obtuse, ovate, quite entire, the outer ones larger. Leaves white, as it were pappous, pinnated with rounded lobes; flower solitary, pedunculed, bright yellow. As this plant retains its leaves, which are extremely white, all the year, it makes a pretty variety in a garden.—Native of the island of Candia, and of several places on the coasts of the Mediterranean, both in Europe and Africa. This, and the two following species, may be propagated by slips, or by planting the young branches which do not shoot up to flower, in a shady border, any time during the summer; in the autumn they may be removed into warm borders, or put into pots to be sheltered in winter. This species will endure the cold of our ordinary winters in the open air, if it be planted in dry lime rubbish.

19. Centaurea Cineraria; *White-leaved Mountain Centaury*. Calices ciliate, terminal, sessile; leaves tomentose, bipinnatifid; lobes acute. Stems nearly three feet high, branching from a perennial root; flower purple, with white styles; rays scarcely longer than the rest of the corolla. The flowers come out in June, and in favourable seasons the seeds are perfected in autumn.—It grows naturally in Italy, on the borders of the fields.

20. Centaurea Argentea; *Silvery Centaury*. Calices serrate; leaves tomentose; root-leaves pinnatifid; leaflets earless. Stem next the root very tomentose; flowers yellow; leaves white. Perennial; flowering in July.—Native of Candia, or Crete.

21. Centaurea Sibirica; *Siberian Centaury*. Calices ciliate; leaves tomentose, undivided and pinnatifid, quite entire; stem declined. Stem quite simple, sometimes, but rarely, having one small branch, pubescent, somewhat grooved, usually one flower; corolla purple, sometimes flesh-coloured, with a large barren ray.—Found by Gmelin in Siberia.

22. Centaurea Sempervirens; *Evergreen Centaury*. Calices ciliate; leaves lanceolate, serrate, substipuled at the lowest tooth; lower leaves hastate. Stem round, pubescent, gray at bottom; flowers flosculous. It is a perennial plant, and the leaves continue in verdure through the year: it flowers in June and July, and in warm seasons the seeds ripen in September.—Native of Spain and Portugal.

23. Centaurea Scabiosa; *Scabious Centaury*, or *Great Knapweed*. Calices ciliate; leaves pinnatifid; pinnas lanceolate. Stem nearly cylindric, upright, alternately branched, leafy, striated, two feet high; leaves roughish, and slightly hairy; flowers solitary, terminating.—Native of most countries of Europe, except the southernmost parts, being found in meadows, on the borders of corn-fields, and by road-sides: it is perennial, flowering in July and August, and is called the *great horse-knobs*, in Yorkshire.

24. Centaurea Tatarica; *Tartarian Centaury*. Calices ciliate; leaves pinnate; pinnas lanceolate, undivided. Perennial.—Native of Siberia.

25. Centaurea Stœbe. Calices ciliate, oblong, leaves pinnatifid, linear, quite entire. Root perennial; stems nearly three feet high, branched, with a single leaf at each joint; flowers solitary, terminating; they appear in June, and the seeds ripen in August.

26. Centaurea Acaulis; *Stemless Centaury*. Calices ciliate; leaves lyrate; stem scarcely any. The flower is yellow; the root sweet and esculent.—Native of Arabia. It is called *Toffs* by the Arabs.

*** Rhapontica: *with the Scales of the Calix dry and scariose.*

27. Centaurea Orientalis; *Oriental Centaury*. Calices scariose-ciliate; leaves pinnatifid; pinnas lanceolate. The stems rise nearly five feet high, dividing at top into many smaller branches; flowers solitary, terminating, yellow; they come out from June to August, and the seeds ripen in autumn.—Native of Siberia.

28. Centaurea Behen. Calices scariose; radical leaves lyrate; lobes opposite; stem leaves embracing, decurrent.

Root perennial; stem a foot and a half high, smooth, leafy, with simple branches; flowers yellow, terminal, solitary.—Found at the foot of Mount Libanus, in shady watery places.

29. Centaurea Repens; *Creeping Centaury.* Calices scariose; leaves lanceolate, subpetioled, toothed; peduncles filiform, leafless. Stem angular, branched, even.—Perennial; and a native of the Levant.

30. Centaurea Jacea; *Common Centaury* or *Knapweed.* Calices scariose, lacerate; leaves lanceolate; radical leaves sinuate-toothed: branches angular; stems eight inches to three feet high; leaves scattered, acute, often a little cottony, and whitish; flowers purple and terminal. There are several varieties not worth enumerating.—Perennial; native of the north of Europe, and the south of France.

31. Centaurea Amara; *Bitter Centaury.* Calices scariose; leaves lanceolate, quite entire; stems decumbent. Stem panicled.—Native of Spain and Switzerland.

32. Centaurea Alba; *White-flowered Centaury.* Calices scariose, entire, mucronated; leaves pinnate, toothed; stem-leaves linear, toothed at the base.—Native of Spain and Switzerland.

33. Centaurea Splendens; *Shining Centaury.* Calices scariose, obtuse; radical leaves bipinnatifid; stem-leaves pinnated; teeth lanceolate. Stems three feet high, angular, hard, smooth, branched, many-flowered; flowers purple, with a beautiful silvery calix, consisting of dry round scales, ending in a harmless awn. Biennial; flowering in July: the seeds ripen in September.—Found in transalpine Switzerland, Spain, and Siberia.

34. Centaurea Rhapontica; *Swiss Centaury.* Calices scariose; leaves ovate-oblong, toothletted, entire, petioled, tomentose beneath. Root thick, round, black, wrinkled, and irregular; it strikes deep into the ground, and when dry is aromatic. This is a handsome plant; flowers solitary, large; floscules purple, very numerous, without any neuters.—It flowers in July, and is found in Switzerland, and about Verona. The root of this plant, and of several of the species allied to it, are bitter and astringent, and were formerly much given in cases wherein Jesuit's bark is now administered; the plant also will dye yellow. Neither this nor the thirty-seventh species, perfect their seeds in England; they must therefore be procured from their native countries; they are perennial, and hardy; and when once obtained, may be increased by the root.

35. Centaurea Babylonica; *Babylonian Centaury.* Calices scariose; leaves subtomentose, decurrent, undivided; radical leaves lyrate; corolla yellow. Perennial.—Native of the Levant.

36. Centaurea Glastifolia; *Wood-leaved Centaury.* Calices scariose; leaves undivided, quite entire, decurrent; root perennial, striking deep into the ground; flowers yellow.—Native of the Levant and Siberia; flowering from July till August.

37. Centaurea Conifera; *Cone Centaury.* Calices scariose; leaves tomentose, next the root lanceolate, on the stem pinnatifid; stem simple; root perennial, single, sending out in the spring several entire leaves, and afterwards a single stalk, more than a foot high; at the top comes a scaly head, like a pine-cone, taper at the top, surrounding the florets, which are of a bright purple colour, and appear in June.—Native of the south of Europe.

**** Stœbæ: *With the Spines of the Calix palmated.*

38. Centaurea Sonchifolia; *Sowthistle-leaved Centaury.* Calices palmate-spiny; leaves subdecurrent, spinulous, repand-toothed. Stem simple, angular.—Found on the coast of the Mediterranean.

39. Centaurea Seridis. Calices palmate, spiny; leaves decurrent, tomentose, oblong, the lowest sinuate-toothed. A tomentose plant, hardly a foot high, with the stems branching a little; ray of the flower purple; disk whitish, with few florets: perennial.—Native of Spain.

40. Centaurea Romana. Calices palmate-spiny; leaves decurrent, unarmed; radical leaves pinnatifid, the end-lobe largest. Root biennial; stems three feet in height; flowers large, red, appearing in July, and ripening seed in September.—It is a native of the Campania of Rome.

41. Centaurea Sphærocephala. Calices palmate-spiny; leaves ovate-lanceolate, petioled, toothed; root annual; leaves woolly.—Native of Spain and Barbary.

42. Centaurea Isnardi. Calices palmate-spiny; leaves lyrate-toothed, hispid, almost stem-clasping; flowers sessile, terminal; root perennial; flowers purple, solitary, appearing in June and July.

43. Centaurea Napifolia; *Turnip-leaved Centaury.* Calices palmate-spiny; leaves decurrent, sinuate, spinulous; radical leaves lyrate. Root annual; flowers terminating, corolla radiate, purple.—Native of the Archipelago. This species may be increased and treated in the same manner as the common annual blue-bottle.

44. Centaurea Aspera; *Rough Centaury.* Calices palmate, three-spined; leaves lanceolate, toothed.—Found about Montpellier, in Tuscany, and in Portugal.

*****Calcitrapæ: *with the Spines of the Calix compound.*

45. Centaurea Benedicta; *Blessed Thistle.* Calices double, spiny, woolly, involucred; leaves semidecurrent, toothletted, spiny. Root annual; stem erect, roundish, channelled, rough, one or two feet high, often branched towards the top; leaves long, elliptical, rough, bright green above, whitish underneath.—Flowers from June to September, and is a native of Spain and the Levant. This plant obtained the appellation of *Benedictus,* from its being supposed to possess extraordinary medical powers; for, exclusively of those qualities usually ascribed to bitters, it was thought to be a powerful alexipharmic, and capable of curing the plague, and other malignant febrile disorders; it was also reputed to be good against worms, as well as against all sorts of poison. Simon Paulli declares, that it has no equal in consolidating putrid and stubborn ulcers, and even cancers. He relates the case of a woman, whose breasts were wasted by a cancer to the very ribs, and yet was cured by washing them with the distilled water of this plant, and sprinkling them with the powder of its leaves. And Arnoldus de Villa Nova relates, that he saw the putrid and hollow ulcers of a man, who had all the flesh of his legs consumed to the very bone, and who had tried all other medicines in vain, cured by the following recipe: take the bruised leaves of this plant, and boil them with some generous wine, then add some melted hog's lard: let them boil a little more, and then put in some wheat flour, stirring it about all the while with a spatula, till it comes to the consistence of an ointment, which is to be laid warm upon the ulcers twice a day. However, notwithstanding all these high commendations, we do not find this plant considered as of any great importance in the modern materia medica. In loss of appetite, where the stomach has been injured by irregularities, it is allowed that the good effects of the infusion of this plant have been often experienced. The decoction of it also in water, or posset-drink, still maintains its popular reputation as a gentle vomit, for which purpose it is to be drank in pretty large quantities. Many persons mistake the Milk Thistle for this plant. Meyrick says, that the leaves of this species are bitter and stomachic, and that an infusion of them, taken in large quantities, excites vomit-

ing; and is good in smaller doses, to excite an appetite, and prevent sickness: when dried and powdered, they are good against worms. The surest method of cultivating this plant, is to sow the seed in autumn, and when the plants come up, to hoe the ground, cut up the weeds, and thin the plants; and in the following spring to hoe it a second time, leaving the plants a foot asunder: they will ripen their seeds in autumn, and soon after decay.

46. Centaurea Eriophora; *Woolly-headed Centaury.* Calices double-spiny, woolly; leaves semidecurrent, entire, and sinuate; stem proliferous. It flowers in July.—Native of Portugal.

47. Centaurea Ægyptiaca. Calices double, spiny, somewhat woolly; leaves sessile, lanceolate, entire, and toothed; stem proliferous, a foot high; corolla white; antheræ yellow, reddish at the tip. Annual.—Native of Egypt.

48. Centaurea Calcitrapa; *Star Thistle.* Calices subdouble, spiny, sessile; leaves pinnatifid, linear, toothed; stem hairy; root annual.—Native of England, Switzerland, and the southern parts of Europe.

49. Centaurea Calcitrapoides; *Phœnician Centaury.* Calices subdouble, spiny; leaves stem-clasping, lanceolate, undivided, serrate.—Found at Nismes, and in Palestine.

50. Centaurea Solstitialis; *St. Barnaby's Thistle.* Calices double, spiny, solitary; branch-leaves decurrent, unarmed, lanceolate; radical leaves lyrate, pinnatifid, acuminate; flowers terminal, solitary, bright yellow. Annual.—Native of the south of Europe. Discovered by Mr. Rowe, in a grassy field at Armingball, two miles from Norwich.

51. Centaurea Melitensis; *Cluster-headed Centaury.* Calices double, spiny, crowded, terminal; leaves decurrent, lanceolate, sinuous, unarmed. Annual.—Found about Montpellier, and in the island of Malta. This plant is what we commonly call the *solstitialis.*

52. Centaurea Sicula. Calices ciliate, spiny, terminal; leaves decurrent, lyrate, unarmed, hoary. Perennial.—Native of Sicily.

53. Centaurea Centauroides. Calices ciliate, spiny; leaves lyrate, pinnate, quite entire, the end division largest.—Native of Italy, Spain, and Montpellier

54. Centaurea Collina. Calices ciliate, unarmed, spiny; radical leaves bipinnatifid; stem acute-angled; florets yellow. Perennial.—Native of Montpellier, Spain, Carniola, Italy, &c.

55. Centaurea Rupestris; *Rock Centaury.* Calices ciliate, spiny; leaves bipinnate, linear. Perennial.—Native of Italy.

******Crocodiloidea: *Spines simple.*

56. Centaurea Verutum; *Dwarf Centaury.* Calices mostly simple, spiny; teeth two, opposite; leaves lanceolate, entire, decurrent. Root annual; stem erect, eighteen inches high; corolla yellow.—Native of Palestine.

57. Centaurea Salmantica; *Lyre-leaved Centaury.* Calices smooth, with a subspiny setule standing out; leaves lyrate, runcinate, serrate; flowers terminal; corollas white or purple. Perennial.—Native of the south of Europe.

58. Centaurea Cichoracea; *Succory-leaved Centaury.* Calices setaceous, spiny; leaves decurrent, undivided, serrate, spiny.—Native of Monte Argentario, in Italy.

59. Centaurea Muricata. Calices very simply spiny; lower leaves pinnatifid; upper lanceolate; pedunclcs very long; stems tender; flowers purple, rayed; spine brown, very sharp. Annual.—Native of Spain.

60. Centaurea Peregrina. Calices setaceous, spiny; leaves lanceolate, petioled, toothed at bottom. The stems rise nearly three feet high, with entire leaves at each joint; they are terminated by large single heads of gold-coloured flowers, enclosed in a prickly calix, appearing in July and August, but never producing seeds in this country. It grows naturally in Austria and Hungary.

61. Centaurea Radiata; *Rayed Centaury.* Calices almost unarmed and awned, radiate; leaves pinnatifid.—Native of Siberia.

62. Centaurea Nudicaulis; *Naked-stalked Centaury.* Calices setaceous, spiny; leaves undivided, the upper ones a little toothed; stem almost naked, one-flowered, simple; corollas purplish. Perennial.—Native of Provence, Spain, and Italy.

63. Centaurea Crocodilium; *Blush Centaury.* Calices scariose, very simply spiny; leaves pinnatifid, quite entire, the outmost division larger, toothed. Annual.--Native of Syria.

64. Centaurea Pumila; *Dwarf Centaury.* Calices very simply spiny; leaves tooth-pinnate, villose; stem none.—Found in Egypt, by Hasselquist.

65. Centaurea Tingitana; *Tangier Centaury.* Calices spiny at the edge; leaves lanceolate, undivided, serrate, subspiny. Perennial.—Native of Tangier.

66. Centaurea Galactites; *White-veined Centaury.* Calices setaceous, spiny; leaves decurrent, sinuate, spiny, tomentose beneath.—Observed by Ray, in Sicily, Malta, Italy, and about Montpellier.

********New Species.*

67. Centaurea Triumfetti. Calices serrate, with white cilias; leaves deeply pinnatifid, with two pinnas for the most part, decurrent. Perennial.—Found upon Mount Cenis.

68. Centaurea Kartschiana. Calices ciliate, spiny; leaves pinnate; pinnas sessile, lanceolate, decurrent, ending in a point. Stem smooth, branching, angular; florets reddish.

69. Centaurea Alata; *Upright Wing-stalked Centaury.* Calices ciliate; scales flat, oppressed, ciliate at the end; stem-leaves oblong, decurrent. Perennial.—Native of Tartary.

70. Centaurea Intybacea; *Succory-leaved Centaury.* Calices ciliate; scales flat, obtuse, ciliate at the end; leaves pinnatifid; disk equal to the ray. Stem two feet high, upright, hard, striated, branched; flowers terminating, purple, flesh-coloured, or white. Perennial.—Native of the borders of fields and dry pastures in the south of Europe.

71. Centaurea Diluta; *Pale-flowered Centaury.* Calices ciliate; scales acuminate, somewhat thorny; leaves oblong and pinnatifid; floscules of the ray longer than the disk.—Native of the south of Europe.

72. Centaurea Strobilacea. Calices scariose, spiny, serrate, ciliated; leaves dotted beneath, pinnated; pinnas lanceolate, falcated, erect. The calix closes during the night: the flowers are of a pale yellow colour; the plant has a bitterish taste, but no smell. Perennial.—It may be raised from seeds sown in the spring, on a gentle hot-bed; but in autumn the plants must be placed under the shelter of a glass-case: it may also be propagated by parting the roots.

73. Centaurea Hybrida. Calices ciliated, ending in a spine; leaves pinnated; branch-leaves linear, lanceolate, undivided, decurrent. Flower terminal, yellow: the whole plant dark green, and roughish.--Found on the hills about Turin: biennial.

74. Centaurea Nicæensis. Calices ciliate, spiny; leaves ovate, rough; radical leaves petioled, toothed; stem-leaves embracing, decurrent. Flower terminal, yellow.—Found about Nice: biennial.

75. Centaurea Cæspitosa. Calices palmate, spiny; leaves sinuate-toothed; the lower ones petioled, the upper ones half stem-clasping. Roots perennial, woody, dry, perpendicular, black on the outside; the flowers, which are purple, have a strong disagreeable smell.—Native of Italy, forming very thick tufts in the sand upon the sea-shore near Naples.

76. Centaurea Elegans. Stem simple; leaves undivided,

linear; axillas one-flowered, and one terminal flower. Height eighteen inches; stem round; flower blue. Annual. —Found by Dana in the vineyards of Unelia.

77. Centaurea Aurea; *Great Golden Centaury.* Calices most simply thorned; thorns spreading; floscules equal; leaves hirsute, the lower pinnatifid.—Native of the south of Europe.

Centaury. See *Centaurea, Chlora,* and *Gentiana.*

Centunculus; a genus of the class Tetandria, order Monogynia.—Generic Character. *Calix:* perianth four-cleft, spreading, permanent; divisions acute, lanceolate, longer than the corolla. *Corolla:* monopetalous, rotated; tube subglobular; border four-cleft, flat; divisions subovate. *Stamina:* filamenta four, almost the length of the corolla; antheræ simple. *Pistil:* germen roundish, within the tube of the corolla; style filiform, length of the corolla, permanent; stigma simple. *Pericarp:* capsule globular, unilocular, opening horizontally. *Seeds:* very many, very small. Essential Character. *Calix:* four-cleft. *Corolla:* four-cleft, spreading. *Stamina:* short. *Capsule:* one-celled, opening horizontally.——The only known species is,

1. Centunculus Minimus; *Bastard Pimpernel.* Root annual, fibrous; stem one or two inches high; leaves alternate, egg-shaped, quite entire, smooth; flowers very minute, white, solitary, axillary, sessile.—Native of Italy, France, Germany, Britain, Denmark, Scania; in sandy or gravelly moist places. It is found on Hounslow Heath, on Ashford Common, near Hampton Court, Chislehurst, &c. flowering from June till August.

Cephalanthus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth common none, but the receptacle collecting many floscules into a globose head; perianth proper one-leafed, funnel-form, angular; border quadrifid. *Corolla:* universal, equal; proper monopetalous, funnel-form, acute, quadrifid. *Stamina:* filamenta four, inserted into the corolla, shorter than the border; antheræ globose. *Pistil:* germen inferior; style longer than the corolla; stigma globose. *Pericarp:* none. *Seeds:* solitary, long, attenuated at the base, pyramidal and lanuginous. *Receptacle:* common globular, villose. Essential Character. *Calix:* common none; proper superior, funnel-form. *Receptacle:* globular, naked. *Seed:* one, lanuginous.——The species are,

1. Cephalanthus Occidentalis; *American Button Wood.* Leaves in pairs or threes; heads terminal, forming a kind of raceme. This shrub seldom rises higher than six or seven feet in this country; flowers whitish.—Native of swamps in Carolina. A decoction of the wood or root is used for the bite of venomous animals, and is reported to be efficacious in venereal complaints.

2. Cephalanthus Angustifolius: Leaves lanceolate-linear, opposite. This is a middle-sized tree, with ascending branches.—Native of Cochin-china.

3. Cephalanthus Procumbens. Stem procumbent; leaves ovate-lanceolate, alternate. This is a thick shrub, with many long funicular branches; flowers violet-coloured; leaves large, quite entire, tomentose, petioled.—Native of Cochin-china.

4. Cephalanthus Montanus. Leaves ovate, crenate, alternate. A large tree, with hempen bark, and spreading branches.—Native of China.

5. Cephalanthus Stellatus. Leaves stellate, lanceolate-linear. A middle-sized tree, with ascending branches.—Native of Cochin-china.

Cerastium; a genus of the class Decandria, order Pentagynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate-lanceolate, acute, spreading, permanent. *Corolla:* petals five, bifid, obtuse, erect-expanding, length of the calix. *Stamina:* filamenta ten, filiform, shorter than the corolla, the alternate ones shorter; antheræ roundish. *Pistil:* germen ovate; styles five, capillary, erect, length of the stamina; stigmas obtuse. *Pericarp:* capsule ovate, cylindric, or globular, obtuse, unilocular, gaping with a five-toothed tip. *Seeds:* very many, roundish. Essential Character. *Calix:* five-leaved. *Petals:* bifid. *Capsule:* unilocular, gaping at the tip.—None of these plants make much appearance, and they are therefore only cultivated in botanic-gardens; some of them are common weeds in most parts of Europe: the smoother sorts are not disagreeable to cattle, and the seeds are useful to small birds. They are all raised from seeds which should be sown in autumn. They require no other care than to keep them clean from weeds. ——The species are,

**With oblong Capsules.*

1. Cerastium Perfoliatum; *Perfoliate Mouse-Ear.* Leaves connate, quite smooth, glaucous; petals smaller than the calix. Root annual; stem about a foot high, cylindrical, leafy, upright, weak; flowers terminal and axillary, white, on short peduncles; calix bell-shaped.—Native of Greece.

2. Cerastium Vulgatum; *Common* or *Narrow-leaved Mouse-Ear.* Leaves ovate; petals equal to the calix; stems diffused. It flowers during the whole summer, from May, on walls, by road-sides, among rubbish, and in meadows. Annual.—Native of England, and other parts of Europe.

3. Cerastium Viscosum; *Clammy* or *Broad-leaved Mouse-Ear.* Erect, villose, viscous. This plant is annual; stem branched at bottom, covered with hairs, each of which is terminated by a gland exuding a viscid juice.—It is found in meadows, on walls, dry banks, and ant-hills, varying in size from three inches to a foot; and flowers in April and May.

4. Cerastium Semidecandrium; *Least Mouse-Ear.* Flowers five-stamined; petals emarginate. Stems from two to six inches high, purplish, covered with glandulous hairs. It is annual; flowering early, and soon disappearing.—Found upon walls and heaths.

5. Cerastium Pentandrium; *Five-stamined Mouse-Ear.* Flowers five-stamined; petals entire. Very small.—Native of Spain.

6. Cerastium Arvense; *Corn Mouse-Ear.* Leaves linear-lanceolate or obtuse, smooth; corollas larger than the calix: root perennial, creeping. The whole plant is often very hairy. —It is found flowering from May and June till September, in corn-fields, dry pastures, heaths, and banks. It has been observed near Croydon in Surry, about Newmarket, Bury, and Norwich, and frequently in Cambridgeshire.

7. Cerastium Dichotomum; *Forked Mouse-Ear.* Leaves lanceolate; stem dichotomous, about six inches high, very much branched; capsules erect. The whole plant is clammy. —It grows upon arable land in Spain: is annual; flowering in May, and ripening seeds in July.

8. Cerastium Alpinum; *Alpine Mouse-Ear.* Leaves ovate-lanceolate; stem divided; capsules oblong; root creeping. —Found upon high mountains in many parts of Europe; Snowden, and other parts of Wales.

9. Cerastium Dioicum; *Spanish Mouse-Ear.* Hairy, viscid: leaves lanceolate; flowers diœcous; petals three times larger than the calix: perennial.—Native of Spain.

***With roundish Capsules.*

10. Cerastium Repens; *Creeping Mouse-Ear,* or *Sea Pink.* Leaves lanceolate; peduncles branching; capsules roundish. It sends out many weak, trailing stalks, which put out roots at their joints; the leaves are two inches long, and less than half an inch broad, very hoary; flowers from the sides of the stalks upon slender peduncles, white.—It grows naturally in

France and Italy, and was formerly cultivated in the English gardens, under the name of Sea Pink, as an edging for borders, for which it was very unfit, on account of its creeping. The Neapolitans call it *erba lattaria*, or milk-herb, because it is supposed to increase the milk of sheep and cows. It propagates too fast by its creeping roots and trailing branches, to be admitted into gardens; but is very proper for planting upon rock-work, where it will spread and thrive without care.

11. Cerastium Strictum. Leaves linear, acuminate, smooth; peduncles one-flowered, subtomentose; capsules globular. Stems smooth, procumbent; leaves stiff, very much acuminated: perennial.—Native of the mountains of Switzerland, Austria, the Vaudois, and Mount Cenis.

12. Cerastium Suffruticosum. Stem perennial, procumbent; leaves linear, lanceolate, subhirsute.—It is found in the southern countries of Europe.

13. Cerastium Maximum. Leaves lanceolate, scabrous; petals crenated; capsules globular: annual.—Found in Siberia, near the river Jenisca.

14. Cerastium Aquaticum; *Water Mouse-Ear*. Leaves cordate, sessile; flowers solitary; fruits pendulous. Root perennial.—Native of moist places, and banks of ditches and rivers, flowering in July and August.

15. Cerastium Latifolium; *Broad-leaved Mouse-Ear*. Leaves ovate, subtomentose; branches one-flowered; capsules globular; flowers white, large.—Found upon the high mountains of the Valais, next the Glaciers, and on the highest rocks in Wales and Scotland. Perennial; flowering in May and June.

16. Cerastium Tomentosum; *Woolly Mouse-Ear*. Leaves oblong, tomentose; peduncles branching; capsules globular. The whole plant is white, with a thick down.—Native of Granada, Istria, France, Switzerland, and Ripton-wood in Huntingdonshire. Perennial; flowering in May and June.

17. Cerastium Manticum. Smooth: stem striated; leaves lanceolate; peduncles very long; capsules globular. Root slender, annual.—Native of the neighbourhood of Verona and the Grisons.

18. Cerastium Refractum. Leaves lanceolate, smooth; petioles broken: perennial.—Found upon the higher Alps, Mont St. Bernard, &c.

Ceratocarpus; a genus of the class Monœcia, order Monandria.—Generic Character. *Male Flowers. Calix:* perianth one-leafed, tubular, wider at top, thin, coloured, bifid; the upper segments sharp, the lower emarginate. *Corolla:* none. *Stamina:* filamentum single, capillary, scarce longer than the calix, inserted into the receptacle; antheræ twin, oval, upright. *Female Flowers*, on the same plant. *Calix:* perianth one-leafed, obovate, compressed, keeled on both sides, permanent, two-horned; horns straight, subulate, divaricate. *Corolla:* none. *Pistil:* germen oblong, superior; styles two, capillary; stigmas simple, standing out between the horns of the calix. *Pericarp:* none, but the calix grown larger. *Seed:* oblong, attenuated at bottom, compressed. Essential Character. *Male. Calix:* one-leafed, bifid; *Corolla:* none. *Female. Calix:* one-leafed, keeled, permanent, two-horned. *Styles:* two. *Seeds:* single, compressed, inclosed in and covered by the calix.——The only species is,

1. Ceratocarpus Arenarius. An annual branching plant, with very narrow sharp grassy leaves. Stem about a foot high, villous. Three male flowers sessile in each division of the stem; females solitary, sessile in each axilla of the leaves.—It is a native of the rude deserts of Tartary.

Ceratonia; a genus of the class Polygamia, order Triœcia.—Generic Character. *Male. Calix:* perianth five-parted, very large. *Corolla:* none. *Stamina:* filamenta five, subulate, very long, spreading: antheræ large, twin. *Female. Calix:* perianth one-leafed, divided by five tubercles. *Corolla:* none. *Pistil:* germen lying concealed within a fleshy receptacle; style long, filiform; stigma headed. *Pericarp:* legume very large, obtuse, compressed, coriaceous, with a great many transverse partitions, the interstices filled with pulp; seed solitary, roundish, compressed, hard, glossy. *Hermaphrodite Flowers*, on a distinct tree. Essential Character. *Calix:* five-parted. *Corolla:* none. *Stamina:* five. *Style:* filiform. *Legume:* coriaceous, many-seeded. Diœcous; male and female separate.——The only species is,

1. Ceratonia Siliqua; *The Carob Tree*, or *St. John's Bread*. It sometimes grows to a considerable size; leaves pinnate; leaflets roundish, entire, thick, rigid, nerved, dark green above, paler beneath, three inches in breadth, and somewhat more in length. Its fruit when ripe has a tolerably pleasant sweetish taste, and is eaten in times of scarcity, but is apt to disorder the bowels. As a medicine, it has the same properties as Cassia, but in a less degree. The pulp, which has the consistence of a blackish syrup, mixed with liquorice root, dry raisins, and other fruit, forms the sherbet of the Turks. Its leaves are of an astringent nature, and may be used in tanning.—Native of Syria, Palestine, Egypt, Cyprus, Candia, Sicily, Apulia, and Spain. Ignorance of Eastern manners and natural history, induced some persons to fancy, that the locusts on which John the Baptist fed, were the tender shoots of plants, and that the wild honey was the pulp in the pod of the Carob; whence it had the name of St. John's bread: there is better reason to suppose that the shells of the Carob pod might be the husks which the prodigal son desired to partake of with the swine.—This tree is propagated by seeds, which, when imported fresh in the pods, will grow very well, if they be sown upon a moderate hot-bed in the spring; when the plants come up, they should be carefully transplanted, each into a separate small pot filled with light earth, and plunged into another moderate hot-bed, observing to water and shade them until they have taken root; after which air must be admitted in proportion to the heat of the weather. In June they must be inured to the open air by degrees, and in July they should be removed off the hot-bed, and placed in a warm situation, where they may remain till the beginning of October, when they should be removed into the green-house, placing them where they may have free air in mild weather; for they are pretty hardy, and only require to be sheltered from hard frosts.

Ceratophyllum; a genus of the class Monœcia, order Polyandria.—Generic Character. *Male Flowers: Calix:* perianth many-parted; divisions subulate, equal. *Corolla:* none. *Stamina:* filamenta double the number of divisions of the calix, sixteen to twenty, hardly conspicuous; antheræ oblong, erect, longer than the calix. *Female Flowers*, on the same plant with the males. *Calix:* perianth many-parted; divisions subulate, equal. *Corolla:* none. *Pistil:* germen ovate, compressed; style none; stigma obtuse, oblique. *Pericarp:* none. *Seed:* nut ovate, unilocular, acuminate, Essential Character. *Male. Calix:* many-parted. *Corolla:* none. *Stamina:* sixteen to twenty. *Female. Calix:* many-parted. *Corolla:* none. *Pistil:* one; style none. *Seed:* one, naked.—These plants can be cultivated in gardens, no other way than by sowing the seeds or planting them in ponds, muddy streams, or in pots or boxes with earth at the bottom, and filled with water.——The species are,

1. Ceratophyllum Demersum; *Prickly-seeded Hornwort*. Leaves two-fold, dichotomous; fruits three-thorned. Root perennial, striking deep in the mud; stem much branched; flowers few, in the bosoms of the leaves.—Found in ditches and slow

streams, flowering in August and September; also in Japan: it is common in Jamaica, where they call it *Morass-weed*, and use it to cover fish, &c. when to be carried to any distance.

2. Ceratophyllum Submersum; *Smooth-seeded Hornwort.* Leaves three-fold, dichotomous; fruits thornless.—It is found in the ditches on the side of the road, from Chichester to the Isle of Selsey.

Cerbera: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved, acuminate, spreading; leaflets ovate-lanceolate. *Corolla:* monopetalous, funnel-form; tube clavated; border large, five-parted; divisions oblique, obtuse, more gibbous on one side than the other; mouth of the tube pentagonal, five-toothed, converging in the form of a star. *Stamina:* filamenta five, subulate in the middle of the tube; antheræ erect, converging. *Pistil:* germen roundish; style filiform, short; stigma headed, bilobate. *Pericarp:* drupe very large, roundish, fleshy, excavated on the side by a longitudinal furrow, and with two specks or points. *Seed:* not two celled, four-valved, retuse Essential Character. Contorted. *Drupe:* one-seeded.—These plants must be propagated from their nuts, which must be procured from the countries where they naturally grow. They should be put into small pots filled with light earth, and plunged into a hot-bed of tanner's bark in the spring, and treated in the same manner as other tender exotic seeds, giving them now and then a little water to promote their vegetation. When the plants are come up about two inches high, they should be transplanted into a separate pot, filled with light sandy earth, and plunged again into a hot-bed of tanner's bark, observing to shade the glasses in the heat of the day, until the plants have taken new root; they must also be frequently refreshed with water, but not in large quantities. As the summer advances, they must have air admitted to them in proportion to the warmth of the season; and when they have filled these small pots with their roots, they should be turned out, and transplanted into those of a larger size. In the winter they should be placed in a warm stove, and have but little water. The following spring they must be shifted to larger pots, and plunged into the bark-bed again. When by any accident the tops of these plants are injured, they frequently put out shoots from their roots, which, if carefully taken up and potted, will become good plants.——The species are,

1. Cerbera Ahouai; *Oval-leaved Cerbera.* Leaves ovate.—It grows naturally in the Brasils, and in the Spanish West Indies; and also in the British islands of America. It rises with an irregular stem to the height of eight or ten feet, sending out many crooked diffused branches; leaves three inches long, thick, and succulent; flowers in loose bunches at the end of the branches, cream-coloured, with long narrow tubes. Every part of the plant is very full of a milky juice: it flowers in July and August, but never produces seeds in England. The wood of this tree stinks most insufferably, and the kernels of the nuts are a deadly poison. The Indians are not acquainted with any antidote to it; nor will they use the wood for fuel. They put small stones into the empty nuts, string them, and fasten them about their legs when they dance.

2. Cerbera Manghas. Leaves lanceolate; nerves transverse. This is a milky tree; corolla white; drupe ovate, the size of a goose's egg, with very minute white drops, compressed on one side, and with an obscure suture, inclosing two seeds resembling two large chestnuts, poisonous and vomiting.—Native of the East Indies, some parts of the Spanish West Indies, and of the Society Islands.

3. Cerbera Thevetia; *Linear-leaved Cerbera.* Leaves linear, very long, crowded. This is an elegant shrub or small tree, about twelve feet in height; the stem is round, unarmed, abounding in a poisonous milky juice. Flowers large, specious, nodding, yellow, smelling very sweet.—Native of the West Indies, in woods or coppices near the coast. Mr. Miller informs us, that he received it from our islands there, by the name of *French Physic-nut*, and that it flowers here in July and August, but never produces fruit in England.

4. Cerbera Parviflora. Leaves stellate, obovate.—Native of the Friendly Islands, and Savage Island, in the South Seas.

5. Cerbera Salutaris. Leaves and fruits oval. This is a middle-sized tree, with a milky juice and spreading branches; flowers white, inodorous, in small subterminating racemes; drupe oval, large with a smooth skin, yellow on one side, red on the other, containing a fibrous woody nut, with a single kernel in it, not poisonous.—Native of Cochin-china, near the coast.

Cercis; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very short, bell-shaped, gibbous below, melliferous; mouth five-toothed, erect, obtuse. *Corolla:* pentapetalous, inserted into the calix, resembling a papilionaceous corolla; wings, petals two, bent upwards, affixed by long claws; standard, petal one, roundish, clawed beneath the wings, and shorter than the wings; keel, petals two, converging into a cordate figure, including the organs of generation, affixed by claws; nectary a style-shaped gland, below the germen. *Stamina:* filamenta ten, distinct, subulate, bent downwards, of which four are longer than the rest, covered; antheræ oblong, incumbent, rising upwards. *Pistil;* germen linear lanceolate, pedicelled; style of the length and situation of the stamina; stigma obtuse, ascending. *Pericarp:* legume oblong, obliquely acuminate, unilocular. *Seeds:* somewhat roundish, connected to the superior suture. Essential Character. *Calix:* five-toothed, gibbous below. *Corolla:* papilionaceous. *Standard:* short, beneath the wings.—These plants may be propagated by sowing their seeds upon a bed of light earth, towards the latter end of March, or the beginning of April; and if a little hot dung be put under the bed, it will greatly facilitate the growth of the seeds. When they are sown, sift the earth over them about half an inch thick, and cover the bed with mats whenever the season turns out wet; otherwise the great rains will burst the seeds, and cause them to rot. When the plants appear, they should be carefully cleared from weeds, and in very dry weather must be now and then refreshed with water, which will greatly promote their growth. In the following winter, if the weather be very cold, it will be proper to shelter the plants, by covering them with mats or dry straw during hard frosts; but they should constantly be opened in mild weather, otherwise they will grow mouldy and decay. About the beginning of April you should prepare a spot of good fresh ground, to transplant them out, for the best time to remove them is immediately before they are beginning to shoot, which is done by taking up the plants cautiously, being careful not to break their roots, and replanting them as soon as possible. They are generally planted two feet row from row, and a foot asunder in the rows, which is full room enough for them to grow two or three years, by which time they should be transplanted whither they are intended to remain. The ground between the plants should be carefully kept clean from weeds in summer, and in the spring should be well dug to loosen the earth, in order to allow the roots to extend themselves every way: at that season prune off all strong side branches, especially if you intend to train them up for standard trees, that their top branches may not be checked by their side-shoots, which often attract the greatest part of the nourishment from the

roots: and should their stems be crooked, you must place a strong stake down by the side of each plant, and fasten the stem to it in several places, so as to bring it straight, which direction it will soon take as it grows larger, and thereby the plants will be rendered beautiful. When they have remained in this nursery two or three years, they should be transplanted in the spring to the places where they are to remain.——The species are,

1. Cercis Siliquastrum; *Common Judas Tree.* Leaves cordate, orbicular, smooth. The Portuguese and Spaniards call this, the tree of love: it rises with an upright trunk, to the height of twenty feet, covered with a dark brown bark, divided upwards into many irregular branches; leaves on long footstalks, pale green above, greyish underneath. The flowers come out on every side of the branches, and in many instances in large clusters from the stem of the tree, arising from the same point, upon short peduncles; they are of a very bright purple colour, and make a fine appearance, especially when the branches are covered pretty thick with them; they come out in the spring with the leaves, and are in full beauty before the leaves have attained half their size. The flower is papilionaceous, and, having an agreeable pungency, is frequently eaten in salads. This tree is usually planted with other flowering trees and shrubs, for ornaments to pleasure-gardens, and, for their singular beauty, deserve a place as well as most other sorts; for when they are arrived to a good size, they are productive of flowers, so as that the branches are often closely covered with them; and the singular shape of their leaves affords a very pretty variety in the summer. It flowers in May, when planted in the full air; but when placed against warm walls, a fortnight or three weeks earlier. The wood of this tree is very beautifully veined with black and green, and as it takes a fine polish, might be converted to many uses. There are two varieties of this tree, but are greatly inferior in beauty.—Native of the Levant, Spain, the south of France, on the Appenines, near Rome in Italy, and in Japan.

2. Cercis Canadensis; *Canada Judas Tree*, or *Red-bud Tree.* Leaves cordate, pubescent, ovate, acute. It grows naturally in most parts of North America; where it is called Red-bud, probably from the red flower-buds appearing in the spring, before the leaves come out: it grows to a middle stature in that country, but in England it rarely rises with a stem more than twelve feet high, branching out near the root: the flowers are not so beautiful as those of the first species, but the trees are equally hardy, and will thrive in the open air. The flowers of this, as well as those of the first species, are frequently put into salads by the Americans; and the French in Canada pickle them, but they have little flavour. The young branches of this tree will dye wool of a very fine Nankin colour.

Cerinthe; a genus of the class Pentandria, order Monogynia. Generic Character. *Calix:* perianth five-parted; divisions oblong, equal, permanent. *Corolla:* monopetalous, bell-form; tube short, thick; border tube-bellied, rather thicker than the tube; mouth five-cleft; throat naked, pervious. *Stamina:* filamenta five, subulate, very short; antheræ acute, erect. *Pistil:* germen four-parted; style filiform, length of the stamina; stigma obtuse. *Pericarp:* none; calix unchanged. *Seeds:* two, bony, glossy, subovate, outwardly gibbous, bilocular. Essential Character. *Border* of the *Corolla* tube-bellied; throat pervious. *Seeds:* two, bilocular.—These plants are propagated by seeds, which should be sown soon after they are ripe. They form a pretty variety for large borders in gardens, where, if only suffered to drop their seeds, they will propagate themselves without further care.——The species are;

1. Cerinthe Major; *Great Honeywort.* Leaves stem-clasping; corollas bluntish, spreading. Stems rather more than eighteen inches high, round, smooth, branching, and leafy. Leaves glaucous, becoming blue by age, ciliated about the edges, dotted with white; branches leafy, nodding; flowers among the leaves, hanging on long peduncles; the tube of the corolla is yellow, but the border purple; the toothlets very short and revolute.—This is one of the most common herbs all over Italy; hence Virgil's expression of *Cerinthæ ignobile gramen.* It is no less common in Sicily, and is found also in the south of France, Switzerland, Germany, and Siberia. There is abundance of honey juice in the tube of the flower, for which reason it is much resorted to by bees; and is therefore peculiarly adapted for planting near apiaries.

2. Cerinthe Minor; *Small Honeywort.* Leaves stem-clasping, entire; corollas acute closed, yellow, without any spot. The entire plant smooth, and flowering the whole summer.—It is annual when sown in the spring, but biennial when sown in autumn; in the wild state it is therefore biennial.—Native of Italy, Germany, Austria, Syria, and Switzerland.

Ceropegia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth very small, five-toothed, acute, permanent. *Corolla:* monopetalous, with a large globose base, which is terminated by a cylindrical oblong tube; border very small, five-toothed, acuminate, with the tip converging, gaping at the side. *Stamina:* filamenta five, in the base of the corolla, very small, incurved, converging; antheræ small. *Pistil:* germen very small; style scarcely any; stigmas two. *Pericarp:* follicles two, cylindric, acuminate, very long erect, unilocular, univalve. *Seeds:* numerous, imbricated, oblong, crowned with a pappus. Essential Character. Contorted. *Follicles:* two, erect. *Seeds:* plumose. *Border* of the *Corolla*; converging.——The species are,

1. Ceropegia Candelabrum. Umbels pendulous; flowers erect. A twining plant; stems slender, round, green or reddish. The peduncle, and at first the flowers, hang down, but when open, they erect themselves, and, being placed in a circle, have the appearance of a set of lamps hanging up.—Native of the East Indies.

2. Ceropegia Biflora. Peduncles two-flowered. Stem twining: perennial.—Native of the island of Ceylon.

3. Ceropegia Sagittata; *Arrow-leaved Ceropegia.* Umbels sessile; leaves sagittate. Stem twining, filiform, tomentose.—Native of the Cape of Good Hope.

4. Ceropegia Tenuifolia. Leaves linear-lanceolate. Stems slender, milky, red, bay, or green; flowers outside yellowish-green, inside reddish.—Native of the East Indies.

5. Ceropegia Obtusa. Leaves blunt; stem twining. Stem perennial, filiform, smooth; flowers pale.—Native of Cochin-china.

6. Ceropegia Cordata. Leaves cordate; umbels pendulous. Stem long, round, branching; perennial; flowers greenish yellow, in large hemispherical axillary umbels, on long peduncles.—Native of Cochin-china, climbing in the hedges.

Cestrum; a genus of the class Pentandria, order Monogynia. Generic Character. *Calix:* perianth one-leafed, tubular, columnar, obtuse, very short; mouth five-cleft, erect, obscure. *Corolla:* monopetalous, funnel-form; tube cylindric, very long, slender; throat roundish; border flat, plaited, five-cleft; divisions ovate, equal. *Stamina:* filamenta five, filiform, attached longitudinally to the tube, emitting a toothlet inwards at the middle; antheræ roundish, quadrangular, within the throat. *Pistil:* germen cylindric, ovate, length of the calix; style filiform, length of the stamina; stigma thickish, obtuse, scarcely emarginate. *Pericarp:* berry ovate, unilocular, oblong. *Seeds:* very many,

roundish. Essential Character. *Corolla*: funnel-form. *Stamina*: emitting a toothlet from their middle. *Berry*: unilocular.——The species are,

1. Cestrum Nocturnum; *Night-smelling Cistrum.* Filamenta toothed; peduncles subracemed, equal to the leaf. It rises with an upright stalk, about six or seven feet high, dividing upward into many slender branches; leaves alternate, near four inches long, and one and a half broad: the flowers are produced at the wings of the leaves in small clusters, standing upon short peduncles, each sustaining four or five flowers of an herbaceous colour; they appear in August, but are not succeeded by berries in this country; those which come from America are small, and of a dark brown colour.--It is a native of the island of Cuba: whence Mr. Miller received the seeds under the name of *Dama de noche*, or *Lady-of-the night*, probably so called from the flowers sending out a strong odour after sunset. It requires to be placed in a dry-stove, with a moderate share of heat in winter, and in the summer to be set in a warm situation in the open air: with this management they will thrive, and produce flowers much better than when they have been under a greater heat. All these plants growing naturally in very hot countries, require to be placed in a warm stove, especially in winter. They may all be propagated by seeds, or by cuttings, but principally the latter, although those produced from seeds are always the straightest and most vigorous, because they do not ripen the seed in England, and it is rarely imported. The best time to plant these cuttings is about the end of May, by which time the shoots will have had time to recover their strength, after confinement during the winter season: the shoots which come out from the lowest part of the stalk should always be preferred; these should be cut about four inches long, and five or six of them should be planted in each halfpenny pot: the earth should be fresh and light, but not full of dung; it must be pressed pretty close to the cuttings, and then they must be gently watered, after which the pots must be plunged into a moderate hot-bed of tanner's bark, and every day shaded from the sun; their waterings should be often repeated in the summer, and if sprinkled all over their leaves, it will wash and cleanse them from filth, and greatly promote their growth.

2. Cestrum Vespertinum; *Cluster-flowered Cestrum.* Filamenta toothless; tube filiform; peduncles very short. A tree twelve feet in height; the stem not very strong. The leaves are alternate, on short petioles; corolla larger than the spike, green; tube filiform; border expanding, five-parted; divisions subulate, sharp, one third shorter than the tube, equal, greenish white; the berries are blue; the bark and fruit fœtid.—Native of the West Indies.

3. Cestrum Diurnum; *Day-smelling Cestrum.* Filamenta toothless; segments of the corolla roundish, reflected; leaves lanceolate. This rises with an angular stalk to the height of ten or twelve feet, covered with a smooth, light green bark. Towards the upper parts of the shoots the flowers come out from the wings of the leaves, standing in clusters close to the branches; they are very white, shaped like those of the first sort, and smell sweet in the day-time, from which it derives the name of *Lady-of-the-day.*—It flowers in September, October, and November; and is a native of the Havannah.

4. Cestrum Tomentosum. Flowers crowded, sessile, terminal; branches, leaves, and calices tomentose.—Found by Mutis in South America.

5. Cestrum Laurifolium; *Laurel-leaved Cestrum.* Filamenta toothletted or naked; leaves elliptic, coriaceous, shining very much; peduncles shorter than the petiole. Stem shrubby, erect, round, with an ash-coloured bark, eight or nine feet high; corolla four times longer than the calix; segments of the rim obtuse, spreading, pale yellow, marked with a gold-coloured streak. The flowers emit a disagreeable odour, and are succeeded by oval berries of a violet colour, full of juice; they are reckoned very poisonous, and are called *poison-berries* in Jamaica, of which it is a native: it flowers in August.

6. Cestrum Auriculatum; *Ear-leaved Cestrum.* Filamenta toothless; stipules lunate. This is a very fœtid shrub, about two fathoms high. The natives of Lima, in Peru, use it externally to cleanse foul ulcers, and internally in the venereal disease; they look upon it as a pectoral, but it seems to be a plant of suspicious character.—Dombey observed it in wet places about Lima.

7. Cestrum Parqui. Filamenta toothletted or naked, floriferous; stem panicled; stipules linear. This is a fœtid shrub, six feet high; flowers odorous in the night.—Native of Chili.

8. Cestrum Hirtum. Flowers subspiked, axillary; leaves subcordate, ovate-acute; underneath, with the branchlets, rough with hairs.—Native of the West Indies, Jamaica, &c.

9. Cestrum Nervosum. Leaves lanceolate, opposite, with transverse nerves; peduncles branching. Stem shrubby, five or six inches high, covered with a brown bark, and dividing at top into very small branches; corolla white, and inodorous.—Native of Carthagena, in New Spain.

Chærophyllum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix*: umbel universal spreading; partial nearly equal as to the number of rays. Involucre universal, none; partial, subpentaphyllous; leaflets lanceolate, concave, reflected, nearly the length of the umbellule; perianth proper obscure. *Corolla*: universal nearly uniform; florets of the disk abortive; proper of five petals, heart inflected, with the point bent in, flattish; exterior ones rather larger. *Stamina*: filamenta five, simple, length of the umbellule; antheræ roundish. *Pistil*: germen inferior; styles two, reflected; stigmas obtuse. *Pericarp*: none; fruit oblong, acuminate, smooth, bipartile. *Seeds*: two, oblong, attenuated upwards, convex on one side, flat on the other. Essential Character. *Involucre*: reflected, concave. *Petal*: heart inflected. *Fruit*: oblong, even.—The first and fourth species of this genus are common weeds; the rest are admitted into botanic gardens only, not being much esteemed either for culinary or medical purposes: if the seeds be permitted to scatter, the plants will come up without further care; or they may be sown, in spring, wherever they are to remain.——The species are,

1. Chærophyllum Sylvestre; *Wild Cicely*, or *Cow-weed*; *Common Cow-parsley*, or *Chervil.* Stem even, striated, two feet high and upward, hollow, grooved, generally villose, and purplish, much branched; joints somewhat swelling; branches suberect, less hoary than the stem; petals flat, obovate, whitish, at first yellowish-white; seeds columnar, glossy, grooved, blackish, without scent, and almost tasteless. It is very common in pastures, orchards, and under hedges, flowering in May, and in warm situations in April. Linnæus remarks, that this plant indicates a luxuriant soil, and that the flowers communicate a green and yellow dye to wool: he also says, that horses, sheep, and goats are not fond of it. Mons. Villars declares, that horses will not eat it, even in the stable; and, according to Mr. Miller, there are few animals who care to eat it, except the ass. Mr. Ray, on the contrary, asserts, that it has the name of *Cow-weed*, because it is grateful food, before it runs up to stalk, to cows, in the spring; and, in confirmation of this account, Mr. Wainwright says, that the cows like it so well, that when a pasture is overrun with it, which is often the case about Dudley, they always turn them in to eat it up. Rabbits are well known to be very fond of it; and Mr.

Curtis relates, that in time of scarcity the young leaves have been used as a pot-herb. John Bauhin, however, mentions instances of two families having been poisoned by eating a small quantity of the root. Haller says, that the Dutch use it in gangrenes. Meyrick and Hill both agree in stating, that the leaves operate by urine, and are good in obstructions of that viscera; they should be given in decoction, and in small doses of a wine glass each.

2. Chærophyllum Bulbosum; *Tuberous Chervil.* Stem even, swelling at the joints, rough with hairs at the base; root like the navew, and biennial; petals white, obcordate, unequal; some florets of the disk abortive. The roots, taken up early in the spring, are eaten boiled, with salt, oil, and vinegar. Gmelin, however, affirms that both these and the seeds occasion vertigoes, but this is certainly incorrect, at least as far as concerns the fresh root, which many persons have eaten with impunity.—It flowers in June and July; and is a native of Germany, Austria, Switzerland, and Norway, in hedges, and by wood-sides.

3. Chærophyllum Aristatum. Stem even, swelling at the joints; seeds rough with hairs, two-awned. Stem round, striated, smooth, erect.—Native of Japan.

4. Chærophyllum Temulum; *Wild Chervil,* or *Rough Cow-parsley.* Stem rugged; joints swelling. Stem two feet or more in height, branched, round, solid; petals white. The stem being generally spotted with purple, it is frequently mistaken for Hemlock.—It derives the name of *temulum,* or *temulentum,* from its supposed narcotic or inebriating quality, which it probably possesses only in a very small degree.

5. Chærophyllum Hirsutum; *Hairy Chervil.* Stem equal; leaflets gashed, acute; fruits two-awned. This is a pubescent plant; it is perennial, four feet high; corolla in some plants red, in others white.—Native of Switzerland, Germany, Austria, and Carniola.

6. Chærophyllum Aromaticum; *Aromatic Chærophyllum.* Stem equal; leaflets serrate, entire; fruits two-awned. Stem and petioles rough with hairs. It flowers in July and August.—Native of Lusatia, Misnia, Austria, and Silesia.

7. Chærophyllum Coloratum. Stem equal; leaves super-decompound; involucels coloured.—Native of Illyria.

8. Chærophyllum Aureum; *Golden Chærophyllum.* Stem equal; leaflets gashed; seeds coloured, grooved, awnless. Stem angular, striated, spotted, rough with hairs at bottom, and not hollow; corollas white, reddish on the outside.—Native of the country about Geneva, of Switzerland, Austria, and Germany.

9. Chærophyllum Scabrum. Stem equal; leaves gashed, acute, rough with hairs; pedunceles rugged. Root fibrous. It flowers in April and May.—Found near Jedo in Abyssinia, and in Japan.

10. Chærophyllum Arborescens. Shrubby.—Native of Virginia.

Chaffweed. See *Filago.*

Chamærops; a genus of Palms, of the class Polygamia, order Dioecia.—Generic Character. *Hermaphrodite Flower. Calix:* spathe universal, compressed, bifid; spadix branching; perianth proper, tripartite, very small. *Corolla:* tripartite; petals ovate, coriaceous, erect, acute, inflected at the tip. *Stamina:* filamenta six, subulate-compressed, scarce cohering at the base; antheræ linear, twin, growing to the interior side of the filamenta. *Pistil:* germen three, roundish; styles as many, distinct, permanent; stigmas acute. *Pericarp:* drupes three, globose, unilocular. *Seeds:* solitary, globose. *Male Flower,* in a distinct plant, flowering in the same manner. *Calix* and *Corolla:* as in the hermaphrodite. *Stamina:* a gibbous receptacle, ending in six filamenta, not marked by perforations; in every thing else as the hermaphrodites. Essential Character. *Hermaphrodite. Calix:* three-parted. *Corolla:* three-petalled. *Stamina:* six. *Pistil:* three. *Drupes:* three, one-seeded. *Males:* dioecous, as in the hermaphrodite.——The species are,

1. Chamærops Humilis; *Dwarf Fan Palm.* Fronds palmated, plaited; stipes thorny. This tree never rises with an upright stem, but the footstalks of the leaves rise immediately from the head of the root, and are armed on each side with strong spines; they are flat on their upper surface, and convex on their under side; the centres of the leaves are fastened to the footstalk, and spread open like a fan, having many foldings, and at the top are deeply divided like the fingers of a hand; their borders are finely sawed, and have white narrow edgings; they are from nine to eighteen inches long, and near a foot broad in the widest part. Fruit a drupe, nearly globular; rind thin; flesh thickish, fibrous, when old cork-like, hard, inodorous. The pith near the root is sweetish and tender, and is sometimes eaten in deserts.—It grows naturally in Italy, Sicily, and Spain, particularly in Andalusia, where, in the sandy land, the roots spread and propagate so fast, as to cover the ground in the same manner as Fern in England. The leaves of these plants are tied together, to make besoms for sweeping.—It is commonly propagated by heads, which separate from the main root; if these be carefully taken off with fibres, and planted, they will grow; but the plants so raised are not so good as those produced from seeds: the seeds should be sown in small pots, filled with light sandy earth, and plunged into a moderate hot-bed of tanner's bark, where they must now and then be refreshed with water when they appear; if they be not too close to each other in the pots, they will not require transplanting the first year; they should remain in the tan-bed all the first summer, having plenty of air in warm weather, and be removed into the stove in autumn: if they be plunged into the bark-bed in the first winter, it will greatly promote their growth. They should be carefully turned out of their pots in the following spring, so as to preserve their roots entire, for all the Palms have tender roots, and are frequently killed when the roots are broken; and then be each replanted into a separate small pot, filled with light, sandy, undunged earth, and placed in a fresh hot-bed, to encourage their taking root. They should be gradually hardened in the ensuing summer, and in the following autumn may be placed in a dry-stove, but as they advance and acquire strength, they may be placed in the open air in summer, in a warm situation, and preserved in a warm green-house in winter, without artificial heat: they require but little water, except in very dry weather, especially during the winter season. They should have larger pots as they advance in growth.

2. Chamærops Excelsa. Fronds palmated, nervous, serrate; stipes unarmed. This is a lofty tree.—Native of Japan.

3. Chamærops Cochin-chinensis. Fronds palmate, plaited; stipes thorny; spathes partial; corollas monopetalous; trunks eight feet high, an inch in diameter, straight, equal.—Native of the woods of Cochin-china.

Champignon. See *Agaricus.*

Changeable Rose. See *Hibiscus Mutabilis.*

Chara; a genus of the class Monoecia, order Monandria.—Generic Character *Female Flower. Calix:* perianth four-leaved; leaflets subulate, erect, permanent; the two opposite exterior ones longer than the others. *Corolla:* none. *Pistil:* germen turbinate; style none; stigma five-cleft, oblong, deciduous. *Pericarp:* crust, ovate, unilocular, adhering. *Seed:* single, ovate, spirally striated. *Male Flowers,* at the base of the germen, beyond the calix. *Calix:* none.

Corolla: none. *Stamina:* filamenta none; antheræ globose, before the germen; beyond the calix, beneath. ESSENTIAL CHARACTER. *Male. Calix* and *Corolla:* none. *Antheræ:* before the germen, underneath. *Female. Calix:* four-leaved. *Corolla:* none. *Stigma:* five-cleft. *Seed:* one.—These plants possessing no beauty, and growing only in water, are not cultivated in gardens.——The species are,

1. Chara Tomentosa; *Brittle Chara*, or *Stonewort*. Prickles on the stem, ovate. This plant is always flesh-coloured when alive, but when dry it becomes ash-coloured; stem twisted, brittle, and gritty in the mouth.—In summer it abounds in oblong berries, growing yellow when ripe, and having very small black seeds in them. It is annual, flowering from June to October; and is found in salt marshes, ditches, pools, lakes, &c. in many parts of Europe. In England it has been seen near Evansham Ferry, three miles beyond Oxford; near Chislehurst in Kent; near Bath, and Besorsleigh; in the rivulet that runs from Malham Tarn; and is very common in the peat-ditches of Lancashire and Westmoreland.

2. Chara Vulgaris; *Common* or *Stinking Chara*, or *Stonewort*. Stems glossy; leaves toothed on the inside; prickles on the stem capillary, crowded. The whole plant is yellowish or reddish green when fresh, and extremely fetid.—It is an annual, flowering in July and August: found in ditches and pools.

3. Chara Hispida; *Prickly Chara*, or *Stonewort*. Prickles on the stem capillary, crowded. The whole plant has a strong scent of garlic.—It is found upon the sea-coasts, &c. in several parts of Europe; and with us upon Hinton-moor, near Cambridge; Ellingham in Norfolk; near Gayton, Staffordshire; in Yorkshire, Lancashire, and Westmoreland; East Lothian, in Scotland; and in the turf-bogs of Ireland. Annual; flowering from June to October.

4. Chara Flexilis; *Smooth Chara*, or *Stonewort*. Joints of the stem unarmed, diaphanous, broader upwards. Stems eight or ten inches long, fistular, tender, dull green, pellucid.—Native of the sea-coasts in several parts of Europe; in England it is found in lakes, ponds, ditches, and bogs; as, about Henley, near Ipswich, near Knaresborough, near Hornsey, and in Loch Lomond, and several of the Scotch lakes.—It is annual, flowering from June to October.

Charlock. See *Sinapis Arvensis.*

Chaste-Tree. See *Vitex.*

Cheese Renning or *Rennet.* See *Galium.*

Cheiranthus; a genus of the class Tetradynamia, order Siliquosa.—GENERIC CHARACTER. *Calix:* perianth four-leaved, compressed; leaflets lanceolate, concave, erect, parallel-converging, deciduous, the two outer gibbous at the base. *Corolla:* four-petalled, cruciform; petals roundish, longer than the calix; claws the length of the calix. *Stamina:* filamenta six, subulate, parallel, the length of the calix, two of them within the gibbous leaflets of the calix, a little shorter than the other four; antheræ erect, bifid at the base, acute at the tip, and reflected; a nectareous gland surrounds the base of the shorter stamina on each side. *Pistil:* germen prismatic, four-cornered, the length of the stamina, marked with a tubercle on each side; style very short, compressed; stigma oblong, two-parted, reflected, thickish, permanent. *Pericarp:* silique long, compressed, the two opposite angles obliterated, marked with a toothlet, two-celled, two-valved, furnished with the very short style, and the erect bifid stigma. *Seeds:* many, pendulous, alternate, subovate, compressed, with a membranous edge. ESSENTIAL CHARACTER. Germen with a glandulous toothlet on each side. *Calix:* closed, with two leaflets gibbous at the base. *Seeds:* flat.——The species are,

1. Cheiranthus Erysimoides; *Wild Wallflower*, or *Stock*. Leaves lanceolate, toothed, naked; stem erect, quite simple; siliques four-cornered. Root perennial; flowers yellow, and in loose spikes or corymbs.—It is a native of Italy, Spain, France, Switzerland, Germany, Austria, Hungary, Sweden, and England, where it is found about Godstow, near Oxford, and East Grinstead, in Sussex. It flowers in June, and ripens its seed in autumn. If the seeds be allowed to scatter themselves, the plants will come up without care, and will thrive in any soil or situation, and upon walls among rubbish, as the common Wallflower.

2. Cheiranthus Helveticus: *Swiss Wallflower*, or *Stock*. Leaves lanceolate, toothed, naked; stem erect; siliques four-cornered, acuminated with the style. Root perennial; stem somewhat angular, eighteen inches high; leaves pale green. It flowers in May and June, and the seeds ripen in July.—Native of Switzerland.

3. Cheiranthus Alpinus; *Alpine* or *Straw-coloured Wallflower*, or *Stock*. Leaves linear, entire, subtomentose; stem branching. The whole plant is roughish: root biennial: the flowers are pale yellow, or sulphur-coloured, and have little or no smell. They appear in June and July, and the seeds are perfected in September.—It is found on banks and walls in Austria and Provence, in Switzerland, and on the mountains of Piedmont. This sort, when cultivated, grows as large as the common Wallflower, and makes a fine appearance, the racemes being longer, and the flowers growing much closer: but as it has little scent, it has on that account been much neglected.

4. Cheiranthus Strictus. Leaves linear, acute, smooth; stem shrubby, erect.—Native of the Cape of Good Hope.

5. Cheiranthus Callosus. Leaves lanceolate, entire, callous; stem angular, shrubby.—Native of the Cape.

6. Cheiranthus Cheiri; *Common Wallflower*. Leaves lanceolate-acute, smooth; branches angular; stem shrubby. On walls it is seldom more than six or eight inches high, with very tough roots, and firm stalks, the leaves short and sharp-pointed, and the flowers small; but in gardens it is two feet high, and branches wide; the leaves are broader, and the flowers much larger. The principal varieties are, 1. Common Dwarf Yellow; 2. Large Yellow; 3. Large Yellow Bloody; 4. True Bloody; 5. Narrow-leaved Straw-coloured; 6. Variegated-leaved Yellow; 7. Winter; 8. White, and these are either single or double.—The Common Wallflower is a native of Switzerland, France, Spain, &c. and is common on old walls and buildings in many parts of England. It is one of the few flowers which have been cultivated in our gardens from time immemorial, on account of their fragrancy: being of a firm texture, with little sap, it is never affected by cold, so that in severe winters, when the plants are frequently killed in the gardens, those upon the walls receive no injury, though they are much more exposed to wind and frost. The variety of this with very double flowers, is propagated from slips planted in the spring, which readily take root. Another variety, which has variegated leaves, is not so hardy: the Large Bloody Wallflower will frequently rise with double flowers from seeds, if they be carefully saved from such as have five petals; and these double flowers may be increased from slips, but the plants so raised will not produce such large racemes of flowers, as those which are propagated by seeds. The old Bloody Wallflower, the petals of which are shorter and more numerous, approaching to the common double, but much larger, is propagated also by slips; as are likewise all the intermediate varieties, distinguished by florists from the size and colour of the petals. The Wallflowers that are single, produce seeds in plenty, but the largest and deep-

est-coloured flowers should always be selected for seeds; these should be sown in April, upon poor undunged soil, and when the plants are fit to remove, they should be transplanted into nursery beds, at about six inches' distance each way, observing to water and shade them until they have taken fresh root, after which they will require no further care but to keep them clean from weeds all the summer, and at Michaelmas they may be transplanted into the borders of the flower-garden, where they are intended to remain, that the plants may root before the frosts come on. The above is the common method of treating these flowers; but if the seeds be sown upon poor land, where they are designed to remain, and not transplanted, they will thrive and endure the frost much better than those which are removed; so that the seeds of these plants may be sown upon ruins or rubbish, where they will thrive, and continue much longer than in good land; and if properly disposed, they will be very ornamental in such places, while their flowers, with their strong odour, will fill the air to a considerable distance with an agreeable perfume.—According to Hill, the flowers are used; and an infusion of them when fresh is good against the head-ache, and in all nervous disorders: they are also good to steep in oil, to which they give a cordial warmth, and make it good against pains in the limbs; but they are not much used either way at present.

7. Cheiranthus Fruticulosus. Leaves lanceolate-acute, smooth, subserrate; stem shrubby. This strongly resembles the preceding species, but is a lower plant, only three or four inches high; flowers one eighth of the size of the common Wallflower, less fragrant, pale yellow.—Native of Spain.

8. Cheiranthus Chius. Leaves obovate, veinless, emarginate; siliques subulate at the tip.—Native of the isle of Chios, and Russia. The seeds of this, and the next species, are sown in patches at two or three different times; the first in autumn, the second at the end of March, and the third at the end of April or beginning of May, in the borders of the flower-garden, where they will make a variety, when intermixed with other low-growing annual flowers, for three months.

9. Cheiranthus Maritimus; *Dwarf Annual Stock-Gilliflower*. Leaves elliptic, obtuse, naked, roughish; stem diffused, rough. It seldom rises more than six inches high; it is an annual plant. See the foregoing species.—Grows on the coast of the Mediterranean.

10. Cheiranthus Salinus. Leaves lanceolate, obtuse, quite entire; stem erect; antheræ included; corolla purple, with a yellowish throat. It has the smell of the Stock-Gilliflower.—Native of the salt marshes of Siberia and Tartary.

11. Cheiranthus Incanus; *Stock-Gilliflower*. Leaves lanceolate, quite entire, obtuse, hoary; siliques truncate at the end, and compressed; stem undershrubby. The Stock-Gilliflower rises with a strong stalk, which is almost shrubby, a foot high or more, having oblong, spear-shaped, hoary leaves, frequently waved on their edges, and turned downward at the extremity; from the stalk come out many lateral branches, with smaller leaves; these side-branches are each terminated by a loose spike of flowers, each having a woolly calix, and four large roundish petals indented at the end; these usually appear in May and June, but the same plants frequently continue flowering most part of the summer. The seeds ripen in autumn, and the plants generally perish soon after; but when any of them grow in dry rubbish, they will last two or three years, and become shrubby; but those with single flowers are not worth preserving after they have perfected their seeds. The flowers of this species vary in their colour, some are of a pale, others of a bright red, and some are curiously variegated, but those of the bright red are generally most esteemed: if the seeds be well chosen, three-fourths of the plants will frequently be double; and as they divide into many branches, they make a fine appearance during their continuance in flower. There are three principal varieties: 1. The *Brompton Stock-Gilliflower*, with bright red flowers; 2. The *White Stock-Gilliflower*, with flowers pale-coloured purple, and sometimes purple variegated with white; 3. The *White Wallflower*, with flowers which are of a pure white, and have a great fragrancy, especially in the evening, or in cloudy weather.—Native of the sea-coasts of Spain: found also in Italy, Greece, Corsica, and the adjacent isles. These flowers are of very long standing in the English gardens. The old English name of Gilliflower, which is now almost lost in the prefix *Stock*, is corrupted from the French *giroflier*. Chaucer writes it *gylofre*; Turner, *gelover* and *gelyfloure*; Gerarde and Parkinson, *gilloflower*. Having been thus far removed from its original orthography, it was easily corrupted by those who knew not whence it was derived, into *July-flower*. Pinks and Carnations also having the name of Gilliflower, from their smelling like the clove, which is called *girofle* in French, from the Latin *caryophyllum*: they were called Clove-gilliflowers, and these Stock-gilliflowers for distinction. Gerarde says, they were also called *Garnsey Violet*, and *Castle Gilliflower*.—*Culture*. All the varieties of this species flower in May and June, at which time they are the greatest ornaments to the flower-garden, and therefore deserve as much attention as any of the beautiful flowery tribe. In order to raise double flowers, great care must be taken in choosing plants for seed, without which there can be little hopes of having these flowers in perfection. A very sure way of obtaining many double flowers, is to make choice of those single flowers which grow near many double ones, for those seeds saved from plants growing in beds close to each other, if there happened to be a good many double flowers among them, have been always found to produce a much greater number of plants with double flowers, than those which have been saved from plants of the same kinds which grow single in the borders of the flower-garden. There should be a small bed of each kind planted in the flower-nursery, on purpose to save seeds; or if they be sown there, and the plants properly thinned when they are young, they need not be transplanted, for those plants which spring up from scattered seeds, which have not been transplanted, endure the frost much better than those which have been removed; because, as these plants send out horizontal roots from the bottom of their stems, which spread near the surface of the ground, so, when they are transplanted, the roots are forced downwards out of their natural direction, and if their stalks were grown tall before removal, they are generally planted low in the ground, whereby they are apt to rot, if the ground be moist and the winter should prove wet; therefore where they can be left unremoved, there will be a better chance of their living through the winter; and as these beds need not be of great extent, so when the winter proves very severe, it will not be much trouble or expense to arch the beds over with hoops, and cover them with mats in frosty weather, by which method they may be always preserved. The ground where these seeds are sown must not have any dung, for the plants will grow very vigorous in rich land during summer, but frost, or the heavy rains in autumn, will soon destroy them; for they will thrive upon rock or old wall, when all those which are planted in gardens are destroyed. The best time to sow the seeds is about the beginning of May; and if the season should prove dry, it will be proper to shade the beds with mats every day, to prevent the earth from drying too fast;

but the covering must be taken off every evening to admit the dews of night, and they should be gently watered in the evening, twice or thrice a week. When they first appear with their two seed-leaves, they are often attacked by flies, especially in dry hot seasons; therefore, to prevent them from destroying the plants, the above-mentioned covering should be continued over them during the heat of the day, and the plants ought to be frequently refreshed with water, which will keep them in a growing state, and the flies will not infest them; for they never attack any plant until they have been stinted in their growth: after this they will only require to be kept clean from weeds, and to be thinned to the distance of nine inches or a foot, that they may have sufficient room to grow, and not draw each other up tall and weak. There are some who propagate the double Stock-gilliflowers by slips and cuttings, which will take root when properly managed; but the plants so raised are never so strong as those which come from seeds, their spikes of flowers are always very short, and have not half the beauty of those raised from the seed.

12. Cheiranthus Fenestralis; *Cluster-leaved Stock Gilliflower*. Leaves crowded in heads, recurved, waved; stem undivided. Stem shrubby, from six to eight inches high; corolla petals obcordate, reflected, channelled, notchletted, purple, glittering with gold. It continues three or four years, flowering the second; the third and fourth, it puts out branches, which flower the same year.—This plant is proper to stand in windows on account of its smallness, and the very grateful odour it exhales, especially in the evening. It flowers from May to July.

13. Cheiranthus Annuus; *Annual Stock Gilliflower*, or *Ten-week Stock*. Leaves lanceolate, somewhat toothed, obtuse, hoary; siliques cylindric, acute at the end; stem herbaceous. It rises with a round smooth stalk, about two feet high, dividing into several branches at top. Of this sort, there are the red, purple, white, and striped, with single flowers; and the same colours with double-flowers; which are very great ornaments in the borders of the flower-garden, in autumn.—Grows naturally on the sea-coast of the southern countries of Europe. If the seeds of this plant be sown at three different times, a succession may be kept up during several months. The first sowing should be about the middle of February, upon a very slender hot-bed, just to bring up the plants, which must be guarded against frost; and when they are fit to remove, they should be transplanted into nursery beds, at about three or four inches' distance, observing to water and shade them till they have taken root, and afterwards to keep them clean from weeds; in these beds they may remain five or six weeks to acquire strength, and may then be planted in the borders of the flower-garden, where they are to remain: if they be transplanted during rain, they will the sooner take root, and afterwards require no farther care. To succeed these, another parcel of seeds should be sown in March; and a third parcel at the end of May. If the last be sown upon a warm border, where they may be covered by placing glasses before them in winter, or covering them with mats, they may be continued in flower till Christmas: and if some of the plants be potted and placed under a hot-bed frame in autumn, where they may enjoy the open air in mild weather, and be screened from hard rains and frost, they will keep flowering all the winter, when the weather is not very severe.

14. Cheiranthus Littoreus; *Sea Stock Gilliflower*. Leaves lanceolate, somewhat toothed, tomentose, and fleshy; petals emarginate; siliques tomentose. Stem a foot high, alternately branching, hoary. The flowers are smaller than those of the common Stock, of a bright red at first, but fading to a purple. The whole plant is very white, and, having woody stalks, has the appearance of a perennial plant, but it generally perishes in autumn.—It grows naturally near the sea-coast, in the south of France, Spain, and Italy. The seeds should be sown in autumn on a warm border, where the plants are designed to remain. These will flower early in June, and produce good seeds.

15. Cheiranthus Tristis; *Dark-flowered Stock-Gilliflower*. Leaves linear, subsinuate; flowers sessile; petals waved; stem shrubby. This seldom rises above eight or nine inches in height. The whole plant is roughish, and of a hoary ash colour. It has a grateful odour at night, somewhat resembling that of the *Geranium Triste*.—Native of the south of Europe.

16. Cheiranthus Trilobus. Leaves toothed, obtuse; calices even; siliques knotted, mucronate, filiform, even. Root annual; stems seven or eight inches high, branched, spreading, hoary; flowers rather large, purple.—Native of Spain, and of Italy, on the sea-shore near Terracina.

17. Cheiranthus Tricuspidatus; *Trifid Stock-Gilliflower*. Leaves lyrate; siliques three-toothed at the tip. An annual plant, branching out from the root into many declining stalks; lower leaves two inches long, hoary; flowers in loose spikes or racemes; corollas purple.—Native of Barbary. If the seeds be sown in autumn on a warm border, the plants will live through the winter, and flower early in June, so that good seeds may be obtained from them.

18. Cheiranthus Sinuatus; *Prickly-podded Stock-Gilliflower*. Leaves tomentose, obtuse, subsinuate; branch-leaves entire; siliques muricate. Stalk erect, and the whole plant covered with a white down; lower leaves broad, lanceolate, obtuse, alternately indented; flowers flesh-coloured, succeeded by long woolly pods.—Brought from the Isle of Rhé, near Rochelle. Found also upon the rocks at Aberdovy in Merionethshire; on the sandy coast of Anglesea, about Abermeneyferry, at Aberdaren in Caernarvonshire; and on the coast of Cornwall. It is biennial; and may be increased by seeds in the same manner as the other sorts.

19. Cheiranthus Farsetia. Siliques oval, compressed; leaves linear, lanceolate; stem shrubby, erect. Stem a foot high, hoary, stiff, straight, and branching: the flowers are of a dull colour, smelling sweet only in the night.—Native of Egypt and Arabia; and observed by Forskael in the kingdom of Tunis.

20. Cheiranthus Tenuifolius; *Narrow-leaved Shrubby Stock-Gilliflower*. Leaves filiform, quite entire, somewhat silky; stem frutescent, branched. This is a shrub, a foot and a half in height, the branches becoming bald at bottom.—It flowers in May and June; and is a native of Madeira. Both this and the next species are quick of growth, and may be propagated by cuttings put into the ground, as soon as the plants have done flowering. These cuttings will produce handsome plants to place in the green-house upon the approach of winter, to decorate it in the ensuing spring: they will survive a mild winter under a wall in sheltered gardens, and appear to be almost as hardy as the common Stock.

21. Cheiranthus Mutabilis; *Broad-leaved Shrubby Stock-Gilliflower*. Leaves lanceolate, acuminate, sharply serrate; stem frutescent; siliques peduncled. This is a shrub, growing to the height of two or three feet: it flowers from March till May. Its chief merit consists in its early flowering. The showy blossoms on first opening are white, sometimes inclined to yellow; in a few days they become purple; and hence its trivial name *mutabilis*, or changeable. For the propagation and culture, see the preceding species.

22. Cheiranthus Quadrangulus. Leaves linear, entire, siliques sessile, oblong, quadrangular. This grows a cubit

height, with an herbaceous stem, becoming a little shrubby at bottom, upright, branched, round; leaves bright green, three or four inches long; flowers in terminating, very long, proliferous, subdecumbent spikes, alternate, sessile, sulphur-coloured, odorous; siliques short; seeds not margined.—Native of the deserts of Siberia.

Chelidonium; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth two-leaved, roundish; leaflets subovate, concave, obtuse, caducous. *Corolla:* petals four, roundish, flat, spreading, large, narrower at the base. *Stamina:* filamenta very many (thirty) flat, broader at top, shorter than the corolla; antheræ oblong, compressed, obtuse, erect, twin. *Pistil:* germen cylindric, the length of the stamina; style none; stigma headed, bifid. *Pericarp:* silique cylindric, subbivalve. *Seeds:* very many, ovate, increased, shining; receptacle linear, between the valves, of a kind of circumambient suture, not gaping. Essential Character. *Corolla:* four-petalled. *Calix:* two-leaved. *Silique:* one-celled, linear.—If the seeds of the four first species be permitted to scatter, the ground will be plentifully stored with plants; and if a few of them be thrown among rock-work, they will come up without trouble, and produce a good effect. Seeds sown in the autumn will grow with more certainty than in the spring, and come earlier to flower: they should be sown where they are intended to remain, and will then require no care but to thin them where they are too close, and to keep them clean from weeds.——The species are,

1. Chelidonium Majus; *Common* or *Great Celandine.* Peduncles umbelled. Stem erect, from a foot to eighteen inches in height, cylindric, a little hairy. It is common in hedges and other shady places, in uncultivated grounds, upon walls, and among rubbish; flowering from May to July, during which time it is in the greatest perfection for use. The juice of every part of this plant is saffron-coloured, and very acrimonious: it cures tetters and ring-worms: diluted with milk it consumes white opaque spots on the eyes: it destroys warts, and cures the itch. There is no doubt but a medicine of such activity will one day be converted to more important purposes. Hill observes, that it is an admirable medicine in obstructions of the viscera. The root, beat into a conserve with sugar, operates both by stool and urine, and is good in the jaundice. An infusion of the sliced roots is a cordial, and greatly promotes perspiration; and the juice, both taken inwardly and applied externally, is said to be singularly useful in disorders of the eyes. The root dried and reduced to powder, is sometimes given to the quantity of half a drachm for a dose, in the bloody flux and other hæmorrhages. Meyrick says, that both the roots and leaves of Celandine have a very acrid and somewhat bitterish taste, which is however much the strongest in the roots. The plant is often used in obstinate jaundices, dropsies, suppressions of the menses, and other disorders; but the utmost caution should be employed in administering a medicine so highly acrimonious and irritating.—There is a variety of this species with double flowers, which generally rises the same from seeds; and may also be preserved by parting the roots.

2. Chelidonium Glaucium; *Sea Celandine*, or *Yellow Horned Poppy.* Peduncles one-flowered; leaves stem-clasping, sinuated; stem smooth. The whole plant is glaucous; stem strong, nearly two feet high, much branched; petals large, ovate, yellow. The large and numerous flowers, which, although of short duration, succeed one another in great abundance during most part of summer, make a fine contrast with the sea-green dew-bespangled leaves, and are a great ornament to our sandy shores. The whole plant abounds in a yellow juice, is fetid, and of a poisonous quality, being reputed to occasion madness.—Native of sandy soils, in Switzerland, France, Italy, Austria, Carniola, Denmark, Virginia; and on the coasts of Britain, frequently within reach of the spray of the sea, as in Norfolk, Suffolk, about Dunwich, &c. Lancashire, the isle of Wight, Kent, Essex, Wales, and Scotland. It flowers from June to August.

3. Chelidonium Corniculatum; *Red Celandine*, or *Horned Poppy.* Peduncles one-flowered; leaves sessile, pinnatifid; stem hispid. Plant glaucous; root spindle-shaped; petals oval, deep orange, veined, with an elliptic purplish spot at the base of each, soon falling off.—Native of Hungary, Bohemia, Moravia, Austria, about Montpellier, in Piedmont, and in Spain: annual; flowering in July and August. Found in the sandy corn-fields of Norfolk.

4. Chelidonium Hybridum; *Violet Celandine*, or *Horned Poppy.* Peduncles one-flowered; leaves pinnatifid, linear; stem glossy, slightly hairy; siliques three-valved. Stem erect, a foot high, petals violet, fugacious, seldom lasting above three or four hours; antheræ twin, pale blue.—Native of the southern countries of Europe, and of sandy corn-fields, between Swaffham and Burwell in Cambridgeshire, and in Norfolk. Annual: flowering in July and August.

5. Chelidonium Japonicum. Peduncles one-flowered; leaves petioled, pinnated, ovate. Stem herbaceous, striated, smooth, weak, erect; corolla a little longer than the calix, and yellow.—Native of Japan.

Chelone; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted, very short, permanent; divisions erect, ovate. *Corolla:* monopetalous, ringent; tube cylindric, very short; throat inflated, oblong, convex above, flat beneath; border closed, small; upper lip obtuse, emarginate; lower almost equal to the upper, very slightly trifid. *Stamina:* filamenta four, hid beneath the back of the corolla, the two side ones a little longer; antheræ incumbent; the rudiment of a fifth filamentum, like the point of a dagger between the upper pair of stamina. *Pistil:* germen ovate; style filiform, situation and length of the stamina; stigma obtuse. *Pericarp:* capsule ovate, two-celled, longer than the calix. *Seeds:* very many, roundish, surrounded with a membranous rim. Essential Character. *Calix:* five-parted. *Rudiment* of a fifth filamentum between the upper stamina. *Capsule:* two-celled.—The seeds of all the species succeed best, if they be sown in autumn; for when they are sown in the spring, they frequently lie a whole year before the plants come up; for which reason, where the seeds scatter, the plants will come up much better than those which are sown by hand.——The species are,

1. Chelone Glabra; *White Chelone.* Leaves petioled, lanceolate, obsoletely serrated; upper ones opposite.—This grows naturally in most parts of North America, and is called the *humming-bird tree* by Joscelin, in his *New England Rarities.* It has a pretty thick jointed root, which is perennial, fibrous, and creeping; stems three feet high, erect, cylindrical: the flowers grow in a close spike at the end of the stalks; they are white, and have but one petal, which is tubular and narrow at the bottom, but swells toward the top almost like the Fox-glove flower. It flowers in August, and when the autumn proves favourable, will sometimes ripen in England; but as the plants propagate so fast by their creeping roots, the seeds are seldom regarded.—The best time to transplant the roots is in autumn, that they may be well established in the ground before the spring, otherwise they will not flower so strong, especially if the season prove dry; but when they are removed in the spring, it

should not be later than the middle of March, by which time their roots will begin to push out new fibres. They will thrive in almost any soil or situation; but their roots are apt to creep too far, if they be not confined, and sometimes intermix with those of other plants; and then their stalks stand so far distant from each other, as to make but little appearance; therefore they should be planted in pots, which will confine their roots, so that eight or ten stalks will be growing together in each pot; which makes a good appearance. This plant being very hardy, is not injured by cold, but it must have plenty of water in hot weather. These plants flower in the autumn, when there is a scarcity of other flowers, which makes them the more valuable, especially the second species, the flowers of which make a very pretty appearance when they are strong: and if some of them be placed in a shady situation in the summer, they will flower later.

2. Chelone Obliqua; *Red Chelone.* Leaves petioled, lanceolate, serrate, all opposite; corolla bright purple.—Native of Virginia, from whence the roots were sent to England.

3. Chelone Hirsuta; *Hairy Chelone.* Stem and leaves hirsute; flower purely white.—Native of New England.

4. Chelone Pentstemon. Leaves stem-clasping; panicle dichotomous. Stem cylindric, pubescent, a foot and half high; corolla purple; tube the length of the calix; throat oblong, bellying.—Native of North America. The seeds of this species should be sown in autumn: when the plants are grown strong enough to remove, they should be transplanted into a shady border, which will prevent their flowering the same year; and in the autumn they may be planted in the borders of the flower-garden. The roots seldom last above two or three years.

5. Chelone Campanulata. Leaves opposite, sessile, ovate-lanceolate, extremely acuminate, deeply serrate. The whole plant is smooth; stem round, a foot and half high, purple, wand-like.—Native of Mexico.

Chenolea; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, globular, somewhat fleshy, five-parted; segments bent in. *Corolla:* none. *Stamina:* filamenta five, filiform, from upright bent in, inserted at the base of the calix, and of the same length; antheræ minute. *Pistil:* germen superior; style filiform, very short; stigmas two, simple, subulate acute, from spreading bent back, a little longer than the style. *Pericarp:* capsule round, slightly depressed, umbilicate, one-celled. *Seed:* single, roundish, bifid at the tip, smooth. Essential Character. *Calix:* globular, one-leafed, five-parted. *Capsule:* one-celled, containing one smooth seed, bifid at the tip.—The only known species is,

1. Chenolea Diffusa. Stems several, radical, filiform, herbaceous, diffused, simple, and branched, covered with leaves, purple, smooth at bottom, subtomentose at top, unequal, the ends upright: branches alternate, scattered, few, very short; flowers axillary, solitary, or in pairs. It flowers in August and September.—Native of the low coast of the Cape.

Chenopodium; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-leaved, concave, permanent; divisions ovate, concave, membranaceous on the margin. *Corolla*; none. *Stamina:* filamenta five, subulate, opposite the leaves of the calix, and of the same length; antheræ roundish, twin. *Pistil*; germen orbiculate; style two-parted, short; stigmas obtuse. *Pericarp:* none; calix closed, five-cornered, five-angled; (angles compressed) deciduous. *Seed:* single, lenticular, superior. Essential Character. *Calix:* five-leaved, five-cornered. *Corolla:* none. *Seed:* one, lenticular, superior.—Most of these plants are to be eradicated as weeds, rather than cultivated; being very succulent and exhausting, and abounding very much in seeds, they should be carefully destroyed, especially on dunghills.——The species are,

* *With angular Leaves.*

1. Chenopodium Bonus Henricus: *Angular-leaved Goosefoot, English Mercury,* or *Allgood, Good Henry, Good King Harry,* or *Wild Spinach.* Leaves triangular-sagittate, quite entire; spikes compound, leafless. Root perennial, branched; stem twelve to eighteen inches high, branched below, striated, leafy; leaves alternate, petioled, green above, covered with an unctuous mealiness below, flowers green, mealy; spikes numerous, axillary and terminal. It is gathered while young and tender, to eat as Spinach; and is preferred before Spinach at Boston in Lincolnshire, where it is generally cultivated. The young shoots, peeled and boiled, may be eaten as Asparagus, and are gently laxative; the leaves are often boiled in broth: the roots are given to sheep afflicted with coughs.—As a medicine, this herb is ranked among the emollients, but rarely made use of in practice. The common people apply the leaves to old ulcers and slight wounds, to cleanse and heal them. The dried herb is used in decoctions for clysters.—It grows in waste places, by road-sides, about farm-yards, &c. flowering and seeding from May to August. To propagate this plant, sow the seed in March, on a deep loamy soil, prepared as for Asparagus; let the seedlings continue to grow till autumn: about the middle of September, taking advantage of a wet season, set the plants on a bed similar to that on which they were sown, about a foot apart; keep them clear of weeds, and in the ensuing spring and summer they will afford an abundant crop. The young shoots, with their leaves and tops, are to be cut as they spring up; and being a perennial plant, it will continue thus plentifully to produce for a great number of years. In the winter the bed is to be covered with dung, which should be raked off as the spring advances, when the earth round the roots is carefully to be dug or forked up.

2. Chenopodium Urbicum: *Upright Goosefoot.* Leaves triangular, somewhat toothed; racemes crowded, very straight, approximating to the stem, and very long.—grows abundantly on dunghills, and in waste places, flowering from July to September. Annual.

3. Chenopodium Atriplicis; *Orach* or *Purple Goosefoot.* Leaves deltoid, coloured beneath; stem erect. This has the appearance, erect stature, height, colour, and leaves, of red Garden Orach: annual.—Found in Siberia, by Pallas; and is a native of China.

4. Chenopodium Rubrum; *Red Goosefoot.* Leaves cordate-triangular, bluntish-toothed; racemes erect, compound, somewhat leafy, shorter than the stem. Stems decumbent, and close to the ground, somewhat branched, smooth, grooved, becoming reddish as the seeds ripen; flowers reddish, in axillary and terminal, rather dense racemes.—Grows in waste places, flowering in August. Annual.

5. Chenopodium Murale; *Wall* or *Nettle-leaved Goosefoot.* Leaves ovate, shining, toothed, sharp; racemes branched, naked. The whole plant is sometimes tinged with red. Mr. Curtis observes that this, and most other species of this genus, afford plenty of seeds for the support of small hard-billed birds.—Native of waste places, under walls and by road-sides, flowering in August and September. Annual.

6. Chenopodium Serotinum; *Fig-leaved Goosefoot.* Leaves deltoid, sinuate-toothed, wrinkled, smooth, uniform; racemes terminal.—Annual.—Native of Spain.

7. Chenopodium Album; *Common* or *White Goosefoot.* Leaves rhomboid triangular, erose, entire behind, uppermost oblong; racemes erect. Stem upright, from one to three feet

high, slightly crooked, somewhat angular and striated, solid, branched, smooth, sometimes purplish; branches alternate; racemes axillary, upright, forming a spike of flowers growing in little clusters. It is whiter than most of the Chenopodia, and varies exceedingly both when young and in its seeding state. It is the commonest plant of the genus, occurring in every garden, on every dunghill, and in almost every cornfield. It is mentioned by Lightfoot and several other authors, as being boiled and eaten for greens, and is known by the name of *fat-hen*, or *muckweed*. Linneus affirms that swine are extremely fond of it; and yet the fifth and the ninth species, (Murale and Hybridum) are said to be fatal to this animal; which is contrary to all probability, since the common Goosefoots seem to be mild and gently laxative like Spinach.

8. Chenopodium Viride; *Green Goosefoot*. Leaves rhomboid, tooth-sinuate; racemes branched, somewhat leafy; stem upright, green, with purplish angles. This much resembles the foregoing; but the appearance of the whole plant is greener; the bright red colour at the angles of the joints is constant; the leaf is much longer; and the parts of fructification are smaller.—Native of dunghills, &c. and flowers in August.

9. Chenopodium Hybridum; *Bastard Goosefoot*. Leaves cordate, angular acuminate; racemes branching, naked. Stem from one to two feet high, upright, branched, angular, and perfectly smooth. This species varies the least of any; the panicle of flowers is peculiarly branched and naked, and has a strong disagreeable smell.—Mr. Lightfoot enumerates it among the Scottish plants. It is not common near London, being observed only in Battersea-fields, and about Northfleet: it has been found also near Ely and Colchester. If any of the genus be poisonous, this must be the species.

10. Chenopodium Botrys; *Cluster* or *Cut-leaved Goosefoot*, or *Oak of Jerusalem*. Leaves oblong sinuate; racemes naked, multifid. This sends up several stems from the root, which rise about two feet high; flowers axillary from the upper part of the branches, in loose racemes: they appear in July, and the seeds ripen in September. When bruised, the leaves emit a very strong odour; somewhat like that of Ambrosia; and for this principally the plant is preserved in gardens, for the flowers have no beauty.—Native of the south of Europe. A few of this, and of the eleventh species, which will come up of themselves, may be transplanted in the spring into pots filled with kitchen-garden earth, to be preserved through the winter; and the others may be planted in the common borders, where they will flower and perfect their seeds.

11. Chenopodium Ambrosioides; *Mexican Goosefoot*, or *Oak of Cappadocia*. Leaves lanceolate, toothed; racemes leafy, simple. Stem from twelve to eighteen inches high, sometimes reddish, round, striated, with fine scattered hairs; leaves pale green, oblong, sinuated.—Native of Mexico. The leaves and flowery heads have a strong and not unpleasant smell, and a moderately aromatic taste, somewhat bitterish; on much handling them, an unctuous juice adheres to the fingers. The proper menstruum of their active matter is rectified spirit; but boiling water will also extract it. The infusions, which are not unpalatable, are said to be of service in humoral asthmas and coughs, and other disorders of the breast: they are supposed also to be antispasmodic and antihysteric. The seed is reckoned among the anthelminthics, and the dried herb is put among clothes, to keep away moths.

12. Chenopodium Multifidum; *Buenos Ayres Goosefoot*. Leaves multifid; segments linear; flowers axillary, sessile. This rises with a shrubby stalk three or four feet high; with oblong leaves cut into many linear segments.—It grows naturally at Buenos Ayres. It is perennial; and, retaining its leaves through the year, will add to the variety in a greenhouse, during the winter; but it has little other beauty to recommend it. It may be propagated by cuttings.

13. Chenopodium Anthelminticum; *Wormseed Goosefoot*. Leaves ovate-oblong, toothed; racemes leafless. Stems three cubits high, straight, stiff, grooved, hairy, dividing into few branches to the middle, but above that more branched.—Native of Buenos Ayres, of Pennsylvania, and New Jersey, where it is called *Worm-seed*, and *Jerusalem Oak*. It has a disagreeable scent; and the seeds are given to children against the worms.

14. Chenopodium Glaucum; *Oak-leaved Goosefoot*. Leaves ovate-oblong, repand; racemes naked, simple glomerate. Root annual; stems twelve to eighteen inches high, thickish, branched, and spreading, often prostrate, striated with green and white; leaves alternate, petioled, green, and smooth above, mealy and white beneath; flowers green, in small, axillary, and terminal racemes.—Native of several parts of Europe; and in England found chiefly in the neighbourhood of London; flowering in August.

15. Chenopodium Quinoa. Leaves triangularly egg-shaped, obsoletely toothed, the younger ones mealy; racemes crowded, shorter than the petioles; root annual; stem three feet high, erect, branched.—Native of Chili. It is eaten in Peru as Spinach or Sorrel, and the seed as Millet.

** *With simple Leaves.*

16. Chenopodium Vulvaria; *Stinking Goosefoot*. Leaves quite entire, rhomboid-ovate; flowers conglomerate, axillary. The whole plant is sprinkled with a white pellucid meal; stems numerous, spreading, round, somewhat striated, and thinly beset with leaves, which are alternate, petioled.—This species is easily known by its decumbency, and its permanently disagreeable odour, both green and dried, resembling that of stale salt fish.—It is common on dry banks, and at the foot of walls and pailings. It is reckoned a useful antihysteric; some recommend a conserve of the leaves, others an infusion in water, and others a spirituous tincture of them: on some occasions it may perhaps be preferable to the fetids which have been more commonly made use of, as not being accompanied by any pungency or irritation, and seeming to act merely by virtue of its odorous principle. It is omitted in the last edition of the London Pharmacopœia, and, as Alione affirms, is not undeservedly neglected. The herb dyes a good strong greenish lemon-colour.

17. Chenopodium Polyspermum; *Round-leaved Goosefoot*, *Upright Blite*, or *Allseed*. Leaves quite entire, ovate; stem decumbent; cymes dichotomous, leafless, axillary. The stalk is generally of a bright red colour, with long extended branches, and reddish seeds, which are numerous and strikingly visible, from being only in part covered with the calix.—Mr. Curtis remarks, that it is a troublesome weed to the gardener, but scarcely injurious to the farmer. Woodward and Ray, however, affirm that it is generally found in Turnip-fields, and that it grows abundantly in Hop grounds, and among corn where the soil is good. It is a very grateful food to fish in ponds.

18. Chenopodium Scoparia; *Flax-leaved Goosefoot*, *Belvidere*, or *Summer Cypress*. Leaves linear-lanceolate, flat, quite entire. Stem round, three feet high or more, slender, clothed with short hairs; leaves ciliated about the edge, nerved beneath; flowers greenish, in small sessile clusters. It is a beautiful plant, naturally disposed to grow very close and thick, and in as regular a pyramid as if cut by art. The leaves are of a pleasant green, and were it not for that, it so strongly resembles the Cypress, that at some distance it might be mistaken for it. According to Scopoli, this plant drives away bugs. It grows wild in Carniola, Greece, China, and Japan

The seeds should be sown in autumn; and in the spring, when the plants are come up, they may be put into pots of good earth, and kept supplied with water in dry weather: these pots may be interm xed with other plants, to adorn courtyards, &c. where they will appear very handsome.

19. Chenopodium Maritimum; *Sea Goosefoot*, or *White Glasswort*. Leaves awl-shaped, semicylindrical. Root annual, fibrous, small; stem eight or nine inches high, erect, branched, round, leafy; leaves alternate, succulent, abounding with a salt juice; flowers green, sessile, two to four together in small clusters, with a pair of bractes to each.—Common on the sea-coast in various parts of Europe; and is collected for the manufacture of glass.

20. Chenopodium Aristatem. Leaves lanceolate, somewhat fleshy: corymbs dichotomous, awned, axillary; root annual; stem two to five inches high, much branched; flowers small, greenish.—Native of Siberia.

21. Chenopodium Oppositifolium. Leaves opposite, lanceolate, awl-shaped, very short; stem somewhat woody, cylindrical, much branched, nearly erect-spreading, opposite, striated with reddish lines; flowers in axillary leafy clusters.—Native of Siberia, about the river Jaick.

Cherleria; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, concave, equal. *Corolla:* petals none, except the calix or nectary be so called; nectaries five, emarginate, placed in a circle, very small. *Stamina:* filamenta ten, subulate, of which the alternate ones are affixed to the back of the nectaries; antheræ simple. *Pistil:* germen ovate; styles three, spreading; stigmas simple. *Pericarp:* capsule ovate, three-celled, three-valved. *Seeds:* two or three, kidney-shaped. Essential Character. *Calix:* five-leaved. *Nectaries:* five, bifid, resembling petals. *Antheræ:* alternate, barren. *Capsule:* one-celled, three-valved, three-seeded.——The only known species is,

1. Cherleria Sedoides; *Stonecrop Cherleria*. Leaves opposite, linear, rugged about the edge, connate at the base into a sheath. When the leaves are fallen, the sheaths remain with the keel of the leaves, investing the lower part of the stem. It forms large green mossy tufts; stems about two inches high, closely matted; flowers from the summits of the branches, single, erect, on very short peduncles, yellowish green; leaflets of the calix streaked on the back with three lines; nectaries much shorter than the calix, fleshy, and connected.—Scopoli informs us, that in the garden the flower sometimes produces ten entire nectaries, and has all the stamina arising from the receptacle.—It flowers in July and August, and is found on the mountains of Dauphiny, Switzerland, Savoy, the Valais, Austria, Carniola, and the Highlands of Scotland: perennial.

Cherry Tree, Cherry Laurel. See *Prunus* and *Cordia.*

Chervil. See *Chærephyllum*, and *Scandix.*

Chestnut. See *Fagus.*

Chestnut, Horse. See *Æsculus.*

Chickpea. See *Cicer.*

Chickweed. See *Alsine*, and *Arenaria.*

Chickweed, Bastard. See *Bufonia.*

Chickweed, Water. See *Callitriche.*

Chimarrhis; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth margin entire, crowning the germen, permanent. *Corolla:* one-petalled, funnel-form; tube very short; border five-cleft; segments lanceolate, concave, blunt, hirsute below, with a longitudinal line running along the middle, and spreading. *Stamina:* filamenta five, subulate, hirsute at the base, below the divisions of the border, the length of the corolla; antheræ oval, erect. *Pistil:* germen roundish, inferior; style filiform, the length of the stamina; stigma bifid, obtuse. *Pericarp:* capsule sub-ovate, obtuse, crowned, two-celled, two-valved; the valves bifid at the tip. *Seeds:* solitary. Essential Character. *Corolla:* funnel-form, with a very short tube. *Capsule:* inferior, obtuse, two-celled, two-valved the valves bifid at the tip. *Seed:* one in each cell.——The only species is,

1. Chimarrhis Cymosa. This is a lofty tree, with a handsome head, and the boughs spreading out horizontally; leaves ovate, acuminate at both ends, quite entire, shining, petioled, opposite, a foot long, commonly eight or ten at the end of each twig; flowers numerous, small, with white corollas, and without scent, disposed in cymose racemes, half a foot in diameter; those in the axils opposite and solitary, those at the end usually four together; capsules small. The wood is white, and serves for beams, rafters, &c.—Native of Martinico, where it is commonly called *bois de riviere.*

China Root. See *Smilax.*

China Rose. See *Hibiscus.*

Chiococca; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-toothed, superior, permanent. *Corolla:* monopetalous, funnel-form; tube long, spreading; border five-parted; divisions equal; acute, reflected. *Stamina:* filamenta five, filiform, length of the corolla; antheræ oblong, erect. *Pistil:* germen inferior, roundish, compressed; style filiform, length of the stamina; stigma simple, obtuse. *Pericarp:* berry roundish, compressed, crowned with the calix, one-celled. *Seeds:* two, roundish, compressed distant. Essential Character. *Corolla:* funnel-form, equal. *Berry:* one-celled, two-seeded, inferior.——The species are,

1. Chiococca Racemosa; *Climbing Snowberry Tree*, or *David's Root.* Scandent: leaves broad-lanceolate; flowers lateral; panicle racemed, one stipular tooth. Stem a fathom or more in height, with smooth loose branches, spreading out horizontally; berry snow-white; seeds two, oblong, acuminate. The root of this plant has much the same bitter acrid taste with the Seneka Snake-root, and has been long used as a strong resolutive and attenuant; it is administered with great success in obstinate rheumatisms, and old venereal taints; nor is it entirely useless in the *spina ventosa:* it is best given in decoction.—There is a variety of this, which grows to a considerable height, distinguished by large and pale-coloured corollas, which are purple at the corners.—Native of the West Indies, in woods, and on the lower mountains of Jamaica. It is propagated by seeds procured from the West Indies, which should be sown in pots, plunged in a moderate hot-bed, where they may remain till the autumn, and should then be removed into the stove for the winter, and placed on a fresh hot-bed in the following spring, in order to bring them up, for they rarely appear the first year. When they are fit to remove, plant them each in a separate small pot filled with light earth, and plunge them in a fresh hot-bed, shading them from the sun till they have taken new root, and then treating them as other tender plants from hot countries. As they obtain strength, the plants may be set abroad in a sheltered situation, for two months or ten weeks, in the warmest part of the summer; and in the winter should be placed in a moderately warm dry-stove, where they will thrive, and produce flowers in autumn.

2. Chiococca Barbata. Erect: leaves ovate; peduncles axillary, one-flowered; corollas bearded in the throat.—Native of the Marquesas, Society, and Friendly islands.

Chionanthus; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed,

four-parted, erect, acuminate, permanent. *Corolla:* monopetalous, funnel-form; tube very short, length of the calix, spreading; border of four divisions, which are linear, erect, acute, oblique, most extremely long. *Stamina:* filamenta two, very short, subulate, inserted into the tube; antheræ cordate, erect. *Pistil:* germen ovate; style simple, length of the calix; stigma obtuse, trifid. *Pericarp:* drupe round, one-celled. *Seed:* not striated. ESSENTIAL CHARACTER. *Corolla:* quadrifid, with the divisions extremely long. *Drupe:* with a striated nut.——The species are,

1. Chionanthus Virginica; *Virginian Fringe Tree*, or *Snowdrop Tree.* Peduncles three-cleft, three-flowered. It is a common shrub in South Carolina, where it grows by the sides of rivulets, and seldom is more than ten feet high; the leaves are as large as those of the Laurel, but of a much thinner substance; the flowers come out in May, hanging in long bunches, and are of a pure white, from whence it received the name of Snowdrop-tree; and, from the flowers being cut into narrow segments, it has received the appellation of Fringe-tree. After the flowers have fallen away, the fruit appears, which becomes a dark-coloured drupe, about the size of a sloe, having one hard seed in it.—The best way to obtain good plants is from the seeds, which must be procured from America, for they never have produced any fruit in this country: they should be sown soon after they arrive, in small pots filled with fresh loamy earth, which should be placed under a hot-bed frame till the beginning of May, when they must be removed to a situation exposed to the morning sun, but screened from the sun in the middle of the day: in dry weather the pots must be watered, and kept clean from weeds; for, as the seeds lie in the ground a whole year before the plants will come up, they should not be exposed to the sun the first summer, but removed in the following autumn, and placed under a frame, to protect the seeds from being injured by the frost; and if the pots be plunged into a moderate hot-bed in the beginning of March, it will bring up the plants much sooner than they will otherwise rise; by which means they will acquire more strength the first summer, and be better able to resist the cold of the next winter. They are liable to suffer from severe frosts while young, but when they are grown strong, will endure unhurt the greatest cold of our climate in the open air; they delight in a moist, soft, loamy soil.

2. Chionanthus Zeylanica; *Ceylon Snowdrop Tree.* Peduncles panicled, many-flowered. Leaves egg-shaped, villose underneath; drupes inversely egg-shaped.—Native of Ceylon.

3. Chionanthus Compacta, Panicles trichotomous, the last flowers subcapitate; calices villose; leaves lanceolate-oblong; antheræ acuminate. This tree is fifteen feet in height, with a dusky ash-coloured bark; petals snow-white, scarcely any tube, but the segments very long, and of a linear shape.—Native of the Caribbee Islands.

4. Chionanthus Mayepea. Panicles axillary, trichotomous, all the flowers distinct; antheræ obtuse. This is a middle-sized shrub, five or six feet high, and five inches in diameter, the wood and bark whitish; petals white, fragrant, concave, terminated by a thread three lines in length; fruit the size of an olive; rind violet, succulent, two lines thick, bitter.—Native of the forests of Guiana.

Chironia; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, five-parted, erect, acute, permanent; leaflets oblong. *Corolla:* monopetalous, equal; tube narrower; border five-parted, spreading; divisions ovate, equal. *Stamina:* filamenta five, broad, short, growing from the tip of the tube; antheræ oblong, erect, large, converging, and (after having shed the pollen) spirally twisted. *Pistil:* germen ovate; style filiform, a little longer than the stamina, declinate; stigma headed, ascending. *Pericarp:* ovate, bilocular. *Seeds.* numerous, small. ESSENTIAL CHARACTER. *Corolla:* rotated. *Pistil:* declinate; stamina on the tube of the corolla. *Antheræ:* finally spiral. *Pericarp:* two-celled. The drooping stigma seems to constitute the essence of this genus.——The species are,

1. Chironia Trinervia. Herbaceous: leaflets of the calix membranaceous, keeled. Stem annual, quadrangular, acute; leaves opposite, lanceolate, acuminate at each end, smooth, entire, three-nerved; flowers elegant, blue.—Native of Ceylon and the Cape.

2. Chironia Jasminoides. Herbaceous: leaves lanceolate: stem four-cornered. Stem two feet high, glossy; leaves opposite, sessile, erect, smooth.—Native of the Cape.

3. Chironia Lychnoides. Stem simple; leaves linear-lanceolate. Stem entirely simple, round, stiff, and straight, two feet high; flowers purple, disposed three or four together, in a terminal panicle.

4. Chironia Campanulata. Herbaceous: leaves sublinear; calices the length of the corolla. Stem a foot high, round, with long branches; flowers terminal, solitary, wheel-shaped, purple, on a long peduncle.—Observed in Canada by Kalm.

5. Chironia Angularis. Herbaceous: stem acute-angled; leaves ovate, stem-clasping. This has the appearance of Lesser Centaury.—Found by Kalm in Virginia.

6. Chironia Linoides; *Flax-leaved Chironia.* Herbaceous: leaves linear. An undershrub, with filiform, round, smooth branches; leaves an inch long, narrow; flowers pale red, solitary at the top of the upper branches; tube of the corolla half the length of the calix.—Native of the Cape.

7. Chironia Nudicaulis. Herbaceous: leaves oblong, bluntish. Stems many, subdiphyllous, quite simple, one-flowered; calices with setaceous teeth. This species is singular for its oblong leaves frequently rooted into a tuft.—Discovered by Thunberg at the Cape.

8. Chironia Tetragona. Shrubby: leaves ovate, three-nerved, bluntish; leaflets of the calix bluntish, keeled; corolla yellow, large.—Native of the Cape.

9. Chironia Baccifera; *Berry-bearing Chironia.* Stem shrubby at the base, much branched, four-cornered; leaves linear, green; pericarp resembling a berry. Flowers pale red, small, terminal, on short peduncles. This plant grows to the height of a foot and a half or two feet, and becomes very bushy, and is rather more so than is consistent with ornament; it produces both flowers and fruit during most of the summer.—Native of Africa. The seeds of this, and of the tenth species, should be sown in small pots, filled with light sandy earth, soon after they are ripe, and plunged into a moderate hot-bed, and must be frequently but gently watered: sometimes the seeds will lie a long time in the ground, so that if the plants do not appear the same season, the pots should not be disturbed, but preserved in shelter till the following spring. When they are fit to remove, they should be transplanted into small pots, four or five in each pot; then plunge the pots into a moderate hot-bed, and sprinkle them with water, shading them from the sun till they have taken new root; after which they will require a large share of air in warm weather, to prevent them from being drawn up weak: when they have acquired some strength, they may be gradually inured to bear the open air, but must be screened from great or long rains: when their roots have filled the pots, they should be parted, and each put into a separate pot filled with light sandy earth, but not rich with dung, which must be shaded until they have taken fresh root, and then removed to some warm situation, among

plants that require little water; where they may remain till autumn, and then have the protection of a glass-case, giving them but little water in winter, enjoying the sun as much as possible, and the air in mild weather. With this management, they will produce flowers the second year. The cuttings also will take root with proper management, but not very readily.

10. Chironia Frutescens. Shrubby: leaves linear-lanceolate, fleshy, subtomentose; calices bell-shaped. Stem a foot and half high, woody; branches round, tomentose, ash-coloured, mostly alternate, subdividing a little at top; flowers bright red, at the summits of the branches.—Native of Africa.

Chlora; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth eight-leaved; leaflets linear, spreading, permanent. *Corolla:* monopetalous, salver-shaped; tube shorter than the calix, coating the germen; border eight-parted; divisions lanceolate, longer than the tube. *Stamina:* filamenta eight, very short, seated on the throat; antheræ linear, erect, shorter than the divisions. *Pistil:* germen ovate-oblong; style filiform, length of the tube; stigmas four, oblong, cylindric. *Pericarp:* capsule ovate-oblong, one-celled, somewhat compressed, furrowed, two-valved; valves incurvated on the side. *Seeds:* numerous, minute. Essential Character. *Calix:* eight-leaved. *Corolla:* one-petalled, eight-cleft. *Capsule:* one-celled, two-valved, many-seeded. *Stigma:* four-cleft.—All these plants may be easy propagated from seeds, and require only common care in the cultivation. Our common Yellow Centaury, however, does not thrive well in a garden.—The species are,

1. Chlora Perfoliata; *Perfoliate Yellow Wort*, or *Yellow Centaury.* Leaves perfoliate. The whole plant generally very glaucous; stem cylindric, smooth, from three inches to three feet high; corolla gold coloured, with a milky juice; segments sometimes nine, slightly emarginate.—Annual; found on chalky and limestone soils, flowering from June through the autumn. Haller says, that this plant is more bitter than the red, (Gentiana Centaurium) and that it seems to possess the same qualities.

2. Chlora Imperfoliata. Corollas six-cleft. Stem herbaceous, quite simple, erect, four-cornered, glossy, a hand in height; the internodes longer than the leaves; flowers yellow, terminal, peduncled.—Annual; and a native of Italy.

3. Chlora Quadrifolia. Leaves in fours. Supposed to be a hybrid plant, produced from *Gentiana perfoliata* and *Linum quadrifolium.* Stem simple, a span in height, somewhat quadrangular, jointed.—Native of the south of Europe.

4. Chlora Dodecandria. Leaves opposite: corollas twelve-cleft. Flowers flesh-coloured. Native of Virginia.

Chloranthus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* none, but an ovate, acute, concave scale, on which the germen is placed. *Corolla:* one or three lobed convex petal, inserted into the outside of the germen. *Stamina:* filamenta none; antheræ four, inserted into the lobes of the petal, on the edges towards the inside, and bivalve. *Pistil:* germen obovate, prominent in front, and bearing the petal; style unequal, very short, angular; stigmas three, very minute, erect. *Pericarp:* drupe, oblong. *Seed:* nut oblong, smooth. Essential Character. *Calix:* none. *Corolla:* a petal three lobed by the side of the germen. *Antheræ:* growing to the petal. *Drupe:* one-seeded.——The only discovered species is,

1. Chloranthus Inconspicuus, or *Chu lan.* This is an herbaceous plant; stems many, from the root, half a foot high, spreading, suberect, a little branching, round, striated, smooth; leaves about two inches long, oblong-ovate, somewhat wrinkled, permanent; flowers pale yellow, in a terminal panicle.—This plant has been long introduced into the royal garden at Kew, as a native of China, where, we are told, it is cultivated in their gardens, though it seems not to have any qualities either palatable or odoriferous, nor any thing to recommend it in its appearance. Dr. Lind asserts, that the Chinese mix it with their tea, to give it a pleasant smell; but this plant itself has no smell whatever. It is preserved in the stove, and may be readily increased by runners.

Chocolate-nut Tree. See *Theobroma.*

Chondrilla; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common calicled, cylindric; scales of the cylinder very many, parallel, linear, equal; those of the base few, very short. *Corolla:* compound imbricate, uniform; corollets hermaphrodite, very many, equal, in several rows; proper monopetalous, strap-shaped, linear, truncated, four or five toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen subovate; style filiform, length of the stamina; stigmas two, reflex. *Pericarp:* none; calix cylindric, oblong. *Seeds:* solitary, ovate, compressed, muricated; pappus hairy; stripe long, attenuated above. *Receptacle:* naked. Essential Character. *Calix:* calicled. *Floscules:* in many rows. *Seeds:* muricated. *Pappus:* simple, stipitated.——The species are,

1. Chondrilla Juncea; *Rushy Gum Succory.* Radical leaves runcinate; stem leaves linear, entire. Root perennial; stem much branched, from two to three feet high, erect; at bottom strigose, towards the top smooth, bright green; corollas slender, yellow, like those of Lettuce. The juice of the whole plant is extremely bitter; although the Spaniards use it as a salad herb. It flowers in July, and ripens its seed in September.—Native of France, Switzerland, Germany, Austria, Italy, and Spain. It is seldom preserved in gardens, because the roots are very apt to spread, and become troublesome weeds; the downy seeds are also carried by the wind to a considerable distance, and fill the ground with plants; the roots strike deep and spread out with thick fibres on every side: each of these when cut or broken, will shoot up; so that, when this plant has once got possession of the ground, it is very difficult to root it up.

2. Chondrilla Crepioides. Leaves sagittate, stem-clasping; flowers subsessile, lateral. Stem simple, a foot and a half high, purple at the base, striated, set with a few white bristles; corolla yellow, purplish underneath; calix striated, beset with black tubercles, and a white bristle.

3. Chondrilla Nudicaulis. Scape naked; flowers panicled. Radical leaves runcinate, obtuse at the end, glossy; toothlet ciliated; corolla pale yellow, consisting of about twenty-four corollules, all forming the ray, and obtusely five-toothed.—Native of the East Indies.

Christmas Rose, Christmas Flower. See *Helleborus.*

Christ's Thorn. See *Rhamnus Paliurus.*

Chrysanthemum; a genus of the class Syngenesia, order Polygamia Superflua. — Generic Character. *Calix:* common hemispherical, imbricate; scales close, incumbent, the interior ones larger by degrees, the innermost terminated by a parched scale. *Corolla:* compound radiated; corollets hermaphrodite, tubular, numerous in the disk; females more than twelve in the ray; proper of the hermaphrodites funnel-form, five-cleft, patulous, length of the calix; of the females strap-shaped, oblong, three-toothed. *Stamina,* in the hermaphrodites: filamenta five, capillary, very short: antheræ cylindric, tubular, shorter than the corolla. *Pistil,* in the hermaphrodites: germen ovate; style filiform, longer than the stamina; stigmas two, revolute. In the females: germen ovate; style filiform, equal with the hermaphro-

dites; stigmas two, obtuse, revolute. *Pericarp:* none; calix unchanged. *Seed:* solitary, oblong, without any pappus; receptacle naked, dotted, convex. Essential Character. *Calix:* hemispherical, imbricated, the marginal scales membranaceous. *Pappus:* margined. *Receptacle:* naked.——The species are,

* *With white Corollas.*

1. Chrysanthemum Frutescens; *Canary Oxeye.* Shrubby: leaves fleshy, linear, pinnate-toothed, trifid at the end. Stem shrubby, nearly two feet high, dividing into many branches; leaves of a greyish colour, cut into many narrow segments; flowers axillary, greatly resembling those of common Chamomile; there is a succession of them during great part of the year, for which this plant is chiefly esteemed.—Native of the Canary islands. It will perfect its seed in England when the seasons are favourable; but as the cuttings take root very easily during any of the summer months, the seeds are rarely sown. It will not endure our winters in the open air, therefore when the cuttings have made good roots, they should be each planted into a separate pot, and placed in the shade until they have taken fresh root, then remove them to a sheltered situation till autumn; and thence into the green house, giving them free air in mild weather, and frequently refreshing them with gentle waterings in winter; in summer they will require more moisture, and should receive the same treatment as other hardy exotics.

2. Chrysanthemum Serotinum; *Creeping-rooted Chrysanthemum.* Leaves lanceolate, serrate at top, acuminate at both ends. Roots perenniel, creeping far under the surface: the stems are strong, and three or four feet high; the flowers appear in September.—It multiplies very fast by its creeping ronts, and will thrive in any soil or situation.

3. Chrysanthemum Atratum; *Fleshy-leaved Chrysanthemum.* All the leaves wedge-shaped, oblong, gashed, fleshy, stem one-flowered.—It is a perennial; and frequents the pastures of the Alps in Switzerland, Savoy, and Austria.

4. Chrysanthemum Alpinum; *Alpine Oxeye.* Leaves wedge-shaped, pinnatifid; segments entire; stems one-flowered. Stems stoloniferous. It is perennial; and found in the south of France, Switzerland, the Valais, Savoy, about Tubingen, on the Pyrenees, and in Arragon.

5. Chrysanthemum Leucanthemum; *Common Oxeye,* or *Great Daisy.* Leaves stem-clasping, oblong, the upper serrate, the lower toothed. Root perennial, somewhat creeping; stem from twelve to eighteen inches high, erect, rigid, angular, at bottom often purplish and hairy, above naked, simple, or little branched; flowers terminal, solitary, large, and showy.—It is very common in dry meadows and pastures, sometimes on walls, and in corn-fields, flowering from May to July, and increasing greatly by seed. The fresh leaves chewed, have a sweetish, but unpleasant and slightly aromatic taste, somewhat like Parsley, but not hot or biting; they have been recommended in disorders of the breast, both asthmatical and phthisical, and as diuretics. Allioni commends it; and John Bauhin observes, that the young leaves are eaten for salads at Padua, as well as in other places. According to Linneus, horses, sheep, and goats eat it, but cows and swine refuse it. Mr. Curtis remarks, that it is singular, while so many beautiful varieties of the common Daisy are met with in almost every garden, we never see this plant in a similar state; he has, however, been credibly informed, that two double varieties of this species are found near Ayr in Scotland. Haller asserts, that the varieties of this plant are innumerable, and he mentions several; among others, one in which the florets of the ray are fistulous: it is highly probable, therefore, that culture would produce as many varieties of this as the common Daisy has afforded. Parkinson mentions it with double flowers. The country people give a decoction of the fresh herb in ale for the jaundice, which operates by urine. Besides the common names of *Great* and *Oxeye Daisy,* Dr. Withering says it is called *Moonflower.* Gerarde calls this plant *Maudlinwort.*

6. Chrysanthemum Montanum; *Mountain Oxeye.* Bottom leaves spatulate-lanceolate, serrate, upper linear. Perennial: stems many, erect, very hirsute at bottom, and somewhat villose at top, simple, and one-flowered, but becoming branched in a state of cultivation; leaves smooth.—Said, by Mr. Miller, to have been imported from Verona, near which place it grows in great plenty. Sow the seeds in a shady border; they will come up in about six weeks; transplant them, when fit to remove, into another shady border, where they may remain, and keep them clean from weeds.

7. Chrysanthemum Graminifolium; *Grass-leaved Oxeye.* Leaves linear, toothed at the end, or the whole length. Perennial; ray of the corolla white.—This and the twelfth species rarely perfect their seeds in England, but being perennials, may easily be increased by parting the roots; the best time for this is in autumn.

8. Chrysanthemum Monspeliense; *Montpellier Oxeye.* Lower leaves palmate; leaflets linear, pinnatifid. An elegant plant, without scent; perennial; very smooth and slightly villose, with erect branching stems.—This species ripens seed every year in England, by which the plant is easily propagated, for if they are sown in the spring on a common border, they will come up in six weeks; when these are fit to remove, they may be transplanted into a nursery bed, at about a foot distance every way, and kept clean from weeds till autumn, when they may be removed to the places where they are designed to remain. As these plants extend their branches pretty far on every side, they should be allowed at least two feet room; if planted upon poor dry land, or upon lime rubbish, they will not grow so vigorously as in good ground, but will endure the cold better, and continue longer: when very succulent, they are apt to rot in winter; but where they grow from the joints of old walls, they continue in vigour several years.

9. Chrysanthemum Balsamita. Leaves ovate-oblong, serrate, eared. Perennial; stems many, erect, roundish, very slightly villose; the ray of the flower is white; disk yellow.—It was found by Tournefort in the Levant.

10. Chrysanthemum Inodorum. Leaves pinnate, multifid; stem branching, diffused; flowers large, terminating.—It is an annual; found in corn-fields and by road-sides, flowering from July to September. Old authors usually rank this plant with the Chamomiles.

11. Chrysanthemum Achillæa; *Milfoil-leaved Chrysanthemum.* Leaves bipinnate; pinnas imbricate; stem stiff and straight, many-flowered. Stem erect, somewhat angular, a foot high. Perennial.—Native of Italy.

12. Chrysanthemum Corymbosum; *Corymbed Chrysanthemum.* Leaves pinnate, gash-serrate; stem many-flowered. Stem erect, from eighteen inches to two or three feet high or more; florets of the ray about twenty in number, white, three-toothed; disk flat. The whole plant is void of taste and smell. It is a perennial; flowering in July and August.—Native of the mountainous woods of the south of France, Switzerland, Germany, Austria, Carniola, Hungary, and Siberia.

** *With Yellow Corollas.*

13. Chrysanthemum Indicum. Leaves simple, ovate, sinuate, angular, serrate, acute. Root perennial; stem herbaceous, annual, four feet high, upright, round; branches

oblique, subdivided, smooth and even; flowers subterminating, on long peduncles, commonly one-flowered, and solitary; all the florets ligulate; their colours are white, red, purple, violet, yellow, orange. They are three inches and more in diameter, but are not remarkable for the pleasantness of their odour. The many varieties of this species differ not only in colour, but in size and doubleness.—These are cultivated through the whole empire of Japan, as well as in China and Cochin-china, for the beauty of their flowers, which display themselves during the summer and autumnal months.

14. Chrysanthemum Pinnatifidum; *Cut-leaved Chrysanthemum.* Shrubby; leaves smooth, drawn to a point at the base, pinnatifid; segments gashed.—Found by Masson near torrents on the highest rocks in the island of Madeira.

15. Chrysanthemum Arcticum. Leaves simple, wedge-form, subpalmate, multifid, obtuse; stems weak, diffused, herbaceous, branching at bottom.—Native of Kamtschatka and Siberia.

16. Chrysanthemum Pectinatum. Leaves pinnate, linear, parallel, acute, quite entire; peduncles solitary, one-flowered. Stems very short, thickish, prostrate, creeping. Perennial.—Native of Spain and Italy.

17. Chrysanthemum Segetum; *Corn Marigold.* Leaves stem-clasping, the upper laciniate, the lower tooth-serrate. The whole plant is smooth; stem a foot or more in height, upright, striated, branched, each branch terminated by one large yellow flower. Besides the names of *corn marigold*, and *yellow* or *golden corn-flower*, it is called *yellow bottle*, in Kent; *buddle*, which is a corruption of bottle, in Norfolk; *golds*, or, as it is more generally pronounced, *goulds*, or *gowls*, in the midland counties; *goulans* or *goldins*, in the north of England; and *gules, gools, guills*, or *yellow gowans*, in Scotland, from the golden colour of the flowers, which, however they may give a brilliancy to the fields in tillage, and please the eye of the passing traveller, are, as Linneus observes, no very agreeable sight to the farmer, as it is a very troublesome weed in sandy soils. Linneus informs us, that it was imported into Sweden along with corn from Jutland, about the end of the last century, and that there is a law in Denmark obliging the farmers to extirpate it. A large quantity which grew on arable land, was cut when in flower, dried, and eaten by horses as a substitute for hay. The Germans use it for dying yellow. Linneus observes, that the flowers, which appear from June to October, follow the sun remarkably. The plant is annual. The method which Linneus prescribes for destroying this weed, is, to dung the ground in autumn, then to give the land a summer fallow, and to harrow it about five days after sowing.

18. Chrysanthemum Myconis; *Tongue-leaved Chrysanthemum.* Leaves tongue-shaped, obtuse, serrate; scales of the calix equal; calix with scales scariose at the tip; corolla deep yellow; ray short, three toothed; crown of the seed membranaceous.—It is annual; and a native of Portugal, Spain, and Italy.

19. Chrysanthemum Italicum. Leaves bipinnate, serrate; rays of the flowers the length of the disk; stem procumbent. This resembles the next species very much, but the stem is more branched, many-flowered, and more erect. The ray of the flower is white, the length of the disk.—Observed by Arduini in Italy.

20. Chrysanthemum Millefoliatum. Leaves bipinnate, toothed; stem decumbent; rays of the corolla shorter than the disk. It is low and bushy, but the flower-stems rise nearly two feet high It begins to flower in June, and continues till September.—Tournefort first discovered it in the Levant. Being very hardy, it will endure the open air, and may be easily increased by slips; but does not perfect seeds in England, unless in warm dry seasons.

21. Chrysanthemum Bipinnatum. Leaves bipinnate, serrate, villose; rays shorter than the disk; peduncles axillary, naked, one-flowered, pubescent, the length of the leaves.—Observed by Gmelin in Siberia.

22. Chrysanthemum Coronarium; *Garden Chrysanthemum*, or *Cretan Corn Marigold.* Leaves pinnate, gashed, broader outwards. Stem furrowed, leafy, branching, three feet high: florets of the ray very large, broad, and short, obtusely three-toothed; in the wild plant yellow: of this plant there are single and double flowers, both white and yellow. There is also a variety with fistular florets, called Quill-leaved Chrysanthemum; but the seeds of this degenerate to the common sort.—Native of Sicily, Crete, the Lower Valais, &c. These plants are always esteemed as annual, so the seeds are usually sown upon a slender hot-bed in the spring, and the plants treated in the same manner as the African Marigold, for the culture of which the reader is referred to the genus *Tagetes*: but as the plants which are produced from seeds frequently produce single flowers, even if the seeds were saved from the best double flowers, on that account, many persons now propagate these plants from cuttings, whereby they continue the double sorts only. The cuttings are taken from the plants in the beginning of September, and planted in pots. They take root readily, and if placed under a hot-bed frame to screen them from the frost in winter, admitting free air in mild weather, they will survive the severity of that season, and may be transplanted into the border of the flower-garden in the spring: here they will flower in June, and continue in succession, until the first frosts set in. By the above method all the varieties may be continued without variation; but the plants which are thus propagated by cuttings will soon become entirely barren and will not produce any seed.

23. Chrysanthemum Flosculosum: *Bastard Chrysanthemum.* All the florets uniform, hermaphrodite. A procumbent evergreen undershrub: flowers small, solitary, terminating, of a deep yellow colour.—Native of the Cape.

24. Chrysanthemum Japonicum. Leaves petioled, gashed at the tip, and toothed. Stem simple, erect, striated, villose; leaves alternate, oblong, smooth, pale above, green underneath.—Native of Japan.

25. Chrysanthemum Ceratophylloides. Stem one-flowered; pinnas deeply cut. The whole plant is extremely smooth; stem simple, one-flowered, leafy, straight, growing to a foot in height; florets of the ray marked with lines, and gashed.—It is perennial; and found upon the mountains Tende and Briga.

26. Chrysanthemum Arragonense. Stem one-flowered; root-leaves heaped, linear, silky, slightly three-toothed at the tip; upper stem-leaves quite entire, acute. Stems low and shrubby, about a foot high: from the end of each of the slender woody branches of the stem, a naked peduncle is produced six inches long, sustaining one flower of a sulphur-colour, which appears in June and July, but seldom ripens seed in England.—Found in la Sierra de Villaroya, near Purujosa in Arragon.

27. Chrysanthemum Procumbens. Leaves sinuate-gashed, blunt; stem procumbent. Stem perennial, three feet long, frequently creeping, slender, and very much branched; peduncles many-flowered, terminating. There are many varieties, but the flowers of all are small.—It is found both wild and cultivated, in China and Cochin-china.

Chrysitrix; a genus of the class Polygamia, order Dicœcia.—Generic Character. *Hermaphrodite Plant. Calix*: glumes bivalve, many, imbricate; valvelets ovate-oblong,

close, cartilaginous, permanent. *Corolla:* chaffs extremely numerous, heaped into a fascicle, setaceous, membranaceous, coloured, bright, longer than the calix, permanent. *Stamina:* filamenta solitary, between the chaffs capillary, the length of the chaffs; antheræ linear, growing on each filamentum, except the tip of the filamentum. *Pistil:* germen oblong, obtuse; style filiform, length of the stamina: stigmas simple. *Male*, in a distinct plant, differing in nothing from the hermaphrodite but the want of a pistil. Essential Character. *Glume:* bivalve. *Corolla* of numerous setaceous chaffs. *Stamina:* many, solitary, between the chaffs. *Pistil:* one.—The only known species is,

1. Chrysitrix Capensis: *Cape Golden Hair.* Root perennial; leaves ensiform, equitant, even, a palm or foot in length. The flower comes forth from the upper edge of the scape, like a fastigiate fascicle of golden bristles, straightened by a cartilaginous perianth. Jussieu remarks, that this herb has grassy-rooted leaves; a compressed ancipital scape towards the top, cloven on one side at the edge, putting forth a single sessile head, with one-valved coriaceous spathe below it, and that the germen is sometimes abortive.—Native of the Cape.

Chrysobalanus; a genus of the class Icosandria, order Monogynia. — Generic Character *Calix:* perianth one-leafed, bell-shaped, five-cleft; divisions expanding, withering. *Corolla:* petals five, oblong, flat, spreading, inserted by their claws into the calix. *Stamina:* filamenta very numerous, placed in a circle, erect, inserted into the calix: antheræ small, twin. *Pistil:* germen ovate; style of the shape and length of the stamina, inserted laterally at the base of the germen; stigma obtuse. *Pericarp:* drupe ovate, large, one-celled. *Seed:* nut ovate, marked with five furrows, wrinkled, five-valved. Essential Character. *Calix:* five-cleft. *Petals:* five. *Style:* lateral. *Drupe:* with a five-furrowed, five-valved nut.——The only species is,

1. Chrysobalanus Icaco; *Cocoa Plum.* It is an irregular shrub, from three to ten feet high, covered with a ferruginous bark, with pale spots; leaves ovate-roundish, obtuse, on short petioles, two inches long, alternate; racemes branched, corymbed, lax, terminating and axillary; flowers inodorous, small, with white petals, having almost the character of the Plum. Fruits roundish, about an inch in diameter, red, purple, yellow, whitish, or variegated: the skin is very thin, and the pulp small, white, with very little smell, adhering very firmly to the nut: it is of the consistence of a baked apple; the taste austere, but rather sweet, and not unpleasant: they are sold in the markets in the West Indies, and are eaten both raw and preserved: the nut or stone varies in form, but approaches to the ovate-acuminate, and sometimes has six or seven angles. It is a native of the Caribbean islands, and the neighbouring continent, near the sea. There are several varieties. As these trees are natives of the hot regions of America, they will not thrive in England, unless protected by a warm stove. They are propagated by seeds, which must be imported from their native country, and sown in the spring, in small pots filled with light earth, and plunged into a hot-bed of tanner's bark, observing to water them frequently in small quantities at each time. In six weeks the plants will come up, and, if properly managed, will be fit to remove in a month after, when they should be carefully separated, and each planted into a small pot filled with light kitchen-garden earth, and then plunged into the hot-bed again, observing to shade them from the sun till they have taken fresh root; after which they must have air every day in proportion to the warmth of the season, and their waterings should be frequent, but sparing, during the summer. In autumn remove them into the bark-stove, and plunge them into the tan-bed. In summer they must have a good share of air, and be treated as other tender plants from the same countries.

Chrysocoma; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common hemispherical, imbricate; scales linear, outwardly convex, acuminate. *Corolla:* compound, tubular, longer than the calix; corollets hermaphrodite, tubular, numerous, equal; proper funnel-form; border five-cleft, revolute. *Stamina:* filamenta five, filiform, very short: antheræ cylindric, tubular. *Pistil:* germen oblong, crowned; style filiform, scarcely longer than the florets, stigmas two, oblong, depressed, involute. *Pericarp:* none. *Calix:* scarcely changed. *Seeds:* solitary, ovate-oblong, compressed; pappus hairy. *Receptacle:* naked, flat. Essential Character. *Calix:* hemispherical, imbricate. *Style:* scarcely longer than the florets. *Pappus:* simple; receptacle naked.—Most of these plants are perennial, and natives of the Cape of Good Hope. They may be increased by cuttings, which if planted in a common border in any of the summer months, and covered with hand-glasses, will easily take root, provided they be shaded from the sun, and duly watered: when these have gotten good roots, they should be carefully taken up, and each planted in a separate pot, filled with light earth, placing them in the shade till they have taken new root; they may then be exposed with other hardy exotic plants till autumn, when they must be removed into the green-house during the winter season; and should have a large share of fresh air in mild weather, for they only require a protection from frost, and must not be too tenderly treated.——The species are,

** Shrubby.*

1. Chrysocoma Oppositifolia; *Opposite-leaved Goldylocks.* Leaves opposite, obovate; flowers fascicled, peduncled. A shrub with brachiated distorted branches; flowers yellow, terminating.—Native of the Cape of Good Hope.

2. Chrysocoma Comaurea; *Great Shrubby Goldylocks.* Leaves linear, straight, smooth, decurrent by the back. This rises with a ligneous stalk, about a foot high, dividing into many small branches, which are garnished with deep green narrow leaves. The flowers are produced at the end of the branches, on slender naked foot-stalks, and are of a pale yellow. It is chiefly esteemed for flowering during the greater part of the year; and the seeds ripen very well in autumn.—Native of the Cape. Both it and the sixth species may be increased by sowing them in spring, on a border of light earth: but the mode of raising them by cuttings is most expeditious, and therefore most common.

3. Chrysocoma Sericea. Shrubby, silky white: leaves linear, channelled; small branches panicled at top. This is easily distinguished by its very white silky leaves, branches, and peduncles, and by its yellow flowers. The bark and wood have an acrid pungent taste.—Native of Spain; where it is used as a remedy for the tooth-ache.

4. Chrysocoma Montana. Leaves oblong, quite entire; flowers solitary. Stem shrubby, with round villose branches; leaves acute, villose; flowers single at the ends of the branches.—Found upon Mount Horeb, in Palestine.

5. Chrysocoma Patula. Undershrubby: leaves linear, smooth; branches divaricate; flowers terminating, solitary, scarcely peduncled.—Native of the Cape.

6. Chrysocoma Cernua; *Small Shrubby Goldylocks.* Leaves linear, recurved, subscabrous; flowers, during impregnation, dropping, of a brown sulphur colour, nodding on one side before they are blown. It flowers the greater part of the year, and ripens seed very well.—Native of the Cape of Good Hope. See the second species.

7. Chrysocoma Ciliata; *Heath-leaved Goldylocks.* Un-

dershrubby: leaves linear, straight, ciliate; branches pubescent.—Native of the Cape.

8. Chrysocoma Tomentosa. Undershrubby: leaves and branches tomentose. Leaves linear, straight.

9. Chrysocoma Scabra. Undershrubby: leaves lanceolate-ovate, recurved, tooth-serrate; peduncles pubescent. Height nine or twelve inches, dividing into many woody branches covered with a brown bark, and these into smaller green ones, on which are very narrow subhirsute alternate leaves; corollas very small, yellow.—It flowers in August and September, and is a native of the Cape.

**Herbaceous.*

10. Chrysocoma Linosyris; *German Goldylocks.* Leaves linear, smooth; calices lax. Root perennial; stalks two feet and a half high: the upper part of the stalk divides into many slender peduncles, each sustaining a single head of flowers, of a bright yellow, and disposed in the form of an umbel. The plant, when handled, sends forth a fine aromatic smell.—Native of Germany, Switzerland, France, and Italy. The seeds will ripen in September, in favourable seasons; but the seedling plants do not flower till the second or third year, and hence the most general method of increasing it is by parting the roots. The best time for this, and for removing the plants, is soon after the stalks decay in autumn, that they may have time to strike fresh root before winter. It will increase very fast by the roots in a dry loose soil, and in the open air; but the roots often rot upon strong wet lands in winter.

11. Chrysocoma Biflora; *Two-flowered Goldylocks.* Panicled: leaves lanceolate, three-nerved, dotted, naked. Root perennial, creeping, spreading on every side to a considerable distance, sending up many erect stalks, with flat spear-shaped leaves, ending in points: these are rough, and have three longitudinal veins. The upper part of the stalks branch out and form loose panicles of yellow flowers, which are larger than those of the former sort.—Native of Siberia. It propagates too fast by its creeping roots, to be admitted into the flower-garden; but as they will grow in any soil or situation, a few roots may be planted on the side of extensive rural walks, round the borders of fields, where they will require no care, and their flowers will make a good appearance, and continue long in beauty.

12. Chrysocoma Villosa. Leaves lanceolate, villose; calices close. Stem a foot and a half high, upright, round, hoary, branched; flowers yellow.—Native of Siberia, &c.

13. Chrysocoma Purpurea. Leaves elliptic-lanceolate, subserrate, pubescent; panicle terminating, corymbed.—Found in the Isle of Tanna.

Chrysogonum; a genus of the class Syngenesia, order Polygamia Necessaria.—Generic Character. *Calix:* common five-leaved, flat, spreading; leaflets lanceolate, nearly the length of the flower. *Corolla:* compound radiate; corollets, hermaphrodite, very many in the disk; females five in the ray: proper, in the hermaphrodites, funnel-form, five-toothed, erect; in the females ligulate, oblong, truncate, three-toothed. *Stamina:* in the hermaphrodites, filamenta five, very small; antheræ cylindrical, tubular. *Pistil:* in the hermaphrodites; germen very small; style setaceous, length of the corollet; stigma obscure. In the females; germen larger, covered with its proper perianth; style shorter; stigmas two, revolute. *Pericarp:* none; calix unchanged. *Seeds:* of the hermaphrodites, none; of the females, solitary, inverse, heart-shaped, depressed-quadrangular, with the sides widish, crowned with a three-toothed scale, gaping inwards, contracted towards the base: each seed lies concealed within its proper four-leaved glume, the outward scale being ovate, and wider, the three remaining ones very narrow, closely converging, and gaping when the seed is ripe. *Receptacle:* chaffy, flat; chaffs linear, obtuse. Essential Character. *Calix:* five-leaved. *Seed:* involved in a four-leaved calicle. *Pappus:* one-leafed, three-toothed. *Receptacle:* chaffy.—The only species is,

1. Chrysogonum Virginianum. Leaves moderately hairy opposite, on long petioles, resembling common Baum; flower golden-coloured, terminal; seeds obovate, convex without, concave within, having two obscure grooves on them, and of a pale bay colour.—Native of Virginia.

Chrysophyllum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, small; leaflets roundish, obtuse, permanent. *Corolla:* monopetalous, bell-shaped; border five-cleft; segments roundish, very much expanded, shorter than the tube. *Stamina:* filamenta five, subulate, placed on the tube, converging: antheræ roundish, twin, incumbent. *Pistil:* germen roundish; style very short; stigma obtuse, subquinquefid. *Pericarp:* berry globular, ten-celled, large. *Seeds:* solitary, bony, compressed, marked with a scar, shining. Essential Character. *Corolla:* bell-shaped, ten-cleft; segments alternate, spreading. *Berry:* ten-seeded.—These trees being natives of the hottest parts of the world, they cannot be preserved in this country without being kept in the warmest stoves: and should always remain in a hot-bed of tanner's bark, otherwise they will make but little progress. They are propagated by seeds, which must be procured from the places of their growth, for they do not produce them in Europe. These seeds must be fresh, otherwise they will not grow; and if they be sent over in sand, it will preserve them from drying too much: when they arrive, they must be sown as soon as possible, in small pots filled with light fresh earth, and plunged into a good hot-bed of tanner's bark. If the seeds be good, and the bed in a proper temperature of warmth, the plants will appear in five or six weeks, and in two months after will be strong enough to transplant; in doing which, the plants with all the earth should be shaken out of the pots very carefully, and separated with their roots entire, and each replanted into a small pot filled with light fresh earth, and plunged again into a hot-bed of tanner's bark, watering and shading them until they have taken fresh root. The chief care they require is, to keep them in a proper degree of heat, and never to put them into too large pots. In winter they should be watered twice a week, in small quantities.——The species are,

1. Chrysophyllum Cainito; *Broad-leaved Star Apple.* Leaves ovate, striated in parallel lines, tomentose, and shining underneath. Leaves alternate, petioled, quite entire; peduncles lateral, one-flowered, numerous, very short.—Brown has two species of Chrysophyllum, which he calls, 1. Star Apple Tree, and 2. Damson Plum. Both have the leaves ferruginous underneath. The fruit of the first is larger and globular; of the second smaller and smooth. The last, he says, is found wild in many parts of Jamaica, but seldom grows to any considerable size: the first is cultivated all over the country, and thrives with very little care; it rises commonly to a very considerable size, and spreads much; but its branches, like those of the other sort, are very slender and flexile, and hang down when charged with fruit. This is full of milk, and the fruit retains it even in the most perfect state; but though this juice be rough and astringent in the bark, and even in the unripe fruit, yet when the fruit is in full perfection it becomes sweet and gelatinous, with an agreeable clamminess, and is very much esteemed. The juice of this fruit, a little before it is perfectly ripe, when mixed with a

small quantity of orange juice, will occasion extreme costiveness, and would undoubtedly prove a very powerful remedy in some disorders. Perhaps the action of the fire might take off much of the native roughness of the juice, if it were to be inspissated by that means. The Americans are fond of this fruit, but it is rarely eaten by the Europeans.—Native of Martinico and Domingo. This, as well as the rest of the plants in this genus, is preserved in several curious gardens for the beauty of the leaves, for which this species is very remarkable; the under sides of its leaves shining like satin; the upper sides are of a deep green. They continue all the year, and make a very pretty appearance in the stove.

2. Chrysophyllum Argenteum; *Narrow-leaved Star Apple.* Leaves sickle-ovate, shining, and tomentose underneath. The leaves are green, and smooth on the upper surface, without the parallel lines which mark the foregoing species; underneath they are of a silvery-shining green. The fruit is roundish, of a dirty blue purple colour, the size of a middling plum, and eatable; the pulp is soft, blueish, and slightly milky, tasting like the others.—Native of Martinico.

3. Chrysophyllum Glabrum; *Smooth-leaved Star Apple.* Leaves quite smooth on both sides. This tree grows fifteen feet in height, erect, and branching; leaves alternate, petioled, quite entire, a little coriaceous; fruit blue, the form and size of a small olive, with a sweetish vinous flavour; but seldom eaten, except by slaves and children.—Native of Martinico.

4. Chrysophyllum Monopyrenum. Leaves elliptic, acuminate, golden-tomentose beneath; fruit ovate, one-seeded.—Native of the West Indies.

5. Chrysophyllum Microcarpum. Leaves ovate, smooth, pubescent beneath; berries oblique, oblong, one-seeded. Fruit very sweet.—Native of Hispaniola.

6. Chrysophyllum Rugosum. Leaves oblong, acuminate, smooth on both sides; fruit acuminate, wrinkled.—Native of mountain-woods in Jamaica.

Chrysosplenium; a genus of the class Decandria, order Digynia.—Generic Character. *Calix:* perianth four or five-parted, spreading, coloured, permanent; divisions ovate the opposite ones narrower. *Corolla:* none, unless the coloured calix be called so. *Stamina:* filamenta eight or ten, subulate, erect, very short, placed in an angular receptacle; antheræ simple. *Pistil:* germen inferior, ending in two subulate styles, the length of the stamina; stigma obtuse. *Pericarp:* capsule two-beaked, two-parted, one-celled, two-valved, surrounded with the green calix. *Seeds:* very many, very small. Essential Character. *Calix:* four or five cleft, coloured. *Corolla:* none. *Capsule:* two-beaked, one-celled, many-seeded.—If any curious person feel disposed to cultivate the plants of this genus in a garden, they must be planted in very moist shady places, otherwise they will not thrive. They succeed best in pots filled with bog earth, set in a pan of water, and placed under the shelter of a wall or hedge.——The species are,

1. Chrysosplenium Alternifolium; *Alternate-leaved Golden Saxifrage.* Leaves alternate. The root has offsets, but no creeping suckers; leaves all deeply notched; root-leaves two or three, kidney-shaped, bluntly notched, on long hairy petioles; stem-leaves alternate, one of them solitary, about the middle of the stem, the rest clustered, partly about the root, and partly near the flowers; flowers gold-coloured, in a terminating dichotomous leafy corymb. Stem three-cornered, with imperfect angles, hairy below, smooth upwards, near the top forked, the forks bare of leaves.—It is found in moist shady places, and by the sides of rivulets, in Lapland, Sweden, Denmark, Germany, Switzerland, Carniola, Italy, Siberia, Japan, and in Great Britain, though less commonly, as near Bingley, and about Esholt, eight miles from Leeds in Yorshire; Porland Heath, near Norwich; in Worcestershire, and in Scotland. A black boggy soil, by rills in wet woods, is the favourite situation of this plant.

2. Chrysosplenium Oppositifolium; *Opposite-leaved Golden Saxifrage.* Leaves opposite. Stems creeping at bottom, square, very tender, about four inches in height, beset with a few stiffish white hairs, branched and forked at top; leaves petioled, somewhat fleshy, yellowish green, whitish underneath; flowers yellow, in a sessile fastigiate corymb; segments of the calix nearly equal; seeds of an orange colour.—This is found in the same soil and situation as the other, in Denmark, Holland, Switzerland, and Germany. It is more common in England than the first species, and may be found on Hampstead Heath; in the boggy part of Charlton Wood; Polingland Heath, near Norwich; and at Selborne in Hampshire: it flowers in April, or early in May, and ripens seed soon after. Perennial.

Cicca; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male Flowers,* scattered. *Calix:* perianth four-leaved; leaflets roundish, concave. *Corolla:* none. *Stamina:* filamenta four, setaceous; antheræ subglobular, the length of the calix. *Female Flowers,* scattered on the same plant. *Calix:* as in the males. *Corolla:* none. *Pistil:* germen roundish; styles four, two-parted, subulate, the length of the germen; stigmas acute, permanent. *Pericarp:* capsule subglobular, tetracoccous, elastic. *Seeds:* solitary. Essential Character. *Male. Calix:* four-leaved. *Female. Calix:* three-leaved. *Styles:* four. *Capsule:* tetracoccous.——The species are,

1. Cicca Disticha. Male and female flowers in separate racemes on the naked part of the branches. A tree with long simple branches; leaves alternate, petioled, distich, ovate, acuminate, glossy.—Native of the East Indies.

2. Cicca Nodiflora. Flowers aggregate, axillary. A shrub; leaves on short petioles, egg-shaped, acute, smooth, entire; flowers very small; fruit a globular berry.—Native of Java.

Cicely. See *Chærophyllum.*

Cicer; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth five-parted, length of the corolla; segments four, incumbent on the banner, the two middle converging longitudinally, the lower underneath the keel. *Corolla:* papilionaceous; banner flat, roundish, larger, bent in on the sides; wings obtuse, half the length of the banner; keel shorter than the wings, sharpish. *Stamina:* filamenta ten, diadelphous, rising; antheræ simple. *Pistil:* germen ovate; style simple, rising; stigma obtuse. *Pericarp:* legume rhomboid, turgid, inflated. *Seeds:* two, roundish, gibbous, with knots on the sides, crooked, and bent in at top. Essential Character. *Calix:* five-parted, length of the corolla; the four upper segments incumbent on the banner. *Legume:* rhombed, turgid, two-seeded.——The only species at present known is,

1. Cicer Arietinum; *Chickpea.* Annual; stem from a foot to eighteen inches in height, erect, leafy, branched; corolla purple or white; calix hirsute.—Native of the south of Europe, the Levant, and Africa, where it is frequently eaten both raw and boiled. Gerarde says it is sown in our London gardens, but not commonly, and is in English named *common cich,* or *ciches, red cich* or *sheep's cich,* or *peason.* Parkinson adds the names of *cicers* and *rammes ciches.* Hill informs us that the seeds are eaten, and are found to be gentle diuretics. They are sometimes used as a substitute for coffee when roasted. The seeds may be sown in the spring, in the same manner as peas, making drills with an hoe about an inch and a half deep, in which the seeds should be sown at

about two inches asunder, and the earth drawn with a rake into the drill to cover them. The drills should be made at three feet distance from each other, that there may be room for their branches to spread, when the plants are fully grown, as also to hoe the ground between them, to keep it clean from weeds, which is all the culture these plants require. It flowers in June, and the seeds ripen in August; but unless the season prove warm and dry, the plants decay in this country before the seeds are ripe.

Cichorium; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common calicled, cylindric; scales eight, narrow-lanceolate, equal, forming a cylinder, and five others incumbent and shorter. *Corolla*; compound, flat, uniform; corollules hermaphrodite, twenty in a ring; proper monopetalous, ligulate, truncate, deeply five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindric-pentagon, tubulous. *Pistil:* germen oblong; style filiform, the length of the stamina; stigmas two, revolute. *Pericarp:* none. *Calix:* cylindric, converging at top. *Seeds:* solitary, compressed, with sharp angles; pappus obscurely hairy, slightly five-toothed. *Receptacle:* somewhat chaffy. Essential Character. *Calix:* calicled. *Pappus:* slightly five-toothed, obscurely hairy. *Receptacle:* somewhat chaffy.——The species are,

1. Cichorium Intybus; *Garden* and *Wild Succory*. Flowers twin, sessile; leaves runcinate. Root perennial, yellow on the outside, tapering, branched, the thickness of the finger, from a span to a foot in length, milky; stem from one to three feet in height, upright, rigid, crooked, angular, roughish to the touch, and generally very much branched, leaves radical, numerous, roughish; flowers generally in pairs, sessile in the bosom of the upper leaves; florets of a fine blue, frequently white, and sometimes red; tube white, dilated, and hairy at top; border ribbed on the under side, and villose; antheræ deep blue. The fine blue colour of the florets is convertible into a brilliant red by the acid of ants. The flowers open at eight, and close at four.—It is common in the borders of corn-fields, flowering from July to September, and increasing itself much by seed. This plant has generally been considered as a noxious weed, although for several years past the French have cultivated it as food for cattle. Arthur Young, Esq. introduced it into England for the same purpose in 1788, and has since cultivated it to a considerable extent with great success. In Lombardy it is sown mixed with other herbs of pasture, and cut three or four feet high; it is there reputed to increase both the milk and flesh of cattle, and to be very nutritious when made into hay: horses eat it greedily, and it is an important object for summer soiling both for them and cattle; sheep also eat it freely. It defies drought, being of early growth, and the first large and spreading leaves covering the ground so as to retain the moisture: the thick stiff stalks will support themselves against winds and the heaviest rains, nor does the severest cold at all injure it. Its quick growth increases its value, because it furnishes abundance of salutary fodder, at the season when green food is scarce. It has been known to grow seven inches in three weeks, whilst Saintfoin and Burnet grew only four inches; two cuttings may be made of it in the first year, and three or four, according to the season, every year after, in April, June, August, and October, or in May, July, and October, never letting it stand till it becomes hard and sticky; or it may be cut continually, by beginning again when the whole piece is gone over, and thus yield a constant supply of fresh food during seven or eight months. The produce is said to be superior, on the whole, to that of Lucerne, in the proportion of three to one. A piece of ground sown with Succory, was found to yield by the acre the year of sowing, at two cuttings, July the 24th and October the 17th, *nineteen tons four hundred-weight*; second year, at three cuttings, May 21st, July 24th, and December 3d, *thirty-eight tons nine hundred-weight*; and the whole average produce of four years was nearly *thirty tons*. The quantity of seed produced on an acre has been, the first year, a hundred and a half; the second, two hundred-weight; and the third, from three hundred and a half, to four hundred-weight and a half. After allowing for the partiality which commonly attends novelties, and notwithstanding this succulent plant seldom dries well for hay in our climate, except in very dry seasons, yet, as far as our experience has hitherto gone, it must be conceded that Succory seems to be a valuable object of culture, as fresh feed for horses, cows, and sheep.—The leaves, when blanched, are eaten early in the spring as salads; and the roots, gathered before the stems shoot up, are eatable, and when dried may be made into bread. The Germans dry and pulverize them to mix with their coffee, to two parts of which they add one of Succory roots, which is said to increase its strength and salubrity, as well as improve the taste. Hill informs us, that an infusion of the root opens obstructions, and is good against the jaundice. A decoction of the whole plant, fresh gathered, works powerfully by urine, is good for the gravel, and promotes the menses. Succory is an useful detergent, aperient, and attenuating medicine, acting without much irritation, tending rather to cool than heat the body, and at the same time corroborating the tone of the intestines: the juice, taken in large quantities, so as to keep up a diarrhœa, and continued for some weeks, has been found rather to produce excellent effects in scorbutic and other chronical disorders.—It is the common Succory, (or *Cichoris*, as agriculturists affect to call it from the French name *Chicorée*,) or rather a highly improved variety of it, that is now introduced into field culture with great advantage. The proper quantity of seed to be sown upon an acre, either alone or with spring corn, is twelve pounds; but if it be sown with various other seeds, the quantity of Succory seed must be less, in proportion to the quantity of such seeds. When sown with Barley or Oats, with either of which it succeeds very well, it must be sown of course at the usual time of sowing these grains; but alone it may be put into the ground with safety at any time between March and September. It should not be mixed with Clover, unless the latter be expected to fail. Chicory does not stool, tiller, or thicken on the ground: it flourishes best where it has most room and air; it should seem therefore that the drill husbandry would be most suitable to it: thus cultivated, after the first year it may be mown four times a year. If sown for seed only, it should be drilled alone, or at least drilled across corn before it be up; but it is better sown by itself.

2. Cichorium Endivia; *Broad-leaved Succory*, or *Common Endive*. Flowers solitary, pedunceled; leaves entire, crenate. Stem herbaceous, annual, two feet high, upright, round, thick branched; root-leaves many, large, subcuneiform, sinuate-toothed, smooth on both sides; the uppermost lanceolate, small; flowers pale blue, solitary, pedunceled.—Native of China and Japan. There is a variety with *curled leaves*, which is almost exclusively cultivated in the south of England, as an early salad; but no kind of Endive is much cultivated in the north. The first season for sowing is in May, for those which are sown earlier generally run up to seed before they have arrived at a proper size for blanching, and it frequently happens that the seeds sown in May in the rich grounds near London, will run to seed the same autumn, but this seldom happens in colder situations, therefore there should be some sown about the middle or end of the month. The next

sowing should be about the middle of June; and the last in the middle of July: these three crops will furnish a supply for the whole season, as there will be plants from each sowing very different in their growth, so that there will be three different crops from the same beds. When the plants appear, they must be weeded, and watered in dry weather, to keep them growing until they be fit to transplant, and should then be removed to a rich spot of open ground, well dug, levelled, and, if very dry, it must be well watered, to prepare it to receive the plants, the largest of which should then be drawn carefully out of the seed-bed, so as not to break their roots, leaving the smaller ones to acquire more strength. As the plants are drawn up, they should be placed with their roots even, all the same way, and every handful as they are drawn should have the tops of their leaves shortened, to make them of equal length; then the ground should be marked out in rows at one foot asunder, and the plants set ten inches distant in the rows, closing the earth well to the roots: they should be well watered every other evening, till the plants have taken good root, and afterwards should be kept clean from weeds. When the plants of the seed-bed have been thus thinned, they also should be well cleaned and watered, which will encourage the growth of the remaining plants, so that in ten days or a fortnight after, there may be another thinning made by removing some more plants, which should be transplanted as above described; and about the same distance of time, the third and last drawing of plants may be transplanted. Those plants which were first transplanted will be fit to blanch by the latter end of July at farthest; and if they be properly managed, in three weeks or a month will be fit for use, which will be as soon as these salads are commonly required; for during the continuance of good Cos-lettuce, few persons care for Endive in their salads; nor indeed, is it so proper for warm weather. If any of the plants should put out flower-stems, they must be immediately pulled up, and carried away as good for nothing. As the quantity of roots necessary for the supply of a middling family is not very great, there should not be too many plants tied up to blanch at the same time; therefore the largest should be first tied, and in a week after those of the next size, so that there may be three different times of blanching the plants, on the same spot of ground: but as in some large families there is a great consumption of this herb for soups, the quantity of plants should be proportionably greater, at each time of planting and blanching.—In order to *blanch* Endive, provide a parcel of small osier twigs or bass-mats, to tie up some of the largest heads, which should be done in a dry afternoon, when there is neither dew nor rain to moisten the leaves in the middle of the plants, which would occasion their rotting soon after their being tied up; the manner of doing it is as follows: First gather up all the inner leaves of the plant in a regular order, into one hand, and then take up those on the outside which are sound, pulling off and throwing away all the rotten and decayed leaves which lie next the ground, observing to place the outside leaves all round the middle ones, as nearly as possible in the natural order of their growth, so as not to cross each other; then having grasped the whole plant close up in your hand, tie it up with the twig, bass, &c. at about two inches below the top, very close, and about a week after go over the plants again, and give them another tie about the middle, to prevent the heart-leaves from bursting out on one side, which they are subject to do as the plants grow, if not thus prevented; in doing this, you need only tie up the largest plants first, and so go over the piece once a week, as the plants increase in their growth, by which means you will continue the crop longer than if they were all tied up at one time; for when they are quite blanched, which will be in about three weeks or a month after tying, they will not hold sound and good above ten days or a fortnight, especially if the season prove wet, and it is on this account that I would advise sowing at three or four different seasons, that you may have a supply as long as the weather will permit; but in order to this, you must transplant all the plants of the last sowing under warm walls, pales, or hedges, to screen the plants from frost; and if the winter should prove very sharp, you should cover them with some pease-haulm, or such other light covering, which should be constantly taken off in mild weather: these borders should also be as dry as possible, for the plants are very subject to rot, if planted in a moist soil in winter. Although it has been before directed that the plants should be tied up in order to blanch them, yet this is only to be understood for the two first sowings; for after October, when the nights begin to be frosty, those plants which are so far above ground will be liable to be much injured thereby, especially if they remain uncovered in frosty weather; therefore the best method is, to take up your plants of the latter sowings in a very dry day, and with a large flat-pointed dibble plant them into the sides of trenches of earth, which should be laid very upright, planting them sideways on the south side of the trenches, towards the sun, with the tops of the plants only out of the ground, so that the hasty rains may run off, and the plants be kept dry, and secured from frosts. The plants thus planted will be blanched fit for use in a month or five weeks' time, after which they will not keep good more than three weeks before they will decay; you should therefore continue planting some fresh ones into trenches every fortnight or three weeks, that you may have a supply for the table; and those which were last transplanted out of the seed-beds should be preserved till February, before they are planted to blanch, so that from this you may be supplied until the beginning of April, or later; for at this last planting into the trenches it will keep longer than in winter; the days growing longer, and the sun advancing with more strength, dries up the moisture much sooner than in winter, which will prevent the rotting of these plants; but if the weather should prove frosty, these latter plantations of Endive should be covered with mats and straw to preserve them, otherwise the frost will destroy them, but the coverings must always be taken off when the weather is favourable. When your Endive is blanched enough for use, dig it up with a spade, and, after having cleared it from all the outside green and decayed leaves, wash it well in two or three different waters, to clean it the better from slugs, and other vermin, which commonly shelter themselves among the leaves. But in order to have a supply of good seeds for the next season, you must look over those borders where the last crop was transplanted, before you put them into the trenches to blanch, and make choice of some of the largest, soundest, and most curled plants, in number according to the quantity of seeds required: a dozen of plants will produce seeds enough for a small family; and for a large one, two dozen or thirty plants will be sufficient. These plants should be taken up, and transplanted under a hedge or pale, at about eighteen inches distance, in one row, about ten inches from the hedge or pale; this should be done in the beginning of March, if the season be mild, otherwise it may be deferred a fortnight longer: when the flower-stems begin to advance, they should be supported by packthread, which should be fastened to nails driven into the pale, or to the stakes of the hedge, and run along before the stems, to draw them upright close to the hedge or pale, otherwise they will be liable to break with the strong winds. Observe also to keep them clear from

weeds, and about the beginning of July your seeds will begin to ripen; as soon as you find the seeds quite ripe, you must cut off the stalks, and expose them to the sun upon a coarse cloth to dry, and then beat out the seeds, which must be dried and put in bags of paper, and preserved for use in some dry place: but be cautious not to wait for all the seeds ripening upon the same plant, for if so, all the first-ripe and best of the seeds will scatter and be lost before the others be nearly ripe, so great an inequality is there in the time of ripening the seeds of the same plant.

2. Cichorium Spinosum; *Prickly Succory.* Stems dichotomous; branches naked, spinescent; flowers axillary, solitary. This sends out many long leaves from the root, which are indented on their edges, spreading flat on the ground; flowers blue.—Native of the islands of the Archipelago, and of Sicily, in dry sandy places near the coast. In England the plant is biennial, but is frequently killed by cold winters; it flowers and seeds about the same time as the first sort, and may be treated in the same way as the Endive.

Cicuta; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, roundish; rays very many, equal; partial roundish, with very many equal setaceous rays. Involucre universal, none; partial many leaved; leaflets bristly, short: perianth proper, scarcely visible. *Corolla:* universal uniform; floscules all fertile; proper of five ovate, inflected, nearly equal petals. *Stamina:* filamenta five, capillary, longer than the corolla; antheræ simple. *Pistil:* germen inferior; styles two, filiform, longer than the corolla, permanent; stigmas headed. *Pericarp:* none; fruit subovate, furrowed, bipartile. *Seeds:* two, subovate, convex, and striated on one side, flat on the other. Essential Character. *Fruit:* subovate, furrowed.—The species are,

1. Cicuta Virosa; *Long-leaved Water Hemlock.* Umbels opposite-leaved; petioles margined, obtuse. Stem round, hollow, two to four feet high; leaves twice ternate, larger ones pinnate; leaflets lanceolate, acute, the serratures white at the tip; antheræ white or reddish purple; styles at first short and very close, after flowering much longer; stigmas white, obtuse.—This plant generally grows near the sides of large stagnant waters, or in shallow slow rivers, in England, and all the north of Europe, but not common with us. Towards the end of autumn, the root for the succeeding summer is formed out of the lower part of the stalk; this is divided transversely into many large unequal cells, so that it becomes specifically lighter than water, and in winter, when the rivers or pools swell, is buoyed up; the old root then rots, floats all the winter, and in rivers is frequently carried to great distances. In the spring the old root is washed away, and the new one, on coming near the soil, sends out many slender fibres, by which it is again fixed, grows, and flowers. This plant is one of the rankest of our vegetable poisons; numerous instances of the fatal effects of it are recorded in the Philosophical Transactions by Dr. Watson, upon the authority of Wepfer, Haller, and others. Linneus informs us that it is fatal to swine; and Withering observes, that early in the spring, cows often eat of it, and are killed by it; but that as summer advances, and its scent becomes stronger, they carefully avoid it: he adds, that horses and sheep are not affected by eating it, and that goats greedily devour it with impunity. Strong emetics, succeeded by vegetable acids or oils, are the most approved remedies for counteracting this poison.

2. Cicuta Bulbifera. Branches bulbiferous. The leaves are divided into very minute capillary segments; the flowers are white, with the smell of Cumin flowers.—Native of watery places in Virginia and Canada. This, and the next species, may be propagated by seeds sown in autumn on a shady border; the plants will come up in the spring, and require no other care but to keep them clean.

3. Cicuta Maculata; *Spotted Water Hemlock.* Serratures of the leaves mucronate; petioles membranaceous, two-lobed at the end; stem thick, spotted with purple, three feet high and more; leaves black, shining, triply pinnate; flowers white; fruit middle-sized, ovate-globular, thick, gibbous, distantly ribbed. Root perennial.—Native of watery places in Virginia, Switzerland, &c.

Cimicifuga; a genus of the class Polyandria, order Tetragynia.—Generic Character. *Calix:* perianth five-leaved; leaflets roundish, concave, caducous. *Corolla;* nectaries four, petal-shaped, urceolate, cartilaginous. *Stamina:* filamenta twenty, filiform; antheræ twin. *Pistil:* germina four to seven; styles recurved; stigmas longitudinal on the style. *Pericarp:* capsules oblong, opening with a lateral suture. *Seeds:* many, covered with spreading scales. Essential Character. *Calix:* four or five leaved. *Nectaries:* four, urceolate. *Capsules:* four to seven.——The only species is,

1. Cimicifuga Fœtida; *Stinking Bugbane.* Root perennial, thick, knotty, short, with many thickish fibres creeping transversely; stem sometimes two yards in height, red at the base, thence pale green, slightly hirsute, scarcely striated; leaves pinnated; leaflets egg-shaped, serrated; flowers in long terminating racemes, alternate, globular, on very short pedicels. The flowering-spike hangs down at first, but becomes erect as the flowers open. The whole plant has a strong virose smell, occasioning the head-ache: it flowers in the middle of July, ripens its seed in the middle of August; and is a native of the farther Siberia, from the river Jenisca.

Cinchona: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, short, five-toothed, permanent; teeth sharp. *Corolla:* monopetalous, funnel-shaped, five-cleft; tube long, obscurely angular; segments lanceolate or linear, equalling the tube. *Stamina:* filamenta five, in the middle of the tube; antheræ linear, erect. *Pistil:* germen inferior, turbinate, obscurely angular; style the length of the stamina; stigma thick, bifid or entire. *Pericarp:* capsule crowned with the calix, bipartile, opening into two parts inwardly, the partition parallel. *Seeds:* many, oblong, compressed, surrounded by a membranaceous wing. Essential Character. *Capsule:* inferior, two-celled, bipartile; the valves parallel to the partitions, opening inwardly.—The Cinchonas are trees; the branches are round, except at the top, where they are obscurely four-cornered; the flowering branches are alternately compressed; the leaves are opposite, undivided, and quite entire; the inflorescence, in most of the species, is a brachiate panicle, with trifid pedunceles.——The species are,

* *Flowers tomentose; Stamina included.*

1. Cinchona Officinalis; *Common Jesuit's bark,* or *Officinal Cinchona.* Leaves ovate-lanceolate, smooth; capsules oblong. This is a tall tree, with a trunk rather bigger than a man's thigh; the branches are covered with a purplish brown bark, frequently rugged, with obliquely transverse chinks, and scarred by the fallen leaves; leaves two to three inches long, and one broad, opposite, petioled, green above, pale underneath, smooth; corolla tomentose on the outside.—Native of Peru, growing abundantly on a long chain of mountains, extending to the north and south of Loxa, between two and five degrees of south latitude, where the trunks frequently exceed a man's body in size: they thrive best in a red clayey or rocky ground, especially on

the banks of small rivers or torrents, and the most proper season for cutting the bark is from September to November, which is the only period of some intermission from rain. Having made a road from the nearest plantation in the low lands to the spot where the trees abound, they build huts for the workmen, and a large hut for the bark: each Indian is provided with a large knife, and a bag that will hold about fifty pounds of green bark; he cuts down the bark as high as he can reach from the ground, and then fastens a stick about half a yard long with tough withs to the tree, like the step of a ladder, and having sliced off the bark as high as he can reach with this, he fixes a new step, and thus ascends to the top, while another Indian below gathers up what he cuts down: this process they perform by turns, going from tree to tree, till the bag is filled. Care is taken not to cut the bark wet; and if it should happen to be moist, they immediately carry it to the low country to dry, for otherwise it loses its colour, turns black, and rots; which will also happen if it remain long in the hut without being spread, so that the Indians remove it as soon as the weather permits, and while they are cutting, the mules are employed in carrying the bark to the drying place, where it is spread in the open air, and frequently turned. As the trees are said to perish soon after they have been stripped of their bark, a scarcity of them has been apprehended; but Condamine asserts, that the young trees do not die by losing their bark, but send out fresh roots from the base: and, as the trees which stand to any considerable age probably increase by seed, the fear that this valuable bark may be exhausted seems to be groundless. The bark of this tree is brought to us in pieces of different sizes, some of which are rolled up in thick short quills, and others are flat: the outside is brownish, and has sometimes a whitish moss on it; the inside is of a yellowish, reddish, or rusty iron colour. Those who affect to be nice in the choice of their drugs, prefer such pieces as are rolled up about the size of a common quill. To the taste it is astringent and bitter, and has an advantage over other bitters, in being aromatic. To enumerate all its virtues, would require the extent of a volume. Morton, the contemporary of Sydenham, was one of the first who made considerable use of the bark. From us it was carried into France, where the dauphin was cured by it. Boerhaave restrains the use of the bark with almost innumerable cautions; while Hoffman and others are boundless in its praise. All the prejudices with which it had at first to contend, are now done away, and its character has long been universally established: it gives out its virtues both to cold and boiling water; but the decoction is thicker, and more powerfully tinctured with its taste: the bark, however, is generally given in substance, and may be taken in very considerable doses with the most perfect security: sometimes it is found necessary to join it with opiates, to prevent its passing off too suddenly as a purgative. A most excellent tincture of the bark, under the name of *Huxham's Tincture*, is sold in the shops, in which preparation the bark is rendered still more efficacious by the addition of orange-peel and snake-root. The best sort is bitter, resinous, breaks short and smooth, and is easily reduced to powder. The great number of complaints in which this medicine may be advantageously employed, seem to entitle it to the character of an universal one. In many disorders it is a sovereign specific; and every practitioner finds by daily experience, that its use may still be carried to a greater extent of cases. Its first and principal operation appears to be the strengthening of the solids; and however variously its salutary effects may appear, they are undoubtedly the consequences of this general property or power. In all disorders where the bark is found serviceable, other medicines of an astringent or bitter nature may be used, and will be found serviceable, though not so effectual as that, when it is given in substance, which it always should be where the stomach will bear it, as none of its preparations contain all its parts, and none of its parts separately answers so well as the whole. Many are intimidated from the use of this medicine, though convinced of its salutary effects, through fear of its astringency; but there is very little cause to be apprehensive on that account; it is a prejudice for which there is in reality very little foundation, for the truth is, the bark is not of a very astringent nature: it may be given in almost all disorders, when once there is a fair remission of the fever, and the pain which attends it; and in general while the pulse of a grown person does not exceed seventy strokes in a minute, it is safe and useful. So far from causing obstructions in any part of the body, it in many instances removes such as are already formed, as is frequently experienced in glandular swellings, and scrofulous cases: it has been given to women two days after delivery with success, to the amount of a drachm every three hours, without lessening the lochia; and during the natural flux of the menses, without in the least interrupting them; and even in the confluent small-pox, the use of it does not lessen the spitting: whence it appears, that the astringency of this medicine is too slight to obstruct either any natural or critical discharge; and, therefore, whenever its use is indicated on other accounts, it may be freely administered, without running any risk of doing mischief by its astringency. If ever any injury were sustained by its use in a case to which it is adapted, a too late, and not too early administration is generally to be blamed. It was first celebrated for its efficacy in fevers, and in this respect it still maintains its reputation: it is indeed the principal thing to be depended on in all kinds of fevers; and if given in the ardent, when they are once brought to intermit, it generally effects a cure. In the low kinds of fevers its effects are equally salutary, but its use should be begun much earlier; in agues, and all other intermitting complaints, it is almost a certain remedy. It is not, however, only in fevers of every kind that the bark is so potent a remedy, but also in numerous other cases, and particularly in mortifications. It has also of late been much used in cases of acute rheumatism, especially after the violence of the disease has been in some degree moderated by the antiphlogistic treatment, or when an evident remission has taken place. In the fluor albus, profluvia, and hæmorrhages of every kind, the decoction of the bark is of excellent use: and the tincture taken in water of various parts, as chalybeate, &c. is extremely useful in restoring lost appetite. If any medicine, in short, deserved the title of a panacea, the bark would prefer the fairest claim. Foul ulcers, by a free use of the bark, are soon reduced to a healing state: it resolves glandular tumors, and promotes a laudable suppuration in those of an inflammatory nature.—But it should be noticed, that as the judicious use of this medicine is so extensively beneficial, so an improper one may be productive of as ill consequences; for though it is an excellent febrifuge, its use in ardent fevers is only in the time of their intermitting, for when the fibres are tense its use is not necessary; its primary effect being to increase their firmness, must, in this case, render it highly improper to be administered. Cases sometimes occur in which its free use would be very hurtful, such as where symptoms of congestion or topical inflammation of the head appear, which are known by redness of the eyes, phrenetic delirium, &c. It has also been sometimes accused of producing a difficulty of respiration. Though it is one of the most potent antiseptics, or resisters

of putrefaction, yet in mortifications attended with a fulness of the pulse, or such as arise from too large a quantity of blood, its use should not be admitted; but in such mortifications as originate in a poverty of that vital fluid, it is truly excellent, and cannot well be used too freely.—Those who cannot take the bark in substance, may infuse an ounce of it reduced to a fine powder in three quarters of a pint of cold spring water for the space of an hour, and then pour it clear off: three or four ounces of this infusion is a moderate dose. We have no well-authenticated account at what time or by what means the medicinal efficacy of the Peruvian bark was first brought to light: most of the tales commonly related have too fabulous an air to be admitted here; but the following statement given by Geoffrey seems to be the most probable, and certainly is the best authenticated. A great number of the trees which surrounded a lake near a town in Peru, were torn up by an earthquake, and thrown into the water, which they rendered bitter. An Indian, urged by his thirst, during a fever under which he laboured, drank plentifully of this water, because he could procure no other; and observing that he soon recovered, he related the case to others, who laboured under similar circumstances, and on following his example were likewise cured: on this, inquiry was made, and it was soon discovered that the water derived its virtue from the trees; and presently after, that the medicinal virtues resided in the bark of them only. About the year 1638, a Spanish soldier being quartered in the house of an Indian, was seized with an ague, and he compassionating his case, told him of a remedy, which was no other than the bark, with which he cured himself, and afterwards many of his comrades. At length the vice-queen, wife of the count del Cinchon, then viceroy of Peru, was by this same soldier cured of an intermitting fever with the same medicine, which, on this occasion, received the name of *pulvis comitissæ*, *cortex china-china* or *chinchina*, *kina-kina* or *kinkina*, *quina-quina* or *quinquina*. The countess is said to have distributed a large quantity of the bark, upon her recovery, among the Jesuits, in whose hands it acquired still greater reputation, and by whom it was first introduced into Europe, acquiring the name of *Jesuit's bark*, *cortex* and *pulvis Jesuiticus*, *pulvis patrum*, and also *cardinal de Lugo's powder*, that charitable prelate having bought a large quantity of it at a great expense for the use of the poor at Rome, whence it spread into France and England, and at length became general. For a more particular account of the bark and its various properties, read *Lewis*, *Newman*, *Motherby*, and *Percival*.——The other species of Cinchona approach in some degree to the virtues of the common officinal bark, but seem less efficacious, and their power less perfectly ascertained in practice. The red bark (see the seventh species) has indeed been often considered as of still higher efficacy than the common, and has been thought to be the bark, which, according to Arrot, the Spaniards call *Cascarilla colorada*, and was probably the kind brought originally to Europe, and which proved so successful in the hands of Sydenham, Morton, and Lister; as it appears, from the testimony of the oldest practitioners, that the bark first employed was of a much higher colour than the common bark.

2. Cinchona Pubescens; *Pubescent Cinchona*. Leaves ovate, elongated at the base, pubescent underneath; capsules cylindrical. The branches of this species are pubescent towards the end.—Native of Peru.

3. Cinchona Macrocarpa; *Long-fruited Cinchona*. Leaves oblong, pubescent underneath, ribbed. Branches jointed, the size of a swan's quill; leaves more than a hand in length; flowers subsessile,—Native of Santa Fé.

** *Corollas smooth; Stamina standing out.*

4. Cinchona Caribbæa; *Caribbean Cinchona*. Peduncles axillary, one-flowered. Jacquin says this is an erect branching shrub, ten feet high; or, from fifteen to twenty feet, according to Swartz. Jacquin informs us, that the leaves are from two to three inches long, and reflex at the end; that the flowers are of a very pale flesh-colour, exceedingly sweet-scented; and the capsules, before they become ripe, green, very bitter, and abound in a juice that excites heat and irritation on the lips and nostrils. Dr. Wright informs us, that the Jesuit's-bark tree of Jamaica and the Caribbees rises to twenty feet, with a trunk not thick in proportion, but hard, tough, and of a yellowish white colour in the inside; the leaves, he says, are of a rusty green, and the young buds of a blueish-green hue; the flowers are of a dusky yellow colour; and the pods black; when ripe they split in two, and are, with their flat brown seeds, in every respect similar to the first species. The bark in general is smooth, and gray on the outside, though in some rough and scabrous; when well dried, the inside is of a dark brown colour: its flavour at first is sweet, with a mixture of the taste of Horse-radish, and of the aromatics of the East, but when swallowed, of that bitterness and astringency which characterises the Peruvian bark. It grows near the sea-shore, and is called *sea-side beech* in Jamaica.—Native of the West Indies.

5. Cinchona Corymbifera; *Corymbiferous Cinchona*. Leaves oblong-lanceolate; corymbs axillary. Trunk upright, round, smoothish, a fathom or more in height, the thickness of the human arm; branches round, spreading, opposite, the upper ones herbaceous, compressed at the joints; leaves acuminate, spreading, smooth and even, a hand in length, deep green, with the midrib purple underneath: petioles round, spreading, longer than the interstices of the leaves, scarcely an inch in length; stipules membranaceous, acute: flowers white, red on the outside; before opening they appear of a dusky purple: the bark is extremely bitter, and subastringent, very like the common Jesuit's bark.—Native of the islands of Tongataboo and Eaoowe in the South Seas; where it is cultivated on account of the pleasantness of its odour, and the beauty of its flowers.

6. Cinchona Lineata. Panicle terminating; leaves ovate, acuminate, smooth; capsules five-cornered. Branches round at bottom, with an ash-coloured bark, purplish at top; germen five-cornered.—Native of the island of Dominica.

7. Cinchona Floribunda; *Tufted Cinchona*. Panicle terminating; capsules turbinate, smooth; leaves elliptic, acuminate, The whole of this species is very smooth: the branches are round at bottom, but obscurely four-cornered at top, and purplish; leaves resembling those of the Coffee shrub, frequently short, a span in length, spreading very much, lanceolate-elliptic, on the upper surface even, shining, with a groove along the middle, on the under paler, veined, nerved; the nerves oblique, and but little raised; petiole half an inch in length, convex beneath. This tree is nearly the size of a Cherry-tree, seldom thicker than the human thigh, and tolerably straight; the wood is light and porous, without any of the bitterness and astringency of the bark; the flowers, which appear in June, are in small tufts, at first white, purplish; the bark is of a lighter red than that which was sent to St. Lucia under the name of *red bark*, inclining more to the colour of cinnamon, notwithstanding which they are probably of the same species. This tree grows in a stiff red clay, delights in a shady situation, a north-west aspect, under larger trees, and is generally near the middle of a hill by some running water.—Native of St. Lucia, Martinico, and Hispaniola.

8. Cinchona Brachycarpa. Panicle terminating; capsules obovate, ribbed; leaves elliptic, obtuse.—Native of Jamaica.

9. Cinchona Angustifolia. Panicle terminating; capsules oblong, five-cornered; leaves linear-lanceolate, pubescent. This is a small tree, from ten to fifteen feet in height, with an upright smooth trunk, covered with a wrinkled ash-coloured bark, which becomes brown and striated near the root; corolla white and odorous; tube an inch long; segments of the border the length of the tube.—Native of Hispaniola.

10. Cinchona Parvifolia. Leaves egg-shaped, obtuse, smooth; flowers panicled, twice-trichotomous, villose; corolla very small. Branches smooth, upright, cylindrical; stamina not projecting; flowers white.—Native of Jamaica.

Cineraria; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common simple, many-leaved; leaflets equal. *Corolla:* compound, radiated; corollets hermaphrodite, equal, numerous in the disk; female ligulate, the same number with the leaves of the calix, in the ray; proper of the hermaphrodite funnel-shaped, with an erect five-cleft border; female ligulate, lanceolate, toothletted at top. *Stamina:* in the hermaphrodite, filamenta five, filiform, short; antheræ cylindrie, tubulous, five-cleft at top. *Pistil:* in the hermaphrodite, germen, oblong; style filiform, the length of the stamina; stigmas two, almost erect. Females: germen oblong; style filiform, short; stigmas two, oblong, bluntish, revolute. *Pericarp:* none; calix unchanged. *Seeds:* solitary, linear, quadrangular; pappus hairy, copious. *Receptacle:* naked, flattish. Essential Character. *Calix:* simple, many-leaved, equal. *Pappus:* simple. *Receptacle:* naked.—The leaves are commonly entire, but sometimes pinnatifid; most of the species are tomentose. Every species may be propagated by cuttings, planted in a shady border during the summer months, and duly watered: in a month or five weeks they will put out roots; soon after which it will be necessary to transplant them into pots, as their roots are very apt to spread in the full ground. They are generally natives of the Cape of Good Hope, and therefore too tender to bear the open air of our climate in winter; yet, if too tenderly nursed, they are liable to be drawn up weak: therefore the surest way to preserve them, is to make young plants annually from cuttings, and to place them in a common hot-bed frame in winter, where they may enjoy the full air in mild weather, but be screened from the frost: in summer they should be placed abroad with the hardier sorts of exotic plants.——The species are,

1. Cineraria Geifolia; *Kidney-leaved Cineraria.* Pedunecles branching; leaves kidney-shaped, suborbiculate, sublobed, toothed, petioled. Stalks herbaceous, round, striated, with white hairs scattered over them; leaves alternate, smoothish above, subhirsute beneath, especially the more tender ones, two inches long; corolla yellow, shaped like that of common ragwort.—Native of the Cape.

2. Cineraria Cymbalarifolia. Leaves lyrate, the end leaf kidney-shaped, toothletted; upper stem-leaves clasping, lobed, quite entire. Root a solid bulb; stem herbaceous, simple, even; flowers peduncled, terminating, many; ray of the corolla purple.—Native of the Cape.

3. Cineraria Sibirica; *Siberian Cineraria.* Raceme simple; leaves cordate, obtuse, toothletted, even; stem entirely simple, one-leafed. Root perennial; stem undivided, the height of a man; stem-leaves with petioles, dilated at the base, and clasping.—Native of Siberia, the Levant, &c.

4. Cineraria Glauca. Raceme simple; leaves spatulate-cordate, quite entire; stem quite simple. The leaves are of a glaucous hue, rather fleshy; the petioles are edged in a spatulate form. Perennial; and a native of Siberia.

5. Cineraria Sonchifolia. Leaves stem-clasping, sinuate, differm; flowers large and purple.—Native of the Cape.

6. Cineraria Cordifolia; *Heart-leaved Cineraria.* Panicle few-flowered; stem-leaves petioled, cordate, sharply serrate, smooth; stem angular. Root perennial, fibrose, brown; stem from one to two feet high, straight, obscurely angular, a little striated at top, fistulose, simple, almost smooth and green; corollas yellow; florets of the ray about twenty; pappus toothletted when viewed with a magnifier.—Native of Austria and Switzerland.

7. Cineraria Crispa; *Curled Cineraria.* Flowers panicled; stem-leaves spatulate-oblong, serrate, obtuse, clasping, dilated and toothed at the base. Two feet high.—Native of Austria.

8. Cineraria Integrifolia; *Mountain Cineraria,* or *Fleawort.* Leaves oblong, obscurely toothed, (or almost entire) shaggy; flowers in a simple involucred umbel, sometimes single. According to Linneus, this plant is extremely variable. The several varieties of it may be found on the Alps and Pyrenees, in Switzerland, Austria, about Montpellier, in Siberia, &c. The plant, which grows in high pastures or open chalky downs in some parts of England, as on Gogmagog hills, Bartlow hills, and Newmarket heath, and near Basingstoke and Andover, has the radical leaves numerous, spreading on the ground, ovate, obovate, or spatulate; stem three, and sometimes six and nine inches high, upright, woolly, angular, or furrowed; flowers yellow; peduncles unequal; calix furrowed, with scariose edges; seeds hirsute.—It is a perennial, and flowers in May and June.

9. Cineraria Longifolia. Leaves obscurely toothletted, all oblong.—Native of Austria.

10. Cineraria Palustris; *Marsh Cineraria.* Flowers corymbed; leaves broad-lanceolate, tooth-sinuated; stem villose. Leaves thick, tomentose, and almost clammy, covering the stem quite up to the flowers, the lower cut, and scarcely semipinnatifid; root perennial, large, fibrose, running deep in muddy ditches. Meyrick, Hill, and Culpeper, all agree in calling this plant *flea-wort;* while Mr. Miller, and others, whose botanical authority is at least more respectable, give it to the eighth species, to which the reader is referred. They say that a mucilage made of the seeds, is useful to cool the throat in fevers; that the juice of the leaves is esteemed a good remedy for disorders of the breasts, but that it is very unpalatable, and not absolutely to be depended upon.—This plant frequents marshes, in many parts of Europe. It is found in Lincolnshire, about Marsh and Chatteris in the Isle of Ely; near Norwich, Yarmouth, and Hadiscoe in Norfolk; about Pillin Moss in Lancashire; and Aberavon in Merionethshire. There are several varieties of this species, but none worth enumerating.

11. Cineraria Aurea. Flowers corymbed; leaves lanceolate, serrate, tomentose underneath. Stem villose; flowers yellow, with a large ray.—Perennial; and a native of Siberia.

12. Cineraria Maritima; *Sea Cineraria.* Flowers panicled; leaves pinnatifid; tomentose; divisions sinuated; stem shrubby. Stems many, woody, two or three feet high, divided in many branches, which have a white downy bark; leaves very woolly, six or eight inches long, deeply sinuated and jagged on their border. The stems which support the flowers are a foot or more in length, having two or three small leaves on each, shaped like those below, and terminated by many yellow flowers, growing in panicles, or rather corymbs, shaped like those of common Ragwort: they appear from June till August, and ripen seed in the beginning of October.—Ray says this plant is very common every where on the coast of the Mediterranean, but that it cannot be found in England, nor any of the northern countries of Europe: yet Mr. Miller

affirms that it grows naturally on the coast of England and Wales.—There is a less hardy variety of this species, the stems of which are more woody, rise higher, and do not branch so much; the leaves are broader, not so much sinuated, and of a very dark green on their upper side; the flowers are produced in smaller bunches, and rarely produce seeds in England.—Native of the sea-coasts of Dauphiny, Italy, and Sicily. When the cuttings or slips are well rooted, they should be planted in a dry rubbishy soil, where they will resist the cold of our ordinary winters very well, and continue many years; but in rich moist ground, the plants are often so very luxuriant in summer, as to be killed in winter when there is much frost.

13. Cineraria Canadensis. Flowers panicled; leaves pinnatifid, subvillose; divisions sinuated; stem herbaceous. Stem annual, not perennial; the ray of the corolla spreading, but not revolute.—Found in Canada, by Kalm.

14. Cineraria Capillacea. Leaves pinnate; pinnas capillaceous, entire. Observed by Thunberg at the Cape.

15. Cineraria Linifolia. Peduncles one-flowered; leaves scattered; stem shrubby. Flowers small, yellow.—Native of the Cape.

16. Cineraria Purpurata. Stem subbiflorous; leaves obovate, subtomentose. Root perennial; stem a foot high, herbaceous; ray of the flower purple; pappus plumose.—Native of the Cape.

17. Cineraria Amelloides; *Blue-flowered Cineraria*, or *Cape Aster*. Peduncles one-flowered; leaves opposite, ovate, naked; stem undershrubby. Root perennial; stem purplish, rough, dividing into many branches near the root, so as to form a low bushy plant, seldom rising more than two feet high; but the branches extending more than a foot on every side. Leaves about an inch long, and one-third broad, thick, succulent, sessile, generally two, but sometimes three or four at a joint; flower with a yellow disk, and sky-blue ray. The whole plant is a little acrid to the taste, and it is never without flowers throughout the year.—Native of the Cape. This, and some of the others, may be propagated by seeds, sown on a bed of light earth in the beginning of April; and when the plants are fit to remove, part of them should be planted in pots, to be sheltered in winter under a hot-bed frame; and the remainder under a warm wall in poor ground, where, if the winter prove favourable, they will live.

18. Cineraria Americana. Shrubby; panicles axillary; leaves alternate, petioled, broad-lanceolate, serrate, smooth above, and hoary underneath. The entire plant is clothed with an epidermis of very fine wool, which may easily be rubbed off, like a thin membrane; the branches, petioles, peduncles, and lower surface of the leaves, are white with it: stems woody.—Observed by Mutis in South America.

19. Cineraria Alata. Stem herbaceous; leaves obovate, decurrent; flowers corymbed. Stem erect, two feet high, sparingly branched; florets about sixteen, some of the marginal ones naked, and female.—Native of the Cape.

20. Cineraria Elongata. Leaves subcordate, gnawn; peduncles very long, subulate, scaly. Stem erect, branched, a foot and a half high, reddish, at the ramifications tomentose; corolla yellow, without any ray. Native of the Cape.

21. Cineraria Cacalioides. Leaves columnar, oblong, fleshy; panicle terminal, elongated, few-flowered; peduncles alternate.—Native of the Cape.

22. Cineraria Denticulata. Leaves lanceolate, smooth, toothletted: flowers panicled, Almost all the leaves are radical and long; it has scarcely any stem-leaves, except some small ones at the ramifications.—Native of the Cape.

28. Cineraria Perfoliata. Leaves ovate, cordate, stem-clasping; peduncles one-flowered, elongated. The whole plant somewhat fleshy and glaucous.—Native of the Cape.

24. Cineraria Lineata. Leaves lanceolate, tomentose underneath, serrated at the end, toothed at the base. Stem herbaceous, a foot high or more, erect, striated, hoary; calices small; ray of the corolla yellow.—Native of the Cape.

25. Cineraria Hastifolia. Leaves hastate; divisions lateral, bifid, divaricated. Stem erect, more than a span high; calix with about ten leaves; flowers yellow.—Discovered by Sparrman, at the Cape.

26. Cineraria Japonica. Leaves sword-shaped, toothed, tomentose; flowers terminal. Stem round, simple, erect, tomentose, a span high; leaves alternate, acute, attenuated to both ends, erect; flowers solitary or tern, yellow.—Native of Japan.

27. Cineraria Rotundifolia. Panicles few-flowered; leaves petioled, ovate-roundish, quite entire, tomentose underneath; stem arboreous.—Native of New Zealand.

28. Cineraria Repanda. Panicles compound, racemed, diffused; leaves petioled, ovate, repand-sinuate, tomentose underneath; stem arboreous.—Native of New Zealand.

29. Cineraria Lanata; *Woolly Cineraria*. Peduncles one-flowered; leaves cordate-roundish, seven-angled, lanuginous underneath. In the beauty of its blossoms, this species of Cineraria, lately introduced from Africa, by far eclipses all the others cultivated in our gardens. The interior of the petals is white, and the exterior of the most vivid purple. It flowers early in the spring, and, by proper management, may be made to flower the whole year through.—Found in the Canary islands by Masson. Some persons keep it in the stove, by which means they make it flower earlier; but it succeeds better in a common green-house, with no more heat than is just necessary to keep out the frost; it may indeed be kept in a common hot-bed frame, unless the weather prove severe. The hardiness of this plant renders it a most valuable acquisition to the green-house, and its value is still further enhanced by its readiness to flower, and the facility by which it may be cultivated by cuttings. As this plant, like many others, is obliged to be confined, it becomes liable to be infested with *aphides*, or, in vulgar phrase, to turn lousy: however, the best way to have handsome, strong-flowering, healthy plants, is to procure a constant succession by cuttings, which strike very readily, if placed in a pot, and plunged into a bed of tan.

30. Cineraria Humifusa; *Trailing Cineraria*. Peduncles one-flowered; leaves kidney-form, somewhat angular; petioles eared, or naked at the end. The flowers are yellow; and both they and the calices are villose, and somewhat rugged.—Native of the Cape.

31. Cineraria Viscosa; *Clammy Cineraria*. Peduncles one-flowered; leaves pinnatifid-lobed, acute, viscid, somewhat fleshy.—Native of the Cape.

32. Cineraria Populifolia; *Poplar-leaved Cineraria*. Flowers corymbed; leaves cordate, somewhat angular, tomentose underneath; petioles having several pairs of appendicles at the end. This is a shrub, with an angular tomentose hoary stem; panicles terminating; pedicles bracted; flowers yellow.—Found in the Canary Islands by Masson.

33. Cineraria Aurita; *Purple-flowered Cineraria*. Flowers corymbed; leaves cordate, somewhat angular, tomentose underneath; petioles two, eared at the base. Flowers purple; leaves resembling those of the Poplar.—Native of Madeira.

34. Cineraria Malvæfolia; *Mallow-leaved Cineraria*. Flowers cymed; leaves cordate, angular, somewhat tomentose underneath; petioles simple.—Native of the Canary Islands, and of St. Miguel, one of the Azores.

35. Cineraria Cruenta; *Purple-leaved Cineraria.* Flowers cymed; leaves cordate, angular, purple underneath; petioles eared at the base. Root perennial; stem two or three feet high; flowers purple.—Native of the Canary islands.

36. Cineraria Lobata; *Lobed Cineraria.* Flower subcorymbed; leaves roundish, many-lobed, smooth: petioles eared at the base; calices subcalicled. This resembles a Senecio.—Found by Masson at the Cape.

37. Cineraria Sinensis. Panicled, diffused: leaves ovate-lanceolate, serrate-repand, smooth. Stem suffruticose, erect, round, smooth, four feet high, branched; leaves alternate; flowers yellow, terminating.—Native of China, near Canton.

38. Cineraria Minuta. Leaves pinnatifid; stem one-flowered, capillary. Root annual; stems often two, capillary, two inches high, at first woolly, but afterwards almost smooth, one-flowered; leaves alternate, sessile, violet-coloured underneath; flowers terminating, solitary; corolla yellow; corollets in the ray ten, trifid at the end; seeds ovate, oblong, very small, with a sessile plumose pappus.—It flowers in May; and is a native of Spain near Aranjuez.

39. Cineraria Glabra. Flowers corymbed; calices cylindric; leaves oblong, acute, somewhat toothletted, nerveless, smooth on both sides, and a little succulent; stem shrubby. —Native of Jamaica.

40. Cineraria Discolor. Flowers corymbed; leaves oblong-lanceolate, acuminate, somewhat toothletted, smooth; beneath white tomentose; stem shrubby. Root perennial—Native of Jamaica.

Cinna; a genus of the class Monandria, order Digynia.—Generic Character. *Calix:* glume one-flowered, two-valved, compressed, linear, keeled, acuminate; one valve shorter, mucronated. *Corolla:* glume bivalve, compressed, linear; outer valve within the smaller valve of the calix, longer, with somewhat of an awn below the tip; inner slender, shorter. *Stamina:* filamenta one, capillary; anther oblong, forked at each end. *Pistil:* germen turbinated; styles two, capillary very short; stigmas longer, plumose. *Pericarp:* none; glume involving. *Seed:* one, cylindric. Essential Character. *Calix:* glume two-valve, one-flowered. *Corolla:* glume two-valve. *Seed:* one.—The only known species is,

1. Cinna Arundinacea. A grass the size of Oats; root perennial; culms many; leaves broadish, smooth, many-nerved, rugged about the edge; panicle glaucous, oblong, attenuated, somewhat compressed, composed of imbricate racemes; keel of the calix rough, one of the valves having an awn-like point; anther purple; styles hirsute.—Native of Canada, whence the seeds were sent by Kalm. See *Agrostis Cinna.*

Cinnamon, Cinnamomum. See *Laurus.*

Cinquefoil. See *Potentilla.*

Cinquefoil, Bastard. See *Sibbaldia.*

Cinquefoil, Marsh. See *Comarum.*

Circæa; a genus of the class Diandria, order Monogynia. —Generic Character. *Calix:* perianth two-leaved; leaflets ovate, concave, deflected, deciduous. *Corolla:* petals two, obcordate, generally shorter than the calix, spreading, equal. *Stamina:* filamenta two, capillary, erect, the length of the calix; antheræ roundish. *Pistil:* germen turbinate, inferior; style filiform, the length of the stamina; stigma obtuse, emarginate. *Pericarp:* capsule turbinate-ovate, hispid, two-celled, two-valved, opening from the base towards the top. *Seeds:* solitary, oblong, narrower at bottom. Essential Character. *Corolla:* two-petalled. *Calix:* two-leaved, superior. *Seed:* one, two-celled.—These plants multiply exceedingly by their creeping roots, and are therefore seldom kept in gardens. If the roots be planted in any shady moist part of a garden, they will increase fast enough without any care.——The species are,

1. Circæa Lutetiana; *Common Enchanter's Nightshade.* Stem erect; racemes many; leaves ovate. Root perennial, creeping, toothed; the whole plant pubescent; stems from twelve to eighteen inches and more in height, erect, round, villose or smooth, seldom hairy; the joints swelled, and sometimes purplish, branching: leaves opposite, dark green, flowers in simple racemes on the top of the branches, both terminating and lateral; frequently solitary; sometimes more than forty flowers in a raceme; corolla small, whitish, reddish-white, or flesh-coloured; petals the length of the calix, and alternate with its leaflets.—It is not uncommon in shady lanes and orchards, under moist hedges and walls; and in woods, flowering in July and August. It frequently infests gardens, and is not easily destroyed, the roots being creeping: sheep are said to eat it: and although it has not been admitted into the dispensatories, yet it is esteemed very detersive, and is recommended by Chomel against the piles, applied outwardly as a cataplasm, and inwardly as an infusion. The seeds of this plant stick by their little hooks to any thing that passes; and Boerhaave informs us, that this peculiarity gave occasion to the name; the fruit laying hold on the clothes of passengers, and drawing them to it, as Circe was fabled to attack by her enchantments.

2. Circæa Alpina; *Mounting Enchanter's Nightshade.* Stem ascending; leaves heart-shaped, shining; calix membranaceous; root creeping. The whole plant less pubescent than the preceeding species. Stems low, diffused at the base, with red joints; leaves tender, petioled, tooth-serrated, of a pleasant yellowish green colour; flowers of a vivid red colour. —It is found in rocky woods, in Lapland, Sweden, Carniola, Piedmont, Silesia, and Denmark. It was gathered, in the month of August, upon Mount Scheidegg in Switzerland; and Mr. Miller found it growing wild in the wood near the Hague. In Great Britain it is found near Leeds and Halifax in Yorkshire; by the river side at Matlock in Derbyshire; in Lancashire, Westmoreland, Cumberland, and Scotland

Cissampelos; a genus of the class Dicœcia, order Monadelphia. — Generic Character. *Male. Calix:* none, unless the corolla be so called. *Corolla:* petals four, ovate flat, expanded; nectary, the membranaceous disk of the flower, wheel-shaped. *Stamina:* filamenta four, very small, coalescent; antheræ broad, flat. *Female. Calix:* none, except the bracte. *Corolla:* none; nectary, the membranaceous lateral edge of the germen, dilated outwards. *Pistil:* germen roundish; styles three; stigmas three, erect, acute. *Pericarp:* berry globular, one-celled. *Seed:* solitary, wrinkled, somewhat compressed. Essential Character. *Male. Calix:* four-leaved. *Corolla:* none. *Nectary:* wheel-shaped. *Stamina:* four, with connate filamenta. *Female. Calix:* one-leafed, ligulate, roundish. *Corolla:* none. *Styles:* three. *Berry:* one-seeded.—These plants are propagated by seeds, which should be sown upon a hot-bed in the spring, and the plants must afterwards be treated in the same way as other tender exotics, keeping them constantly in the bark-stove, otherwise they will not live in this country.——The species are,

1. Cissampelos Pareira. Leaves peltate, cordate, emarginate, and entire. Stem climbing and twining, from ten to fifteen feet in height, lax, round, striated, smooth, or hirsute; flowers numerous, dusky yellow, minute. The fruit is a roundish, compressed, scarlet drupe, containing a single nut or very hard seed, compressed, triply echinate, wrinkled at the edge, two-celled. In mountainous coppices it is smooth, with cordate entire leaves, hoary underneath; in champaign calcare-

ous situations it is hirsute, with cordate-roundish, emarginate leaves, which are tomentose.—Native of the West Indies. The leaf, applied whole or bruised to a wound, cures it effectually; it is also a remedy against the bite of poisonous animals: the root is excellent for the stone, and is looked upon as an excellent diuretic, which the negroes constantly use in all obstructions of the urinary passages. The root, which is the part chiefly used, has a pleasant bitterish taste, and answers well in decoctions.—It thrives best in a rich shady soil; grows well both on the high and low lands of Jamaica, and is very easy propagated there.

2. Cissampelos Caapeba. Leaves petioled at the base, entire. This has round or heart-shaped leaves, which are extremely woolly and soft to the touch. The stalks and every part of the plant is covered with a soft woolly down. —Grows in Jamaica.

3. Cissampelos Smilacina. Leaves cordate, acute, angular. The stalks are slender, running up walls, and twining about posts and trees. The leaves resemble those of common Ivy. The berries are red, of the size of small peas, and grow in clusters.—Native of Carolina.

4. Cissampelos Fruticosa. Stem erect, shrubby; leaves ovate, petioled, entire.—Found by Thunberg at the Cape.

5. Cissampelos Capensis. Stem twining; leaves ovate, obtuse, petioled, entire.—Found by Thunberg at the Cape.

6. Cissampelos Ovata. Leaves egg-shaped, obtuse, almost entirely smooth; racemes slender, elongated, pubescent. Stems woody, cylindrical, slightly striated: branches numerous, alternate, climbing, slightly villose; leaves about two inches long, alternate, petioled, finely veined, green, with a few short hairs underneath along the veins; flowers small; fruit a dry berry or drupe about the size of a lentil.—Native of the East Indies.

Cissus: a genus of the class Tetrandria, order Monogynia. —Generic Character. *Calix:* involucre many-leaved, very small; perianth one-leafed, flat, short, obscurely four-cornered. *Corolla:* petals four, concave; nectary a rim surrounding the germen. *Stamina:* filamenta four, the length of the corolla, inserted into the nectary; antheræ roundish. *Pistil:* germen roundish, obtusely four-cornered, retuse; style filiform, the length of the stamina; stigma simple, acute. *Pericarp:* berry round, shining, umbilicate. *Seed:* a roundish stone. Essential Character. Berry one-seeded, surrounded by the calix and four-parted corolla.—These plants are preserved in some of the European gardens, more for the sake of variety than for use or beauty, as they rarely produce either fruit or flowers in temperate climates. They are propagated either by laying their flexible branches down in pots of earth, where they will put out roots in four or five months: or by planting cuttings in pots filled with light earth, which should be plunged into a moderate hot-bed of tanner's bark, covering the pots closely with hand-glasses to exclude the outer air: they must be frequently refreshed with small quantities of water. When these, or the layers are well rooted, they should be carefully taken up, and each planted in a small pot filled with light earth, and plunged into the hot-bed of tan, where they must constantly remain. They should be shifted into large pots when it is necessary, and their branches must be supported with stakes, to prevent them from trailing over the neighbouring plants; and in warm weather the plants should have free air admitted to them daily.——The species are,

1. Cissus Vitiginea; *Vine-leaved Cissus.* Leaves cordate, with about five lobes, tomentose. Linneus observes, that this species of Cissus has the appearance of a vine, but differs in the calix, corolla, number of stamina, and in having a style. The stem is tomentose; the branches villose, hoary at top, and subquadrangular; leaves alternate, two inches long, entire; flowers hoary, most of them deciduous; fruitful pedicels commonly in pairs, and divaricating; berries pear-shaped, the size of peas, of a blueish glaucous colour.—Native of the East Indies.

2. Cissus Repanda. Leaves cordate, entire, or sublobed, repand, smooth on both sides. The branches of this are round, flexuose, jointed, tomentose, but become smooth by age; leaves petioled, two to three inches long, and still more in breadth; peduncles opposite to the leaves; rays of the umbel three, dichotomously branched; berries pear-shaped, the size of peas, mucronate with the permanent style.—Native of the East Indies.

3. Cissus Latifolia. Leaves cordate-ovate, villose, acuminate, setaceous, serrate; branches four-cornered. Branches jointed, woody, as are also the petioles and peduncles, ferruginous-tomentose, especially at top, becoming smooth at bottom by age; berries black, smooth and shining, succulent.—Native of the East Indies.

4. Cissus Cordifolia. Leaves cordate, quite entire; branches simple, knotty; berries large, oblong; tendrils large, bifid, retrograde.—Native of South America.

5. Cissus Rotundifolia. Leaves cordate, roundish, serrate; leaves smooth, setaceous, serrate; umbels racemed, opposite, many-flowered, about four on each common peduncle, and simple; peduncles nearly the length of the leaves. —Native of Arabia.

6. Cissus Sicyoides. Leaves subcordate, naked, bristly, serrate. Root perennial; stem somewhat woody, herbaceous at top, climbing, branched, marked with red spots; leaves petioled, alternate, nerved, somewhat succulent; flowers yellow; petals broader at the base, egg-shaped, reflexed, deciduous; antheræ orange; berry oblong, black.—Native of Jamaica, in waste places, by walls, and on rocks. Jacquin informs us, that it is found in all the Caribbee islands, and the neighbouring continent, differing in habit according to the situation in which it grows. The berries of this, and some of the other sorts, are sometimes eaten by the negroes, but they are chiefly food for birds.

7. Cissus Quadrangularis. Leaves cordate, fleshy, serrate-toothed; stem four-cornered, somewhat swelling. Stem very long, climbing, smooth, and even. The root is tuberous.—Native of Arabia, and the East Indies; found also by Loureiro near Mosambique in Africa.

8. Cissus Acida; *Three-leaved Cissus.* Leaves ternate, obovate, smooth, fleshy, gashed. Stem scandent, flexuose, round, tinged with purple, succulent, jointed; branches short; corolla four-parted, the parts reflex and deciduous; germen truncate; berry black, surrounded by the calix. The whole of this plant is acid.—Native of Jamaica, in woods near the coast.

9. Cissus Trifoliata. Leaves ternate, roundish, hirsute, with a few teeth; branches angular and membranaceous. Stem suffrutescent, scandent, having five or six angles, knotted, rooting, branched, green, the angles slightly winged; branches herbaceous, lax; flowers umbelled, blood-red: calix or rim of the germen entire and four-cornered; berry roundish, one-seeded.—Native of the West Indies, climbing high above the branches of the trees, in the hedges, upon the mountains.

10. Cissus Crenata. Leaves ternate; leaflets roundish, crenate. The branches, petioles, younger leaves, and peduncles, villose; tendrils opposite to the leaves, compound; petals arched; filamenta shorter than the corolla.—Native of the East Indies.

11. Cissus Carnosa. Leaves ternate, ovate, obtuse, serrate, smooth; branches and petioles round. The whole plant is smooth: universal umbel of three rays, partial with dichotomous divaricating branches; general peduncle longer than the leaf.—Native of the East Indies.

12. Cissus Obovata. Leaves ternate; leaflets obovate, quite entire, smooth. Stem scandent, smooth; tendrils opposite to the leaves, of the same length, and bifid; peduncles axillary, solitary, longer than the leaves, smooth, trichotomous; the branchlets three-flowered; the flowers pedicelled. —Native of America.

13. Cissus Pedata. Leaves pedate; leaflets lanceolate, serrate, tomentose underneath. Branches tomentose, hoary; leaves petioled, five, six, or seven; leaflets also petioled, three or four inches long, unequal, attenuated, unequally serrate, but with the point quite entire, on the upper surface slightly villose, beneath villose, tomentose, hoary, nerved; flowers small; calix obscurely four-toothed, runcinate.—Native of the East Indies.

14. Cissus Heptaphylla. Leaves in sevens, serrate, hispid. This is a sarmentose scandent shrub; branches pubescent; tendrils opposite to the leaves, bifid: panicles fastigiate, brachiate, peduncled, opposite to the leaves; flowers small. —Native of the East Indies.

15. Cissus Umbellata. Leaves ovate, quite entire; flowers umbelled; stem shrubby, twining, long, branched; leaves opposite, smooth; flowers white, in compound terminating umbels; corolla bell-shaped, four-cleft, woolly within; calix truncate, surrounding the berry.—Native of China, near Canton.

16. Cissus Ovata. Leaves egg-shaped, acuminate, sparingly toothed, smooth and even on both sides.—Native of Gaudaloupe.

17. Cissus Orientalis. Leaves somewhat bipinnate; leaflets egg-shaped, serrated; stem rather shrubby. This has the habit of *Vitis Arborea*, but is larger, and the leaves less compound.—Native of the East.

Cistus; a genus of the class Polyandria, order Monogynia. —Generic Character. *Calix:* perianth five-leaved; permanent; leaflets roundish, concave, of which two alternate ones are lower and smaller. *Corolla:* petals five, roundish, flat, spreading, very large. *Stamina:* filamenta numerous, capillary, shorter than the corolla; antheræ roundish, small. *Pistil:* germen roundish; style simple, the length of the stamina; stigma flat, orbiculate. *Pericarp:* capsule roundish, covered with the calix. *Seeds:* numerous, roundish, small. Essential Character. *Corolla:* five-petalled. *Calix:* five-leaved, with two of the leaflets smaller. *Capsule:* superior, angular, many-seeded.—The history of this genus is extremely obscure, on account of the multitude of varieties which occur in it. Linneus says, that the species may be much elucidated, if botanists will attend to the following circumstances, in their native places of growth: 1. Whether the trunk be shrubby, undershrubby, annual, or perennial; 2. whether the stem be erect or decumbent; 3. whether the leaves be opposite or alternate, and what is their form; 4. whether there be two stipules or none; 5. whether the peduncles be one-flowered or many-flowered, naked or with a bracte; 6. what is the form of the petals; 7. whether the capsules have five or three valves; 8. whether the calix be equal or unequal. The form of the leaves in the greater part is ovate or lanceolate, or some modification of these two forms; but the principal difference attending these plants is in the capsule, which in some is five or ten celled, with as many valves; in others one-celled, and three-valved: hence this great genus might very commodiously be divided into two, as Tournefort, Miller, Jussieu, Gærtner, and others, have divided it, at least in the artificial arrangement, for undoubtedly they all constitute one natural genus. They may be distinguished thus: *Cistus*, or *Rock-rose*, has a five or ten celled capsule, with as many valves; seeds fixed to the axis; embryo spiral. These are shrubs, or undershrubs; the leaves opposite, and naked; the flowers in umbels, with unequal calicine leaflets; and the corolla either purple or white, commonly large and specious. *Helianthemum*, or *Dwarf Sunflower*, has a one-celled, three-valved capsule, with the seeds fixed to the valves; embryo uncinate-inflected. These are suffruticose or herbaceous; the leaves opposite, or sometimes alternate, stipuled or naked; the flowers in spikes or racemes, with two of the calicine leaflets minute; and a corolla commonly yellow, seldom purple or white, smaller than that of the Cistus, very deciduous in both.—All the various kinds of Cistus are very great ornaments to a garden; their flowers, though of short duration, are succeeded by fresh ones almost every day, for above two successive months: they are generally about the size of a middling rose, but single, and of different colours: their leaves continue all the year; they are most of them hardy enough to bear the open air in England, unless in very severe winters, which often destroy many of them, so that a plant or two of each sort may be kept in pots, and sheltered in winter to preserve the kinds; the rest may be intermixed with other shrubs, where they will make a pretty diversity; and in such places where they are sheltered by other plants, they will endure cold much better than where they are scattered singly in the borders. Many of these plants will reach five or six feet in height, and, if permitted to grow uncut, will have large spreading heads; but if they be trimmed at all, it should be only to prevent their heads from becoming too large for their stems, for whenever this happens they are liable to fall to the ground, which spoils their appearance. They are propagated both from seeds and cuttings, but the latter method is seldom resorted to except for such species as do not produce seeds in England; these are the twelfth and the fifty-fifth sorts; all the others generally produce plenty of seeds, especially those plants which came from seeds, for those which are propagated by cuttings are liable to become barren. The seeds should be sown in the spring, upon a common border of light earth, where the plants will come up in six or seven weeks; and, if they be kept clean from weeds, and thinned where they are too close, they will grow eight or ten inches high the same year; but as these plants are liable to be injured by hard frost when young, they should be transplanted, when they are about an inch high, into some small pots filled with light earth, that they may be removed into shelter in winter, and the others into a warm border, at about six inches' distance each way: those which are potted must be set in a shady situation till they have taken fresh root; and those planted in the border also must be shaded every day till they are rooted, after which the latter will require no other care but to keep them clean from weeds till autumn, when they should have hoops placed over them, that they may be covered in frosty weather; those in the pots may be removed into an open situation as soon as they have taken new root, where they may remain till the end of October, but must be shifted into larger pots, and frequently watered during the summer; at the end of October they should be placed under a hot-bed frame, to screen them from the cold in winter, but at all times when the weather is mild they should be fully exposed to the open air, and only covered in frosts. The above is the method which the gardeners generally practise; but those who desire to have their plants come forward, should sow the seeds on a moderate hot-bed in the spring,

which will bring up the plants very soon; but these must have plenty of air when they appear, otherwise they will draw up very weak: when the plants are fit to remove, they should be each planted into a separate small pot, and plunged into a very moderate hot-bed, observing not to shade them until they have taken fresh root, when they must have plenty of air admitted to them every day in good weather, to prevent them drawing up weak; and they must be hardened by degrees, so as to bear removing into the open air in the beginning of June, after which they may be treated in the same manner as is before directed for the other seedling plants. By this method of bringing the plants forward in the spring, they will grow to the height of two feet or more the first summer, and have many lateral branches, so that they will be strong enough to endure planting abroad in the succeeding spring, and most of them will flower the same summer; whereas those which are sown in the full ground rarely flower till the year after, nor will they be so strong, or able to resist the cold of the second winter, as those which have been thus brought forward. In the spring following these plants may be turned out of the pots, with all the earth preserved to their roots, and planted in the places where they are to remain, (for they are bad plants to remove when grown old) observing to give them now and then a little water, until they have taken fresh root, after which time they will require no farther care, than to train them upright in the manner you would wish them to grow; but those plants which were at first planted into a border in the open ground, should be arched over with hoops, and covered with mats in frosty weather, during the first winter, but may be transplanted abroad in the following spring. In removing these plants, care should be taken to preserve as much earth as possible about their roots; and if the season be hot and dry they must be carefully watered and shaded until they have again struck root, after which they will only require the treatment above directed.—If they be propagated by cuttings, they should be planted in May or June, upon a bed of light earth, keeping them shaded with mats, and frequently refreshed with water until they have taken root, which will be in about two months' time; they may then be transplanted into pots filled with good fresh light earth, and should be set in a shady place until they have again taken root, after which they may be exposed to the open air till October, when they should be removed to pass the first winter under shelter, but in the succeeding spring should be brought forth and planted abroad, as has been directed for the seedling plants.—Most of the perennial sorts of *Dwarf Cistus* or *Sunflower*, will thrive in the open air in England; they are propagated by seeds, sown where they are intended to remain, and will require no care, except to keep them clear from weeds, and to thin them where they are too close, always observing to leave those sorts at a greater distance, the stalks of which trail on the ground to the greatest length. These plants will continue several years in a poor dry soil; but in rich ground, or in moist situations, they seldom last long; but as the seeds ripen in plenty, they may be easily renewed. For the annual sorts the seeds may be sown in April, upon a bed of common earth; the plants will come up in May, and flower in July.——The species are,

* *Without Stipules, shrubby.*

1. Cistus Capensis; *Cape Cistus.* Leaves ovate-lanceolate, petioled, three-nerved, toothletted, naked on both sides. Branches round, purplish, having hairs thinly scattered over them; petioles distinct; leaves three inches long; corolla yellow.--Linneus remarks, that this differs from the other species in the toothlets of the leaves.—Native of the Cape.

2. Cistus Villosus; *Hairy Rock-Rose,* or *Shrubby Cistus.* Leaves ovate, petioled, rough with hairs. Corolla purple. It has a strong woody stem, covered with a rough bark, and three or four feet high, dividing into many branches, so as to form a large bushy head. The flowers are produced at the ends of the branches, four or five together; the petals, which are purple and large, spread open like a rose, but are of short duration, generally falling off on the same day they expand; but there is a succession of fresh flowers every day for a considerable time, in May and June, and again in September and October, if the autumn be favourable; and even in the winter, if the plants be protected from frost.—Native of Italy and Spain. It requires the protection of a stove in winter.

3. Cistus Populifolius; *Poplar-leaved Cistus,* or *Rock-Rose.* Leaves cordate, even, acuminate, petioled. This has a stiff, slender, woody stem, six or seven feet high, sending out many branches the whole length; branches and leaves hairy; leaves large, of a light green colour, with many nerves; corolla white, and soon dropping off. Linneus adds, that the petals are tinged with purple on their edges; that the stamina are yellow; and that the calices appear three-cornered before they unfold. It flowers in June and July—Native of Portugal. This is a very handsome plant.

4. Cistus Laurifolius; *Bay-leaved Gum Cistus.* Leaves oblong-ovate, petioled, three-nerved, the upper surface smooth; petioles connate at the base. It rises five or six feet high, with a strong woody stem, sending out many erect hairy branches; leaves lanceolate, acute, thick, dark green above, and white beneath, very glutinous in warm weather. According to Linneus, they are wrinkled, green on both sides, and scarce visibly hairy: the petioles become purple at the base. The flowers, which appear in June and July, are produced at the ends of the branches, upon long naked peduncles, branching on their sides into smaller ones, each sustaining one large white flower with a hairy calix. It is a beautiful plant.—Native of Spain.

5. Cistus Ladaniferus; *Spanish Gum Cistus.* Leaves lanceolate, even on the upper surface; petioles united at the base, and sheathing. Stem strong and woody, five or six feet high, sending out many hairy branches; leaves smooth on their upper side, veined on their under, on short footstalks which join at their base, where they form a sort of sheath to their branch; corolla white, the size of the officinal Poppy.—Native of the hills of Spain and Portugal. There is a variety which Mr. Miller considers a distinct species: it has smooth branches, covered with a reddish brown bark; the leaves are narrow-lanceolate, whitish on their under side, of a dark green above, having three longitudinal veins; the petals are very large, roundish, white, with a large purple spot at their base. The whole plant exudes a sweet glutinous substance in warm weather, which has a very strong balsamic scent, and perfumes the air to a great distance. It flowers from June to August. There is another variety, with white flowers, having no purple spots, which is in every other respect similar to this. They are all remarkable for their great beauty.

6. Cistus Monspeliensis; *Montpellier Gum Cistus.* Leaves linear-lanceolate, sessile, villose on both sides, three-nerved. Stem slender, from three to four feet high, sending out many hairy branches, from the bottom upwards; leaves very dark green, in warm weather covered with a glutinous sweet-scented substance; the peduncles, which come out at the branches, are long, naked, and sustain many white flowers, rising above each other; their calices are bordered, and end in sharp points. It flowers from June till August.—Native of Narbonne, and the kingdom of Valentia.—The variety, or Olive-leaved Rock-Rose, of Miller, has, according to him, the stem

about four feet high, with hairy, glutinous, erect branches; and long, narrow, hairy leaves, ending in points, deep green on both sides, having a deep furrow made by the midrib on their upper side; the flowers are on long peduncles at the ends of the branches, of a pale sulphur colour, and have an acute bordered calix. It flowers at the same time with the other; and both plants are very handsome.

7. Cistus Salvifolius; *Sage-leaved Cistus.* Leaves ovate, petioled, hirsute on both sides; stem slender, smooth, covered with a brown bark, never rising more than three feet high, and sending out many weak branches spreading horizontally; leaves obtuse, without veins, not so soft as in many other species; peduncles lateral, solitary, one-flowered, longer than the leaves; corolla white, and somewhat smaller than that of the other Rock-Roses. It flowers from June to August.—Native of Italy, Sicily, Narbonne, Switzerland, and Carniola.

8. Cistus Incanus; *Hoary Rock-Rose,* or *Rose-Cistus.* Leaves spatulate, tomentose, wrinkled, the lower connate at the base and sheathing. Branches villose, whitish towards the summit; leaves opposite, sessile, oblong, a little cottony on both sides, with three nerves at the base; flowers purple, on simple peduncles; petals heart-shaped.—Native of Spain and Narbonne. This also is a beautiful plant.

9. Cistus Creticus: *Cretan Ladaniferous Cistus.* Leaves spatulate-ovate, petioled, nerveless, rugged; calices lanceolate. A foot and half high, sometimes more, branching, diffused; stem and branches round, and somewhat villose; leaves from broad stem-clasping, petioled, first spatulate, then ovate or lanceolate, somewhat acute, wrinkled, sometimes waved, roughish, thickish, quite entire, viscid, closely set on both sides and round the edge with white hairs of different lengths, some simple, others branched or headed, scarcely visible to the naked eye; peduncles one-flowered, terminating the last leafy twigs, erect, and villose; calix villose, with ovate acuminate leaflets, nearly equal; petals rose-purple, without smell, very obscurely crenate, forming a corolla an inch and half in diameter; the whole of the stamina are yellow; germen hirsute, green; capsule ovate, obtuse, brown, hirsute with ash-coloured hairs, five-celled and five-valved; seeds smooth, rufous, angular.—It flowers copiously in June and July, and ripens seeds in September. Native of the Levant, and remarkably handsome. It is from this species of Cistus that the drug *ladanum* (or, as it is sometimes spelt, *labdanum*) is procured; it is a kind of resin, which is secreted from the leaves and other parts of the shrub, and is scraped off by means of a kind of rake, which has numerous leather thongs instead of teeth: this being drawn backwards and forwards over the plant, collects the resin, which differs in degrees of purity; the best is in dark-coloured masses, of the consistence of a soft plaster, growing still softer on being handled; it is, however, subject to many sophistications from the more or less careful manner in which it is at first collected, and from the fraudulent practices of those through whose hands it afterwards passes. In England it is now wholly confined to external use; it is an ingredient in the stomachic plaster of the London Pharmacopœia: it is also used in modern practice in fumigations, its fragrant smell having always introduced it into such preparations: sometimes it is used in troches, and in the Paris Pharmacopœia there is a pectoral troche in which a considerable quantity of ladanum is united with musk and amber; in the old German shops, a tincture of this drug is reserved for female weaknesses, but it is unknown to us. Ladanum being entirely resinous, is not soluble in water, but readily gives out its active matter to spirit of wine.

10. Cistus Albidus; *White-leaved Cistus.* Leaves ovate-lanceolate, tomentose, hoary, sessile, mostly three-nerved; calix not rough with hairs, the outer leaflets longer, the sides reflex; peduncles from the tops of the branches, many, scarcely longer than the leaves; petals purple, not emarginate, somewhat crenate, flattish.—Native of Narbonne and Spain. This plant is very handsome.

11. Cistus Crispus; *Curl-leaved Cistus.* Leaves lanceolate, pubescent, three-nerved, waved; branches weak, slender, woody, spreading horizontally. This shrub is seldom more than two or three feet in height; the peduncles and calices are covered with a thin wool; the calices are lanceolate. The corollas purple; but, according to Mr. Miller, (who cultivated it in 1731) white, coming out upon naked peduncles from the wings of the leaves, in June and July, and succeeded by ripe seeds in August and September.—Native of Portugal.

12. Cistus Halimifolius; *Sea Purslane-leaved Cistus.* Leaves lanceolate, hoary; peduncles wand-like. It is an upright shrub, three or four feet high; branches round, ash coloured, angular at top, the younger ones dotted with yellow; leaves petioled, opposite, lanceolate, very white, scarcely soft, without veins, obtuse, flat, about an inch in length; peduncle terminating, compound, white; partial peduncles, below opposite, above alternate: there is a sessile leaflet, narrower than those on the stem, at the base of the peduncles and pedicels; calicles erect, ovate, acute, somewhat rugged, having two outer leaflets minute and linear at the base of the larger ones. Mr. Miller describes it as rising four or five feet high, and branching from the ground so as to form a large bush. The leaves on the lower part of the branches have footstalks, but those at the top coalesce at their base, and surround the stalk; the peduncles are a foot in length, naked, hairy, and put out two or four shorter peduncles on the side, each supporting three or four flowers, which are large, of a bright yellow colour, but of short duration, appearing in June and July.—Native of Portugal. There are two varieties, one with a slender stem, woody, and three or four feet high, with many slender branches, and loose bunches of a dirty sulphur-coloured flower, upon slender peduncles, and appearing in June and July; another three feet in height; peduncles naked; flowers solitary, on naked opposite pedicels; corolla bright yellow, with a purple spot near its base, appearing in June and July.—This very beautiful plant is the tenderest of all the European species, and will hardly survive an English winter in the open air, unless protected by other shrubs planted near it.

13. Cistus Libanotis; *Rosemary-leaved Cistus.* Leaves linear, revolute; flowers umbelled, yellow. This shrub resembles Rosemary; stem naked, purplish; peduncles terminal, longer than the leaves, with a few yellow flowers.—Found in Spain.

** *Without Stipules, undershrubby.*

14. Cistus Umbellatus; *Umbelled Cistus.* Procumbent: leaves opposite, linear; flowers umbelled. Stems low, trailing, woody, seldom branching, and not more than four or five inches long; leaves narrow and hoary; flowers white, in small clusters at the end of the stalks. It seldom continues beyond two years. There are two varieties, one having erect stems.—Native of the south of France, and Spain.

15. Cistus Lævipes; *Cluster-leaved Cistus.* Ascending: leaves alternate, fascicled, filiform, smooth; peduncles; racemed; root woody, creeping very much; stems many, round, becoming woody; when young herbaceous, glaucous, branched, diffused, spreading horizontally or ascending, very few, erect. The flowers are inodorous, in thin villose racemes at the ends of the branches, on long smooth pedicels; petals ovate, yellow, obscurely crenulate at the end, a little longer than

the calix; the outer stamina are barren.—Native of the south of France, in the neighbourhood of Montpellier.

16. Cistus Calicinus. Erect: leaves linear; peduncles one-flowered; calices three-leaved. Stem a foot high; branches opposite, reddish; leaves opposite, even, underneath obtusely keeled, crowded; leaflets from the axils; peduncles terminating, solitary, scarcely longer than the leaves; calix three-leaved, even, equal: corolla yellow, with scarcely the edge red; stamina very short, yellow, all fertile; pistil white; style very short; stigma warted.—Native of the south of Europe.

17. Cistus Syriacus; *Syrian Cistus.* Erect: leaves lanceolate, revolute; flowers racemed: petals yellow.—Native of the Levant.

18. Cistus Fumana; *Heath-leaved Cistus.* Procumbent: leaves alternate, linear, rugged about the edge; peduncles one-flowered. Stem five to eight inches high, woody, more or less upright, twisted, branched; branches slender, diffuse, lower ones often procumbent; leaves resembling those of Antirrhinum Linaria, but smaller, greenish; lower ones shorter and stiffer; flowers yellow, on a solitary peduncle; calix smooth or clothed with a very short down, sometimes with a purple tint, five-leaved; capsule three-celled, three-valved. In the autumn this species is often covered with tufts of leaves, in shape of roses, so as to resemble a Ledum more than a Cistus.—Native of Gothland, France, Switzerland, Austria, and Carniola.

19. Cistus Canus; *Myrtle-leaved Dwarf Cistus.* Procumbent: leaves opposite, obovate, villose, tomentose underneath; flowers subumbelled; peduncles from the upper axils, and those almost naked; petals deep yellow. There is a Portuguese variety, which is larger; the leaves oval or obovate-obtuse, pale ash-coloured above, tomentose-hoary underneath; umbel terminating, four-flowered.—Native of the south of France, Spain, Portugal, Austria, Carniola, and Piedmont.

20. Cistus Italicus; *Italian Cistus.* Leaves opposite, hispid, lower ovate, upper lanceolate; branches spreading. Stem erect, a span high; branches opposite, longer, spreading, somewhat deflected, rufous; leaves with a few strigose hairs, mostly twin and subciliate, the lower petioled and ovate, the upper subsessile; raceme terminal; calices hispid; corolla pale, with the petals scarcely emarginate.—It inhabits mountains near the sea, and alpine places not much exposed to the sun.

21. Cistus Marifolius; *Marum-leaved Cistus.* Leaves opposite, oblong, petioled, flat, hoary underneath. Stems upright, shrubby, a foot and a half high, sending out branches the whole length; leaves small, silvery, opposite, smooth. The flower-stalks branch; and the flowers, which are white, are produced in short spikes at the ends of the branches.—Native of the south of Europe.

22. Cistus Roseus; *Rose-flowered Cistus.* Procumbent: leaves opposite, oblong, rolled back at the edge, somewhat hoary on both sides. Stem branched, diffused, shrubby at the base, as are also the branches, woody, perennial, round; younger branches racemed; leaves and calices roughish; somewhat villose, and hoary; leaves on short petioles, and quite entire; racemes terminating, many-flowered, erect; fruit-pedicels reflex; three leaflets of the calix ovate, obtuse, concave, the two others shorter, and very narrow; petals flesh-coloured, with a yellow base, very entire, and spreading; filamenta as well as antheræ yellow; pistil green; seeds few, brown.—Native of the county of Nice and Unelia. Mr. Miller informs us, that Dr. William Sherard found it growing near Smyrna, and was the first who sent the seeds to England.

23. Cistus Anglicus; *English Cistus.* Procumbent: leaves opposite, oblong, revolute, hairy; flowers racemed. Stem scarcely six inches high, oblique, all rugged; leaves lanceolate, like those of Hyssop, roughish, not even, green on both sides; flowers white, nodding, but erect when in bloom. There is a variety with stems many, slender; leaves resembling those of wild thyme, but thicker, more hirsute, and hoary, dark green above, paler underneath, but hoary on both sides, without any younger ones arising from the axils: on the tops of the branches grow three or four, and sometimes more, small, yellow flowers.—This species was first observed by Mr. Newton, on some rocks near Kendal in Westmoreland: it has since been found at Buck-barrow Bank Scar, between Brigsteer and Conswick, and about Cartmel Wells, in Lancashire; at Betram-Beuke, about a mile west of Kendal; and also in Carnarvonshire and Anglesea. It flowers in May.

24. Cistus Œlandicus. Procumbent: leaves opposite, oblong, smooth on both sides. Petioles ciliate; petals emarginate; racemes terminating, few-flowered, villose, erect; flowers sweet-scented; leaflets of the calix very hairy, the two outmost linear, the three inner ones ovate; petals yellow, from roundish obovate, entire or slightly crenulate, scarce emarginate; stamina and pistil all yellow; stigma large, subquadrifid, muricate; capsule hirsute, nodding; seeds ovate, minute.

**** Without Stipules, herbaceous.*

25. Cistus Tuberaria; *Plantain-leaved Cistus.* Perennial: root-leaves ovate, three-nerved, tomentose; stem-leaves smooth, lanceolate, the upper alternate. Root hard, perennial, gradually narrower as it descends; stem a foot high, simple, villose at the bottom; root-leaves spreading on the ground, narrowed towards the base, white underneath; stem-leaves sessile, distant, opposite, except the uppermost which are alternate; flowers on the top of the stem in a sort of corymb; the two outer leaflets of the calix shorter, and lanceolate, the three inner ovate, acuminate, concave; corolla yellow; capsule globular, three-valved.—Native of Spain, in Catalonia, and near Benicasi, in Valencia, also of the south of France, and about Pisa.

26. Cistus Guttatus; *Annual Spotted-flowered Cistus.* Leaves opposite, lanceolate, three-nerved; racemes without bractes. Root annual; stem upright, five or six inches high; that, and the rest of the plant, covered with spreading hairs; leaves sessile, three or four pairs; raceme filiform, terminating; peduncles longer, slender, often without bractes; flowers erect, but when just out of bloom pendent; two-leaflets of the calix spreading; petals yellow, with a very dark purple spot approaching to black at the base.—Native of the south of Europe, in sandy soils. Columna and Ray remarked it at the foot of Mount Vesuvius, without any spots in the corolla. It was observed by Brewer, in sandy pastures, on Llechddue, near Holyhead, Anglesea, flowering in June; and by Dr. William Sherard on the west side of the Isle of Jersey, near Grosnez Castle.

27. Cistus Canadensis; *Canadian Cistus.* All the leaves alternate, lanceolate; stem ascending; perennial.—Found in Canada, by Kalm.

***** With Stipules, herbaceous.*

28. Cistus Ledifolius; *Ledum-leaved Cistus.* Erect, smooth: flowers solitary, subsessile, opposite to a ternate leaf; calix longer than the corolla, which is of a pale yellow; seeds angular, of a ferruginous red colour, not mucilaginous. This plant assumes different appearances, according to the soil and situation. In a good soil, if the plants stand single, and are not injured by weeds, they will rise nearly a foot and a half high, the leaves will be two inches and a half long,

and nearly half an inch broad in the middle; but in a poorer soil they do not attain to half that height; the leaves are much narrower, and the seed-vessels not half so large. When cultivated in a garden, they are not found to differ. —It is annual: native of the south of France and Italy; and also found near Smyrna by Dr. William Sherard.

29. Cistus Salicifolius; *Willow-leaved Annual Cistus.* Spreading, villose: flowers racemed, erect; pedicels horizontal; capsules longer than the calix; petals yellow, smaller than the calix, and extremely fugacious. It varies with apetalous flowers.—Native of Spain and Portugal, Monte Baldo, near Verona, and in the county of Nice. It is also found in sandy pastures, near Bream downs in Somersetshire. Annual; flowering in June and July.

30. Cistus Niloticus. Erect, subtomentose: flowers racemed, solitary, sessile, opposite-leaved. Stem somewhat woody, a foot high, round; branches next the root ascending, shorter on the stem towards the top, alternate, erect, few; flowers alternate, accompanied with a leaf, and two stipules, like the stem-leaves; petals yellow.—Annual; and a native of Egypt.

31. Cistus Ægyptiacus; *Egyptian Cistus.* Erect: leaves linear-lanceolate, petioled: calices inflated, larger than the corolla. Root annual, putting out one stem only, which is erect, but not able to support the weight of the fruits; leaves shining, thickish, furrowed on the upper surface, where the nerve is below, sublinear, drawing to a point at each end; on each side the petiole is a subulate stipule; peduncles solitary; flowers drooping, and without scent; petals lanceolate, yellow, very short, included.—Native of Egypt.

***** *With Stipules, undershrubby.*

32. Cistus Squamatus. Leaves covered with orbiculate scales. Branches rather erect, at bottom four-cornered; leaves oval-lanceolate, thickish, petioled, opposite, or else three on each side; stipules very minute, racemose, marcescent, sessile; peduncles round, crowded. The whole plant is covered with orbiculate scales, depressed in the centre.—Observed by Loefling, in Spain.

33. Cistus Lippii. Erect: leaves alternate and opposite, lanceolate, rugged; spikes directed one way. Stem round, pubescent, whitish, bifid or sparingly branched; branches below the forking of the stem, lateral, simple, white; leaves petioled, bluntish, spreading, hoary underneath; flowers sessile, crowded; petals obovate, yellow, scarcely larger than the calix; stamina usually ten, shorter than the petals; germen pubescent; fruits obtuse, covered with the calix, sessile, roundish: The wild plant has the branches and leaves hoary on both sides. The younger leaves of the axils are revolute; stipules bristle-shaped; calices hairy, silky.—Native of Egypt, near Alexandria, &c.

34. Cistus Sarrcianus; *Small-flowered Cistus.* Procumbent: leaves ovate-oblong, somewhat hairy; petals lanceolate. Mr. Hudson and others consider this as a mere variety of the common sort; the only material difference being in the shape of the petals. Dillenius, on the contrary, who cultivated it at Eltham, and observed it in many other gardens, and Miller, who cultivated it above thirty years, and never found it to vary from seed, do not hesitate to pronounce it a distinct species.—It was first discovered near Croydon in Surry.

35. Cistus Nummularius. Lower leaves orbiculate, upper ovate. Stems long, trailing, and dividing into many branches; leaves veined, of a light green on their upper side, but of a greyish colour beneath, with three narrow erect stipules at their base. The flowers are pretty large, white, and grow in clusters at the ends of the branches.—Found by Magnol, on Mount Capouladon, near Montpellier.

36. Cistus Canariensis; *Canary Cistus.* Procumbent: leaves subovate, alternate, and opposite; racemes erect. Root perennial; stems shrubby, erect, or ascending, round, scabrous, a span high, branched; leaves quite entire, glaucous, thickish, villose, and somewhat scabrous, flat, obtuse, petioled; stipules linear, lanceolate, erect; racemes opposite to the leaves, and terminating with many flowers pointing one way; bractes linear; stamina entirely yellow; petals roundish, yellow, obtuse, spreading very much, a little longer than the calix. It flowers from June to August; the blossoms expand only in the morning.—Native of Fuertaventura, one of the Canary Islands.

37. Cistus Fœtidus. Procumbent: stipules lanceolate, leaves oblong, rugged. Root perennial; stems somewhat shrubby at bottom, but the branches annual. The branches leaves, racemes, and calices, are beset with scabrous villose hairs; the petals are rounded, white, or sometimes very pale yellow, with a yellow base; stamina yellow. It has a strong smell like Bryony.

38. Cistus Serpyllifolius; *Wild Thyme-leaved Cistus.* Leaves oblong; calices even. Stems shrubby and crooked, covered with a purplish brown bark, like common heath; branches slender; leaves narrow and stiff, like those of Thyme, they are opposite, and have no stipule at their base. The flowers, which are of a pale yellow colour, are produced on naked peduncles, terminating the branches in a sort of umbel.—Native of the Alps, and of Austria. It flowers from May to September.

39. Cistus Glutinosus; *Clammy Cistus.* Leaves linear, opposite, and alternate; peduncles villose, glutinose. Root woody, small, creeping much; stems many, a long span in height, straightish, at bottom woody and branched, but at length solitary, more slender, round, green, naked at top, villose, and glutinous, with very short spreading hairs; racemes few-flowered; peduncles longer than the flower, glutinous, villose; corolla yellow, a little longer than the calix. —Native of the south of Europe.

40. Cistus Thymifolius; *Thyme-leaved Cistus.* Procumbent: leaves oval-linear, opposite, very short, heaped. The leaves much resemble those of Thyme, but they are harder, and a little whiter.—Native of the south of France, and Spain.

41. Cistus Pilosus; *Hairy Cistus.* Almost upright: leaves linear, with two grooves underneath, hoary; calices even. Stems somewhat erect; bractes solitary, at the side of the pedicels. The white colour of the corolla varies exceedingly; and, in the garden, the same plant will have white, sulphureous, and rose-coloured flowers. It is also not uncommon on the maritime hills of the county of Nice, with rose-coloured flowers.—Native of the south of France, Spain, and Piedmont.

42. Cistus Racemosus. Leaves linear; calices racemed, pointing one way, nerved, angular, smooth. This is a weak shrub, half a foot in height; the branches numerous, remotely muricated from the fallen leaves, tomentose and hoary at top; leaves opposite, on very short petioles, narrow, about an inch long, revolute, tomentose and whitish underneath, green above; the flowers in terminating, solitary, very long, pendulous racemes, all directed one way; without any bractes. —Native of Spain.

43. Cistus Angustifolius. Diffused: leaves lanceolate; calices hirsute. Root perennial, branched; stem round, branched from the base, woody; the younger branches, with the leaves, stipules, and racemes, slightly villose and hoary; stipules four, subulate, sharp; petals yellow, with an orange-coloured base, either quite entire, or crenulate about the edge; capsule hirsute, ovate.

44. Cistus Helianthemum; *Dwarf Cistus,* or *Little Sun-*

flower. Procumbent: stipules lanceolate; leaves oblong, revolute, somewhat hairy. According to Linneus, the petals are suborbiculate, quite entire, yellow, generally with a tawny ring surrounding the receptacle. The racemes nod before they flower, and the leaves have a few hairs scattered over them; germen hirsute, ovate. The usual colour of the corolla is a full yellow, but it varies to lemon-colour, white, and even rose-colour: it is also said to be found with a double corolla: it varies likewise something in the leaves.—Found in dry pastures in many parts of Europe, with us generally in calcareous soils. Perennial: flowering from June to August. Though, says Mr. Curtis, our common Dwarf Cistus cannot vie with those which are the produce of warmer climates, yet it is one of the most ornamental of our native plants, and admirably well calculated to decorate a rock or dry bank, especially if its several varieties, with white, rose, and lemon-coloured flowers, be intermixed it is hardy, and easily propagated, either by seeds or cuttings, and continues during the greater part of the summer to put forth daily a multitude of new blossoms. Haller mentions a variety with double flowers, which would be a valuable acquisition to our gardens, if it could be obtained.

45. Cistus Mutabilis; *Changeable Cistus*. Procumbent: stipules lanceolate; leaves oblong, smooth, flat. Stems several, branching very much, woody at bottom, and the size of a common quill, procumbent and brown: from these spring annually numerous, smooth, ascending branches, about a foot in length; petals obovate, sharp at the base, pale yellow, or rose-coloured; stamina entirely yellow; seeds few, brown. It flowers in May and June, and the seeds ripen in July.

46. Cistus Hirtus; *Rosemary-leaved Cistus*. Leaves ovate; calices hispid. Stem erect, sending out many side-branches, with the joints pretty close; leaves very narrow, opposite, revolute, the upper surface of a lucid green, and the under hoary; flowers large, white, in small clusters at the ends of the branches. Allioni observes, that the calix is whitish; that it has nothing rough or hairy about it; and that it is a very distinct species.—Native of the south of France, and near Villafranca in Spain.

47. Cistus Apenninus; *Apennine Cistus*. Spreading: leaves lanceolate, rough with hairs. It is a foot in height, branching, and spreading; leaves green, and rough with hairs on the upper surface, on the lower hoary. Mr. Miller makes two species of this, and describes them: 1. with stalks much longer than those of the 44th species; the leaves longer and hoary; the racemes much longer; the calix hairy and whitish; and the corollas white and larger: 2. the stems more erect; the leaves not so long; the stipules very small; and the whole plant very hoary; the flowers are white, the spikes shorter and more compact.—Native of the Apennines, and of Italy.

48. Cistus Polifolius; *Mountain Cistus*. Procumbent: leaves oblong-ovate, hoary; calices even; petals serrate. Branches many, spreading on the ground, hoary towards the end, towards the base brownish, with frequent joints, and naked, most of them a hand in length, but the inner and younger branches much shorter; leaves thickish, somewhat stiff, revolute, having a prominent rib underneath, hoary frequently, with others much smaller growing from the axils; flowers few, terminal, of the same form and size with those of the common sort, or Dwarf Cistus, but white; petals slightly crenate, generally cordate. In a garden, the leaves become larger, lose their hoariness, and turn green and hairy; flowering branches ascending, white; leaves opposite.—First remarked by Plukenet, on Brent-down in Somersetshire, near the Severn sea; and found by Dillenius in the same place, on the middle of the hill.—Native also of the south of Europe.

49. Cistus Arabicus; *Arabian Cistus*. Procumbent: leaves linear, those on the peduncles alternate, those on the branchlets crowded. This plant is a foot high, suffruticose, and diffused.—Native of Spain.

****** *Species not in the Systema Vegetabilum.*

50. Cistus Medius. Leaves ovate, lanceolate, wrinkled, petioled, toothletted. Stems reddish, viscid; leaves green; peduncles solitary, axillary, and terminal; corolla pale yellow; no stipules; shrubby.—Grows in the county of Nice.

51. Cistus Grandiflorus; *Great-flowered Cistus*. Stipuled, suffruticose: leaves lanceolate, villose on both sides, acuminate; stipules longer than the calix. Stem villose, about six inches high; leaves an inch long; flowers in racemes; peduncles and calices villose; the smaller leaflets of the calix linear, the others twice as long: petals yellow, rounded, almost half an inch in length.—Found in Carniola and Piedmont.

52. Cistus Breviorifolius; *Short-leaved Cistus*. Shrubby, without stipules: leaves ovate-lanceolate, connate, hirsute, wrinkled; peduncles longer. This species differs from the second and eighth species, in having shorter and greener leaves, which are joined at the base, and hairy; the peduncles are much longer, and the flowers smaller, but of a deeper purple. It flowers and seeds at the same time with them, and the shrubs grow as large as those of the second species.—Native of Portugal.

53. Cistus Lusitanicus. Shrubby, without stipules: leaves ovate, obtuse, villose, nerved, and wrinkled underneath; flowers larger; the branches are white and hairy; and the flowers of a light purple colour, and very large.

54. Cistus Hispanicus. Shrubby, without stipules, villose: leaves lanceolate, green, connate; flowers sessile; calices acute. The flowers are of a deep purple colour.

55. Cistus Cordifolius. Shrubby, without stipules: leaves oblong-cordate, smooth; petioles longer. It rises with a smooth shrubby stalk four or five feet high, sending out many slender woody branches, covered with a smooth brown bark, with oblong heart-shaped leaves, which are smooth, and have long footstalks. The flowers are produced at the ends of the branches, standing upon pretty long peduncles; they are white, and appear in June, July, and August, but rarely produce any seeds in England.

56. Cistus Fasciculatus. Leaves in bundles. Stem shrubby, about nine inches high; leaves very narrow and fine, growing in clusters. The flowers come out from the sides and at the ends of the branches, on slender peduncles; they are of a pale straw-colour, and it is seldom longer than two hours before the petals fall off. This plant seldom continues more than two years.—Native of the Cape.

57. Cistus Vaginatus; *Oblong-leaved Cistus*. Arborescent, without stipules: leaves oblong, hairy underneath, netted-wrinkled; petioles united at the base, sheathing, furrowed. It flowers from April to June.—Found in the island of Teneriffe by Masson.

58. Cistus Laxus; *Broad Waved-leaved Cistus*. Arborescent, without stipules; leaves ovate-lanceolate, waved, toothletted, smooth, the upper rough with hairs; calicine leaflets roundish-cordate. It flowers in June and July.—Native of Spain and Portugal.

59. Cistus Scabrosus; *Rough Cistus*. Undershrubby, without stipules; leaves opposite, ovate, hairy and rugged, three-nerved; calices three-leaved. Stems decumbent, round, closely beset with short stellated hairs, and rugged; branches short; leaves subpetioled, an inch in length; flowers terminating, subpanicled. It flowers in June and July.—Native of Italy and Portugal.

60. Cistus Sericeus. Arborescent, without stipules: leaves ovate, tomentose, three-nerved, the lower petioled, the uppermost sessile; peduncles rough with hairs. Stem two or three feet high; branches round, densely tomentose, hoary-white; leaves opposite, hoary, very soft, flat, bluntish, about an inch in length; the four uppermost sessile, subcordate at the base, the rest ending in a short petiole; peduncle from the top of the branches, solitary, erect, a short span in length, hoary, wholly beset, as are the pedicels also, with long purplish hairs; petals purple, with a yellow spot at the base; filamenta purple; antheræ yellow.—Native of Spain and Portugal.

61. Cistus Hybridus. Arborescent, without stipules: leaves ovate, petioled, hoary; branches scaly; peduncles elongated, rough with hairs. This is a shrub, with all the leaves petioled, flat, the younger ones waved, hoary on both sides, appearing very minutely dotted when viewed with a magnifier, nerved, brittle, half an inch in length. It is distinguished from the foregoing species, by having all the leaves petioled and whiter, with the branches covered with yellow scales.—Native of Spain.

62. Cistus Elongatus. Arborescent, without stipules: leaves lanceolate, hoary; peduncle elongated, two-leaved; that and the racemed calices hirsute. An upright and very branching shrub, a foot or more in height; branches short, the younger ones tomentose, hoary, with yellowish scales scattered over them; flowers racemed; peduncle terminating, half a foot long, erect, by no means hoary, hairy, especially at bottom; flowers nodding before they open; petals yellow, with a dusky spot at the base a little longer than the calix.—Native of Spain.

63. Cistus Alternifolius. Suffruticose, without stipules: leaves alternate; peduncles lateral and terminating, solitary, one-flowered. An erect little shrub, with slender villose branches, and a brown bark.—Native of Brazil.

64. Cistus Lavandulifolius; *Lavender-leaved Cistus.* Suffruticose, stipuled: leaves lanceolate-linear, tomentose; calices racemed, tomentose, pointing one way, pendulous. This shrub is a palm and sometimes a foot in height, branched at bottom; branches round, upright, tomentose, hoary; leaves opposite, hoary; flowers copious, without bractes; corolla yellow.—Native of Spain, south of France, Barbary, and of the dry hills of Tunis.

65. Cistus Lanceolatus. Suffruticose, without stipules: leaves lanceolate, three-nerved, hairy. Stem suffruticose, branched at the base; branches quite simple, a short span in length, ascending, leafy, smooth at bottom, tomentose at top, hoary, as they are also at the base.—Found by Vahl on the heaths near Bizerta in Barbary.

66. Cistus Ocymoides. Shrubby, without stipules: leaves obovate, three-nerved, those of the branchlets hoary on both sides, reflex at the tip; calices racemed, both they and the peduncles quite smooth. A small upright shrub, a span high; branches opposite, purple at bottom, clothed at the base, as are also the branchlets, with long thinly scattered hairs; stipules none; petals white, with a purple spot at the base.—Native of Spain.

Citharexylum; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, bell-form, five-toothed, acute, permanent. *Corolla:* one-petalled; funnel-wheel-form; tube twice as long as the perianth, thicker at the top; border five-parted, two-lipped; segments above villose, oblong, truncate, flat, very spreading. *Stamina:* filamenta four, with the rudiment of a fifth from the middle of the tube, filiform, two of them somewhat longer; antheræ oblong, twin, erect. *Pistil:* germen roundish; style filiform, the length of the stamina; stigma obtuse-headed. *Pericarp:* berry roundish, somewhat compressed, one-celled. *Seeds:* two, ovate, two-celled, convex on one side, concave at the other, emarginate at the end. Essential Character. *Calix:* five-toothed, bell-form. *Corolla:* funnel-wheel-form; segments above villose, equal. *Berry:* two-seeded. *Seeds:* two-celled.——The species are,

1. Citharexylum Cinereum; *Ash-coloured Fiddlewood.* Branches round; calices toothed. This is a tree rising with a round upright trunk, not more than a foot in diameter, to the height of fifteen or twenty feet, with a handsome branching head; leaves oblong-oval, entire, shining, about six inches long; flowers small, numerous, odoriferous, on short pedicels; corolla white; berries succulent, shining, soft, roundish, first green, next red, and finally black. Browne says, that it rises not above eight or nine feet in height; that the veins of the leaves, and all the tender buds, are of a brown colour; the bark of the trunk and lower branches of a whitish ash-colour.—It is very common in all the savannas of Jamaica, and is called *old woman's bitter;* also in the woods of Martinique, where the French have named it *bois cotelet.*

2. Citharexylum Caudatum; *Oval-leaved* or *Long-spiked Fiddlewood.* Branches round; calices truncate. The leaves are obovate, and, like the racemes, erect. According to Browne, it is a shrub which seldom exceeds ten or twelve feet in height, and bears a great number of small berries, disposed on divided spikes at the extremities of the branches.—It is pretty common about Sixteen-mile Walk in Jamaica.

3. Citharexylum Quadrangulare; *Square-stalked Fiddlewood.* Branches quadrangular. The bark is ash-coloured Mr. Miller describes it with an upright trunk, fifty or sixty feet high, sending out branches on every side, which have several angles or ribs, running longitudinally, garnished by three oval spear-shaped leaves at every joint, standing in a triangle upon short footstalks; leaves four inches long, and one to two broad, of a lively green colour, notched on their edges, and veined. The flowers come out from the sides, and also at the ends of the branches, in loose bunches, which are succeeded by small pulpy berries inclosing two seeds in each. The French call it *bois cotelet carré.*—Native of Jamaica, Martinique, &c. This species has been long preserved in some of the curious gardens in England, for the sake of variety; the leaves continuing through the year, and being of a fine green colour, make a pretty variety in the stove during the winter season. It may be propagated either by seeds or by cuttings; the latter of which is the usual method in England, where the seeds are not produced; but when seeds can be obtained from abroad, the plants raised from them should be preferred. They should be sown in small pots early in the spring, and plunged into a fresh hot-bed of tanner's bark, and treated in the same manner as other exotic seeds which are brought from hot countries. If the seeds be fresh, the plants will appear in five or six weeks; and in a month after that, will be ready to transplant: when this is done, care should be taken not to tear or break the roots in separating them. They should each be planted in a small pot filled with light fresh earth, and plunged into the hot-bed again, observing to shade them till they have taken fresh root; after which they should have a large share of air admitted to them in warm weather, and must be frequently watered. In autumn they should be removed into the bark-stove, where it will be proper to keep them during the first winter until they have obtained strength. They may afterwards be kept in a dry-stove in winter, and be exposed in the middle of summer for two or three months to the open air, in a warm situation, which will cause them to flourish better than when they are more tenderly treated.

4. Citharexylum Villosum; *Hairy-leaved Fiddlewood.* Leaves villose. This is a small tree, about ten feet in height. The trunk and older branches are round and ash-coloured, the younger ones four-cornered and green; the young shoots are villose; racemes half a foot long, hanging down at the ends of the branchlets; flowers numerous, on snort pedicels, villose all over, and smelling extremely sweet; calix truncate; corolla white.—Native of St. Domingo.

5. Citharexylum Melanocardium; *Black-heart Fiddlewood.* Branches quadrangular; raeemes terminating, compound; flowers four-stamined. This tree frequently rises to the height of forty or fifty feet, and is generally looked upon as one of the hardest and best timber-trees; the body grows to a considerable thickness, and is covered with a thick whitish bark, which, like the grain of the wood, winds in a loose spiral form; the leaves are pretty long, rugged, and slightly serrate; the flowers are disposed in bunches at the extremities of the branches; the berries are small and yellow, and are sometimes eaten by the negroes; they contain each two hemispheric shells with two kernels, and the nuts may easily be parted into two lobes or segments.—Native of Jamaica, chiefly in the low lands and savannas. Mr. Miller informs us, that the French call this tree *fidele*, from its faithfulness or durability in building; and that the English have corrupted the name to *fiddlewood*, as if it were used for making musical instruments, which is a mistake.

Citrus; a genus of the class Polyadelphia, order Icosandria.—Generic Character. *Calix:* perianth one-leafed, five-cleft, flat at the base, very small, withering. *Corolla:* petals five, oblong, flat, spreading. *Stamina:* filamenta usually twenty, subulate, compressed, erect, placed in a ring or cylinder, united generally into fewer or more bunches; antheræ oblong. *Pistil:* germen superior, roundish; style cylindric, the length of the stamina; stigma globular, nine-celled within. *Pericarp:* berry with a fleshy rind, the pulp bladdery, many-celled. *Seeds:* in couples, subovate, callous. *Observe.* Orange has a *cordate petiole:* Citron, Lemon, and Lime, have a *naked and simple petiole.* Essential Character. *Calix:* five-cleft. *Petals:* five. *Stamina:* about twenty, polyadelphous. *Berry:* many-celled. All the species of Citrus are either trees of small growth, or shrubs; leaves evergreen, ovate, or ovate-lanceolate, entire or serrate, pellucid, dotted, the petiole frequently margined: on the natural trees there are often solitary axillary spines: peduncles axillary or terminating, one-flowered, or many-flowered. The species seem best distinguished by the petiole, which, in the Orange and Shaddock, is winged; in the Citron, Lemon, and Lime, naked: the form of the fruit, although not quite constant, may also serve for a distinction: in the Orange and Shaddock it is spherical, or rather an oblate spheroid, with a red or orange-coloured rind; in the Lime spherical, with a pale rind; in the Lemon oblong with a nipple-like protuberance at the end; in the Citron oblong, with a very thick rind. Mr. Miller distinguishes the Citron from the Orange, because in all the varieties of Citron which he has examined, he found but ten stamina in the flowers, whereas those of the Orange always have more. It is very difficult to determine what is a variety, and what a species, in this genus. The trees in the eastern countries, their natural place of growth, vary not only in the size and shape of their fruit, but also in their leaves; many of those which are only esteemed to be varieties in Europe, and are given here as such, preserve their differences in their native woods. ——The species are,

1. Citrus Medica. Petioles linear; leaves egg-shaped, acuminate.—In its wild state this tree grows to the height of about eight feet, erect, and prickly, with long reclining branches; leaves ovate-oblong, alternate, subserrate, smooth, pale green; flowers white, odoriferous; fruit esculent, both raw and preserved. Miller mentions two kinds of the proper *Citron;* one sweet, with a thick rough-rinded fruit; the other sour, with a rough knobbed-rinded fruit. The other varieties are, the *Common Lemon;* the *Sour Lemon,* or *Lime;* and the *Clustered Lemon.* Genoa supplied the English gardens with several varieties of the Citron, that country being the great nursery of this, as well as of Lemons and Oranges; and the gardeners who cultivate them are as proud of introducing a new variety into their collection, as the nursery-men in England are of obtaining a new Pear, Apple, or Peach. The fruit of the Citron is seldom eaten raw, but is generally preserved, and made into sweetmeats, which being kept till winter and spring, when there is a scarcity of fruit to furnish out the dessert, is the more valuable; but unless the season be warm, and the trees well managed, the fruit rarely ripens in England. The best fruit will be produced where the trees are trained against a south wall, through which there are flues for warming the air in winter; and glass covers, to protect the plants when the weather begins to be cold.—The Citron is a native of all the warm regions of Asia; it was introduced into Europe from Media, and had the name of *Malus Medica,* and seems to have been brought into Italy after the age of Virgil and Pliny, but before that of Palladius, who appears to be the first who cultivated it there with any success. According to Haller, the Median Apple described by Theophrastus, and which, Athenæus asserts, first came from Persia into Greece, is certainly a sort of Orange; and if Haller be correct, the *tristes succi* of Virgil, and the *acres medullæ* of Palladius, must have been much corrected by culture, for the latter, together with Theophrastus and Pliny, agree in describing it as not eatable, though they celebrate its medical qualities far above its desert. *Citrus Medica,* or Citron, has medical virtues similar to those of the Orange and Lemon; the fruit is more flavoured than the latter, and the rind acts more as an emetic; the yellow rind is used, and from it the perfume called *bergamot* is extracted. Citrons are very rarely kept in the shops, though formerly much used in the materia medica. Whether the Median apple were the Citron or the Orange, it was anciently celebrated as a cure for the asthma, and for expelling poison.

> Media fert tristes succos tardumque saporem
> Filicis mali, quo non præsentius ullum
> (Pocula si quando sævæ infecere novercæ
> Miscueruntque herbas, et non innoxia verba)
> Auxilium venit, ac membris agit atra venena.
> Ipsa ingens arbos, faciemque simillima lauro:
> Et, si non alium latè jactaret odorem,
> Laurus erat: folia haud ullis labentia ventis:
> Flos apprime tenax; animas et olentia Medi
> Ora fovent illo, et senibus medicantur anhelis.
>
> Virgil, Georgic. lib. ii. v. 126—135.

> The Median fields rich citron fruits produce,
> Tho' harsh the taste, and clammy be the juice;
> Blest antidote! which when in evil hour,
> The step-dame mixes herbs of pois'nous pow'r,
> And crowns the bowl with many a mutter'd spell,
> Will from the veins the direful draught expel.
> Large is the trunk, and laurel-like its frame,
> And 'twere a laurel, were its scent the same:
> Its lasting leaf each roaring blast defies,
> Tenacious of the stem its flow'rets rise;
> Hence a more wholesome breath the Medes receive,
> And of their sires the lab'ring lungs relieve.
>
> *Pitt & Wharton.*

—The *Common Lemon*; leaves ovate-lanceolate, acuminate, subserrate. This differs materially from the Orange-tree, both in the naked footstalks of the leaves, and in the shape and colour of the fruit; but there is scarcely any distinction between this and the Citron, except it be that the rind of the fruit is generally thicker and more knobbed in the Citron than in the Lemon, and the fruit itself longer and more irregular; to which Mr. Miller adds, that the bark of the Citron-tree is smoother, and the wood less knotty. Many varieties of the Lemon are preserved in some of the Italian gardens, and in both the Indies there are several which have not yet been introduced to the European gardens; but these may be multiplied without end from seeds. The most remarkable varieties in the English gardens are: 1. The sweet Lemon, plain and variegated; 2. the pear-shaped Lemon; 3. the Imperial Lemon; 4. the Lemon called Adam's apple; 5. the furrowed Lemon; 6. the childing Lemon; 7. the Lemon with double flowers; 8. Browne mentions the St. Helena Lemon, as having been then lately introduced to Jamaica, and much cultivated there, on account of its fruit, which frequently yields above half a pint of juice: 9. in China, and other parts of the East, they have a remarkable variety of Lemon or Citron, which has a solid fruit without any cells or pulp, and divided above the middle into five or more long round parts a little crooked, and having the appearance of the human hand with the fingers a little bent, whence the Chinese call it *phat-thu*, or fingered Lemon; it is a monstrous fruit, a mere curiosity without any use. The common and sweet Lemon are brought to England from Spain and Portugal in great plenty, but the later is not much esteemed; the pear-shaped Lemon is a small fruit with very little juice; the fruit of the imperial Lemon is sometimes imported from Italy, but not from Spain or Portugal; probably therefore it is not propagated in either of those countries. The Portuguese had many of the most curious sorts of Orange, Lemon, and Citron trees, brought from the Indies formerly, which seemed to thrive almost as well there as in their native soil, and yet they have not been increased. There are a few trees still remaining in some neglected gardens near Lisbon, which are almost unnoticed by the inhabitants.—The *Sour Lemon* or *Lime:* leaves ovate, entire; branches somewhat thorny. It grows to the height of about eight feet in its native country, with a crooked trunk, and many diffused branches, which have prickles on them; leaves ovate-lanceolate, almost quite entire; the petioles usually linear; flowers few together, on terminating peduncles; corolla oblong, white, with a purplish spot; stamina twenty, in several parcels; berry an inch and half in diameter, almost globular, with a protuberance at the tip, the surface regular, shining, greenish-yellow, with a very odorous rind, nine-celled, abounding in a very acid juice, but having very few subovate seeds: it is a native of Asia, but has long been common and much esteemed in the West Indies. Browne says, that it is a bushy shrub in Jamaica, where it is much cultivated for the sake of its fruit, and not unfrequently planted for fences; that when it grows luxuriantly it is seldom under twelve or fourteen feet in height, and spreads gently about the top, but that it is often stunted, and of a smaller stature. They have also a sweet Lime, which is generally a more upright tree, and bears a fruit which in size as well as form seems to hold a mean between the Lime and the Lemon; the juice is very insipid, but the bark and the fibres of the root have much of that bitter so peculiar to the Lime. There can be no doubt that any one investigating the subject in the native climates of these fruits, would detect varieties connecting all that are here described as species, not only the Citron with the Lemon and Lime, which certainly are no more than varieties, but these also with the Shaddock and the Orange, which are hardly to be considered as specifically distinct. Mr. Miller declares, that he has never known the common Lemon vary to the Lime when raised from seeds, nor the Lime vary to the Lemon; but that he has always found them continue their difference in leaf and branch; and therefore supposes them to be specifically distinct. The Lime is not often brought to England, nor is it much cultivated in Europe; but in the West Indies the fruit is preferred to the Lemon, the juice being more wholesome, and the acid more agreeable to the palate.—*The Clustered Lemon:* leaves ovate-lanceolate, subserrate; fruits in clusters. All these varieties have linear petioles, and are therefore referred to one species by all botanists.—The medical virtues are very considerable: the juice of the Lemon is very generally carried by sailors going on long voyages, as an antiscorbutic; it has been found to cure the jaundice, when taken to the quantity of four or six ounces per day; Dr. Whytt says, that it allays hysterical palpitations of the heart: the rind is a very grateful aromatic bitter, not so hot as Orange-peel, and yields, in distillation, less quantity of the oil, which is nevertheless similar in quality to that of the Orange, and employed for the same purposes. For their propagation and culture, see the next species.

2. Citrus Aurantium; *Orange.* Petioles winged; leaves acuminate. The Orange is a middle-sized evergreen tree, with a greenish brown bark; in its native country the branches are prickly; leaves broad-lanceolate, almost quite entire, smooth, with the petioles commonly winged; peduncles many-flowered, terminating; corolla white; stamina twenty, connected in several parcels; berry subglobular, flatted (an oblate spheroid) of a golden colour, shining, odorous, three inches in diameter, divided within into about nine cells, filled with a bladdery pulp, having a sweet acid juice in it; rind fleshy, of a middling thickness, covered with a pellicle which is somewhat biting and bitter to the taste. Loureiro, the author of the above description says, that it agrees particularly with that sort of Orange which is most common all over the world, and is known in Europe by the name of Portugal or China Orange, because it was brought from China by the Portuguese, and by them dispersed over Europe.—It is a native of India, China, &c. There are innumerable varieties in China, as well as in other countries of Asia, in South America, in the West Indies, and even in Europe. Loureiro describes the most grateful of all the Oranges as a distinct species, under the title of *Citrus Nobilis:* the branches are less spreading than those of the common Orange, but are rather ascending, and without prickles; leaves lanceolate, quite entire, dark green, on linear petioles; berry red within and without, twice as large as the common sort, being five inches in diameter: the skin thick, juicy, sweet, eatable, and irregularly tubercled; it abounds in Cochin-china. The most esteemed fruit in China, according to Grosier, is very small, with a smooth soft skin, of a reddish yellow colour; they have also the four-season or everlasting Orange, so called from its being always in fruit and blossom; this also bears a very small fruit: the large clove or mandarine, and the small clove or mandarine; the soft cushion Orange, the gold Orange, &c. The Chinese Oranges are generally firmer than those of Europe, their skin does not easily peel off, and the pulp will not separate into small divisions; they commonly give them to the sick, softening them a little at the fire, and mixing sugar with them. The Seville Orange differs little from that of China in the tree, except that it is more hardy, and that the leaves are longer and handsomer; the fruit, however, is very different in the colour of the peel, and in the taste both of that and of the juice, as is well known. The varieties of

the Orange most known in the English gardens are, in addition to the Seville and China, already named, 1. The willow-leaved or Turkey Orange; 2. the yellow and white-striped leaved; 3. the curled-leaved; 4. the horned Orange; 5. the double-flowering; 6. the hermaphrodite; 7. the dwarf, or nutmeg Orange. The horned Orange divides into parts, spreading out in form of horns; this and the distorted Orange are preserved merely for variety, not being so beautiful as the common sort. The leaves of the dwarf Orange are very small, and grow in clusters; the joints of the branches are very near each other; the flowers grow very close together, and appear like a nosegay, the branches being covered with them; this, when in flower, is proper to be placed for ornament in a room or gallery, which it will perfume with its flowers; but it requires care, and is seldom in health. The first China Orange, says Evelyn, that appeared in Europe, was sent for a present to the old Condé Mellor, then prime minister to the king of Portugal; but of that whole case which came to Lisbon, there was but one only plant which escaped the being so spoiled and tainted, that with great care it hardly recovered to be since become the parent of all those flourishing trees of that name cultivated by our gardeners, though not without sensibly degenerating. Receiving this account, adds our famous planter, from the illustrious son of the Condé, I thought fit to record it as an instance of what industry may produce in less than half an age. South America and the West Indies have been furnished from Spain and Portugal with this fruit, so salutary and agreeable to the palates of the people, and so congenial to those hot climates. Mr. Miller informs us, that he sent two small trees of the true Seville Orange to Jamaica, where this sort was then unknown, and that from these many other trees were budded, which produced plenty of fruit, some of which was sent to England, and, although they were long on their passage, yet they were greatly superior to any of the fruit imported from Spain and Portugal, affording three times the quantity of juice. The Orange-tree has been cultivated in England ever since the year 1629, and the first shifts made to preserve it may not be uninteresting to the reader. "The Orange-tree," says Parkinson, "hath abiden with some extraordinary looking and tending of it, when as neither Citron or Lemon-trees would by any means be preserved any long time; some keep them in great square boxes, and lift them to and fro by iron hooks on the sides, or cause them to be rolled by trundles, or small wheels under them, to place them in an open house, or close gallery, for the winter time; others plant them against a brick wall in the ground, and defend them by a shed of boards, covered over with sear-cloth in the winter, and by the warmth of a stove, or other such thing, give them comfort in the colder times; but no tent or mean provision will preserve them." But notwithstanding what Parkinson here advances, bishop Gibson, in his additions to *Camden's Britannia*, probably from Anbrey, says, that the Orange-trees at Beddington in Surry, introduced from Italy by a knight of the noble family of the Carews, were the first that were brought into England; that they were planted in the open ground, under a moveable covert during the winter months; and that they had been growing there more than a hundred years, that is, before 1595; the first edition of *Camden*, by bishop Gibson, being printed in 1695. The editors of the *Biographia Britannica*, article *Raleigh*, reciting a tradition preserved in that family, tells us, that these Orange-trees were raised by sir Francis Carew from the seeds of the first Oranges which were imported into England by sir Walter Raleigh, who had married his niece, the daughter of sir Nicholas Throckmorton; but this is improbable, since the plants raised from these seeds would have required to be inoculated, in order to produce fruit, and it is therefore more likely that they were plants brought from Italy. Professor Bradley reports, that they always bore fruit in great perfection, that they grew on the south side of a wall, not nailed against it, but at full liberty to spread. And by the account of Mr. Henry Day, the gardener, they were fourteen feet high; the girt of the stem twenty-nine inches; and the spreading of the branches one way nine feet, and twelve feet another; these trees were all killed by the great frost of 1739-40. They had been inclosed the year before by a permanent building, after the manner of a green-house; so that it is uncertain whether the dampness of new walls, and the want of so much air and light as the trees had been accustomed to, might not have destroyed them, if the frost had not happened. The Orange has long maintained a very respectable place in the materia medica. The sort principally employed in medicine is the Seville Orange, the juice of which is well known to be a grateful acid liquor, which, by allaying heat, quenching thirst, and promoting various excretions, proves of considerable use in febrile and inflammatory disorders: it is also considered as a powerful antiseptic, and of great efficacy in preventing and curing the scurvy: the juice of the China or common Orange possesses the same qualities in an inferior degree. The acid of Oranges, by uniting with the bile, is said to take off its bitterness; and hence Dr. Cullen thinks it probable, that acid fruits taken in, are often useful in obviating the disorders that might arise from the redundancy of bile, and perhaps from the acrid quality of it; he adds, on the other hand, however, if the acids be in greater quantity than can be properly corrected by the bile present, they seem by some union with that fluid, to acquire a purgative quality that gives a diarrhœa, and the colic pains that are ready to accompany the operation of every purgative. Not only the juice, but the rind or peel, of the Seville Orange, is of considerable medical efficacy; since, besides its use as a stomachic, it has been much celebrated in intermittent fevers; and in testimony of its efficacy in the most obstinate agues, we find several authorities cited by professor Murray: it has also been experienced as a powerful remedy in menorrhagia, and in immoderate uterine evacuations; and for its good effects in these disorders, we have not only the assertions of foreign physicians, but also those of Drs. Whytt and Hamilton. It gives out its taste and flavour readily to water, is useful in all flatulencies, in whatever form it be given, and also sits better on the stomach than most other corroborants. The leaves of the Orange are not without their virtues, and have, like the flowers, been particularly celebrated in convulsive disorders, and successfully given in the dose of a drachm at a time, in nervous and hysterical cases.—*Propagation and Culture of the Citron, Lemon, and Orange.* Where the trees are to be raised for stocks to bud Oranges, some Citron seeds, duly ripened, should be procured, because their stocks are preferable to any other, not only for quick growth, but as they will take buds of either Orange, Lemon, or Citron; and next to these are the Seville Orange seeds. The best seeds are from rotten fruits, which may be easily obtained in the spring of the year. Prepare a good hot-bed of tanner's bark, which is preferable to horse-dung, and when this bed is in a moderate heat, sow your seeds in pots of good rich earth, and plunge them into the hot-bed, observing to give them water frequently, and raise the glasses in the great heat of the day, to give a sufficiency of air, lest the seeds should be injured by too much heat: the seeds will soon come up, and if the young plants be not stinted either of proper heat or moisture, they will be fit to transplant into

single pots in a month's time after their appearance: you must therefore renew your hot-beds, and having prepared a quantity of small halfpenny pots, which are about five inches over at the top; fill these half full of good fresh earth, mixed with very rotten cow-dung, and then shake out the young plants from the large pots, with all the earth about them, that you may the better separate the plants without tearing their roots: half fill the pots with earth, and put a single plant into each of the small pots, and fill them up as before directed, plunging the pots into the new hot-bed, giving them a good watering to fix the earth to their roots, observing to repeat the same very often, for this plant requires much water when in a hot-bed, and must be screened from the sun in the heat of the day; by pursuing this method, your plants will be two feet high in July, at which time you must begin to harden them by degrees, raising your glasses very high, and altogether removing them in fine weather. The plants must not, however, be exposed to the mid-day sun, especially while they are young; they must be housed towards the end of September, observing to place them near the windows of the green-house to prevent the damps from moulding their tender shoots: they should be often refreshed with water during the winter season, and should have their heads and stems washed in March or April, to clear them from the filth that may have settled thereon, during their being in the house; they must also have a moderate hot-bed in the spring, which will greatly forward them. Towards the beginning of June, however, they ought to be hardened, that they may be in right order to bud in August, when you should choose cuttings from trees that are healthy and fruitful, of whatever kind you please, observing that the shoots are round, their buds being much better and easier to part from the wood, than such as are flat. When you have budded the stocks, you should remove them into a green-house, to defend them from wet, turning the buds from the sun; but let them have as much free air as possible, and often be refreshed with water. It will be evident which have taken, in a month's time after budding; they must then be untied, that the binding may not pinch the buds, and let them remain in the green-house all the winter; then in the spring prepare a moderate hot-bed of tanner's bark, and after having cut off the stocks about three inches above the buds, plunge their pots into the hot-bed, observing to give them air and water as the weather shall require, and screening them from the sun in the heat of the day. If the buds shoot kindly, they will grow to the height of two feet or more by the end of July, at which time you must begin to harden them before the cold weather comes on, that they may the better stand the green-house during the following winter. In the first winter after their shooting they must be kept very warm, for they will be rather tender by forcing them in the bark bed; but it is very necessary to raise them to their height in one season, that their stems may be straight; for in trees which are two or more years growing to their heading height, the stems are always crooked. In the succeeding years their management will be the same as in full-grown trees, which will be hereafter noticed.—We shall now proceed to treat of the management of such trees as are brought over every year in chests from Italy, which is, in fact, by far the most expeditious way of furnishing a green-house with large trees, for those which are raised from seeds in England, will not grow so large in their stems in less than eighteen or twenty years, as these are when brought over; and although their heads be small when we receive them, yet in three years, with good management, they will produce large heads, and bring forth fruit. In the choice of these trees, observe first the differences of their shoots and leaves, if any remain upon them, to distinguish their different sorts, for the Shaddock and Citron always make much stronger shoots than the Orange, for which reason the Italian gardeners, who raise these trees for sale, generally propagate those sorts, so that they bring few of the Seville Oranges over, which are well known to be the most valuable both for their flowers and fruit; prefer also those that have two good buds in each stock, for many of them have but one, which will always produce an irregular head: the straightness of the stem, freshness of the branches, and plumpness of the bark, are necessary considerations. When you have procured the trees, prepare a moderate hot-bed of tanner's bark, and let the length and breadth of it be proportioned to the number of trees which you intend to force; then put your trees about half way up their stems upright into a tub of water, leaving out the head and the upper part of the stem, that they may the better imbibe the moisture: after they have remained several days in this situation, take them out, clean their roots from all filth, cutting off all that are broken or bruised, and all the small fibres which are quite dried by being so long out of the earth; scrub the stems with a hard hair brush, wiping them afterwards with a cloth; then cut off the branches about six inches from the stem, and having prepared a quantity of good fresh earth, mixed with very rotten cow-dung, plant your trees therein, observing never to put them into large pots, for if they be big enough to contain their roots it is sufficient at first planting. Potsherds and large stones must be placed in the bottom of each pot, to enable the water to pass off freely: hay-bands should also be wrapped round their stems from bottom to top, to prevent the sun from drying their bark; then plunge these pots into the bark-bed, watering them well to settle the earth to their roots, frequently repeating the same all over their heads and stems, yet being very careful not to over-water them, especially before they have made good roots; and particularly observing to screen the glasses of the hot-bed from the sun in the heat of the day. If the trees grow kindly, they will have sent out strong shoots, which should be stopped by the beginning of June, in order to obtain lateral branches to furnish their heads; at this time plenty of air must be admitted to begin to harden them, so that by the middle of July they may be removed into the open air in some warm situation, defended from the great heat of the sun, and from winds, that they may be hardened before winter. They should be housed about the end of September, setting them at first in front of the green-house near the glasses, opening the windows whenever the weather will permit; and about the latter end of October, when the Myrtle and other less tender trees are brought in, let the Oranges be set in the warmest and best part of the house, placing lower plants or trees in front to hide their stems; water them frequently during the winter, but in small quantities at a time, for now their heads are but small, and therefore incapable of discharging a large quantity of moisture; they must also be particularly guarded from frost. When you thin the green-house, by taking out some of the hardiest sorts of plants in the spring, it will be well to cleanse the stems and leaves of the Orange-trees, taking out the upper part of the earth in the pots, filling them up again with good fresh rich earth, laying thereon a little rotten cow-dung round the outside of the pots, but not near the stems of the trees; after this remove them farther apart in the house, that the air may circulate round their heads, giving them air discretionally, as the weather grows warm: they should not be placed out in the open air until the latter end of May, when the weather is settled, for many times, when they are taken out too soon, the cold mornings give them a great check, at

least changing the colour of their leaves, and often kill the extreme weak part of the shoots: during the summer season, let them be as much as possible defended from the sun, by tall trees or hedges, during the heat of the day, and also from strong winds, both of which are exceedingly injurious to them. As the trees advance in the summer, it will be necessary to stop strong shoots wherever they grow irregularly, in order to force out lateral branches to fill the head, but do not pinch off the tops from all the shoots, as is the practice of some, which will fill the tree with small shoots, too weak to support fruit: the best plan is, to aim at forming a regular head, and obtaining strong shoots, taking away weak trifling branches whenever they are too close: they must be frequently watered in dry weather, especially if they be large, and on this account it is advisable to have the water as near the trees as possible, in order to save the trouble of carrying it, which will take up too much time where the number of trees is great; the water should be soft, and exposed to the air, but should never have dung of any sort added to it, which, although recommended by many, has always been found to operate upon these and upon all other trees, like spirituous liquors upon the human body, seeming at first to communicate vigour, but afterwards leaving it weaker than before.—Orange-trees require to be shifted and new-potted every other year, therefore you must prepare a quantity of good earth, at least twelve months beforehand, that it may be well mixed and perfectly rotten; the best season for this is about the end of April, that they may have taken fresh root before they are removed from the green-house; and when this work is performed, it will be necessary to let them remain in the house a fortnight longer than usual, in order to be well settled. In performing this work, after the trees are drawn out of the pots, all the roots round the outside of the ball of earth must be cut off, and the mouldy roots taken away; then with a sharp iron instrument take away as much of the old earth from between the roots as can be removed without breaking or tearing them: then set the root of the tree into a large tub of water for about a quarter of an hour, to soak the under part of the ball of earth; afterwards scrub the stems of the trees with a hard hair brush, cleaning them and the heads with water and a soft woollen cloth: when the pots are prepared, with some potsherds and large stones at the bottom, put some fresh earth into each pot about three or four inches thick, place the trees thereon in the middle of the pots, upright, filling them up with the same rich earth, pressed down hard with your hands; then water the tree all over the head, with a watering-pot that has a rose upon the spout, to let the water fall light and thick, as in a shower of rain, observing to water them in the same manner during the time they remain in the house after shifting; this will greatly refresh their heads, and promote their taking fresh roots. When these trees are first placed abroad after shifting, they should be placed near the shelter of hedges, and have their stems fastened to strong stakes, to sustain them against strong winds.—If old Orange-trees have been so ill managed that their heads have become ragged and decayed, the best means of restoring them is to cut off the greatest part of their heads early in March, and draw them out of the tubs or pots, shaking off the earth from their roots, casting away all those which are mouldy, together with all small fibres, and then soaking and cleaning their roots, stems, and branches, and afterwards resetting them into a hot-bed of tanner's bark, as above directed for such trees as came from abroad, managing them in the same manner; by this method they will produce new heads, and in two years' time become good trees again: but if they be large trees, that have grown in tubs for several years, the best way will be to prepare a parcel of rough baskets, such as are used for evergreens, when sent to a distant place: let them be somewhat smaller than the tubs into which it is intended to plant the trees; and set the trees in them, plunging them into the hot-bed; and in the beginning of July, when they have made good shoots remove them into the tubs with their baskets still about them, filling the empty space with the same good earth, which will preserve the tubs from rotting in the bark; and the trees will do equally well as if planted into tubs at first, provided care be taken, in removing the baskets, not to disturb their roots; and also to let them remain in the green-house a fortnight or three weeks after planting, before you set them abroad. Orange-trees are new-potted or tubbed every other year, in the month of April: in the years wherein they are not shifted, as much old earth as possible must be taken out from the tops of the pots and tubs, and also round the sides, as can be removed without injuring the roots: this must be replaced with fresh earth: you must also wash and clean their stems and leaves from filth, which will greatly strengthen their flowering, and cause them to shoot vigorously in the following summer.—In the management of Orange-trees which are in good health, the chief care should be to supply them with water duly, instead of starving them in winter, as is sometimes practised, whereby their fibres are dried, and become mouldy, to the great prejudice of the trees. But they certainly must not have much water at once, but should often have small quantities. Care must be taken to secure a free passage for the water to drain off, for if it be detained in the tubs or pots it will rot the tender fibres of the trees. During winter they require a large share of air when the weather is favourable, for nothing can injure these trees more than stifling them: hence they ought not to be placed too near each other in the green-house, but set at such a distance that their branches may be clear of each other, and that the air may circulate freely round their heads. In summer they should be placed where the wind is not violent, and be exposed to the morning and evening sun; but if they be too much exposed to it in the middle of the day, they will not thrive. The best situation for them is near some large plantation of trees, which will break the force of the winds, and screen them from the violent heat of the sun. In this situation they may remain until the beginning of October, or later, according as the season proves favourable; for if they be carried into the green-house early, and the autumn should prove warm, it will compel the trees to send forth fresh shoots, which will be weak and tender, and so liable to perish in winter; and sometimes it will occasion their flowering in winter, which greatly weakens them; nor should they remain so long abroad as to be injured by morning frosts.—The best compost for Orange-trees is two-thirds of fresh earth from a good pasture, which should not be too light nor over stiff, but rather a hazel loam. It should be taken along with the sward to the depth of ten inches, and mixed with one-third of cow-dung twelve months before, to rot. It should be turned over every month, to mix it well, and to dissolve the sward, which will at the same time break the clods, and produce finer mould. Before this mixture be used, it should pass through a rough screen, to separate the great stones and the roots of the sward from it; but the earth should on no account be too finely sifted, for that is very prejudicial to most plants, particularly to Orange-trees. Of late years many of these trees have been planted against walls, where frames of glass have been constructed to protect them in the winter; and some curious individuals have planted them in the full ground, erecting moveable covers, which entirely enclose them in winter, and in the summer are with-

drawn; and where these have been well executed, the trees have made great progress in their growth, and have also produced a much larger quantity of fruit, which have ripened so well as to be extremely good for eating. If these be planted either with a design of training the branches to the walls, or in borders at a small distance, so as to train them up as standards, there should be a contrivance of a fire-place or two, in proportion to the length of the wall, through the whole of which flues should be carried to warm the air in very cold weather, otherwise it will be extremely difficult to preserve the trees in very hard winters, for if they do not die, they may be so weakened by the cold as not to recover their strength for bearing in the following summer; so that wherever the trees are intended to be placed against or near old walls, the flues should be built up against the front, allowing four inches' thickness of the brick-work on each side of the flues, observing to fasten this with iron at proper distances, to secure it against separating from the old wall. Where this contrivance is carefully used, there will be no hazard of losing the trees, be the winter ever so severe; whereas if this be wanting, it will require endless trouble to cover and uncover the glasses every day, when there is any sun: and if the wall be not thicker than walls are usually built, the frost will penetrate it in severe winters; so that covering and securing the glasses of the front will not be sufficient to preserve the trees, though done with ever so much care; and hence the first expense of the walls will save great trouble and charge, and be the surest method. If the ground be wet, or a strong clay which detains the moisture, the borders should be raised above the level of the ground, in proportion to the situation of the place, for where the wet lies in winter near the surface, it will greatly prejudice, if not totally destroy the trees; so that lime rubbish should be laid at least two feet thick in the bottom of the border, to drain off the wet, with the earth two and a half or three feet thick thereon, which will be a sufficient depth for the roots of the trees. In these borders a few roots of the Guernsey and Belladonna Lilies, and Hæmanthus, may be planted, or indeed any other exotic bulbous-rooted flowers, which do not grow high, or draw too much nourishment from the borders; and these producing their flowers in autumn and winter, will make a good appearance, and thrive much better than if kept in pots. The management of Orange-trees in these places is nearly the same as has been directed for those in pots or tubs, excepting that the borders in these places should be dug, and refreshed every year with some very rotten dung.—It is commonly said that the Maltese red Oranges are budded on the Pomegranate; and that the Orange, budded or grafted on Mulberry stocks in Sicily, produces fruit with a blood-coloured pulp; but these accounts of travellers are not to be depended upon. The China dwarf Orange, Shaddock, and those with striped leaves, are all more tender than the Seville Orange, and therefore must be treated with more care, and placed in a warmer part of the green-house in winter. The China Orange rarely produces good fruit in England, nor are the leaves of the trees near so large or beautiful as those of the Seville Orange; the latter therefore should be preferred, and only a tree or two of the China sort kept for variety. The varieties with striped leaves never produce good fruit, nor do they even produce flowers in so great plenty as the plain varieties.

3. Citrus Decumana; *Shaddock*. Petioles winged; leaves obtuse, emarginate. Linneus originally regarded this merely as a variety of the Orange, to which it certainly makes very near approaches. It is a tree above the middle size, with spreading prickly branches; leaves ovate, subacute, seldom obtuse, very seldom emarginate, smooth, scattered; petioles cordate-winged, the wings as broad as the leaves; flowers white, very sweet-scented, in copious upright terminating bunches; corolla reflex; stamina about twenty, nearly equal to the petals, collected into a many-cleft tube; berry spheroidal, frequently retuse at each end, eight inches in diameter, of an even surface, greenish-yellow, divided into twelve or more cells, containing some a red, others a white pulp, the juice in some sweet, in others acid. The rind is very thick, white, fungous, bitter, useless; seeds ovate, subacute, two or three in each cell. There are many varieties of this tree, one of which is superior to the rest in the smell and flavour of the fruit, and may be distinguished by having a smaller trunk, and subglobular fruit, five inches in diameter, yellow on the outside, white and very sweet within. In China it is called *hiam yuen*, in Cochin-china *huongien*, which signifies *sweet ball*. Thunberg describes the first in Japan as being the size of a child's head; and says, that it may be kept many weeks on ship-board, if it be hung up; that the juice of it is subacid and sweet, and excellent for allaying thirst.—It was brought from Batavia to Japan, and is also found in the Friendly Islands. Captain Shaddock, after whom it has been named, first brought it from the East to the West Indies. The Dutch call it *pompelmoes*. The fruit has degenerated greatly since its importation into the West Indies, owing to raising the trees from seeds, the greatest part of which produce harsh sour fruit, with a pale yellow pulp; whereas, if they would have budded from a good sort, they might have continued it in perfection; but there are few persons there who understand the method of grafting or budding fruit-trees; and they are so negligent of their fruits as to leave the whole to nature, seldom giving themselves any farther trouble than to put the seeds into the ground, and leave the rest to chance.

4. Citrus Japonica. Petioles winged; leaves acute; stem shrubby. This is a small shrub, with fruit no larger than a cherry; it ripens in December and January, and is very sweet and pleasant. It approaches to the Citron in having the flowers axillary, but it has winged petioles like the Orange, from which, however, it differs in having only one or two axillary flowers, not panicled, as in that which is native of Japan.

5. Citrus Trifoliata. Leaves ternate. A shrub; stem nearly two yards in height; branches alternate, flatted, and angular, flexuose, spreading very much, stiff, very smooth, thorny; thorns alternate, dilated, and compressed at the base, spreading very much, acute, smooth, yellow at the end, an inch in length; corolla white; stamina double the length of the petals; fruit globular, the size of a small orange.—It forms strong hedges in Japan, with its long, stiff, sharp thorns. It flowers in April, with leafless branches, to May, when the leaves burst forth. Thunberg says, the fruit is bad, and has a glutinous pulp; and Linneus adds, that it is laxative.

Cives. See *Allium*.

Clary. See *Salvia*.

Clathrus: a genus of Fungi, the essential characteristic of which, according to Dr. Withering's Botanical Arrangement, containing eleven species, is, that it grows in clusters, mostly fixed to a membranaceous base; capsules globular or oblong; seeds escaping from its whole surface, through openings made by the separations of the fibres.—They are found chiefly on rotten wood.

Clavaria; a genus of Fungi, one of the lowest order in the scale of vegetation, differing sometimes very little in substance from the rotten wood out of which it issues. It is a smooth oblong body, of one uniform substance. Withering's Botanical

Arrangement contains twenty species, besides many varieties, the essential character of which he thus states :—Fungus oblong, upright, club-shaped; seeds emitted from every part of its surface.

Claytonia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth bivalve, ovate, transverse at the base. *Corolla:* petals five, obcordate, with claws emarginate. *Stamina:* filamenta five, subulate, recurve, a little shorter than the corolla, each inserted into the claw of each petal; antheræ oblong, incumbent. *Pistil:* germen roundish; style simple, the length of the stamina; stigma trifid. *Pericarp:* capsule roundish, three-celled, three-valved, elastic. *Seeds:* three, round. Essential Character. *Calix:* two-valved. *Corolla:* five-petalled. *Stigma:* trifid. *Capsule:* three-valved, one-celled, three-seeded.——The species are,

1. Claytonia Virginica. Leaves linear-lanceolate; petals entire. It has a small tuberous root, which sends out slender stalks three inches high in the spring, having each two or three succulent narrow leaves, two or three inches long, of a deep green colour. Four or five flowers are produced at the top of the stalk in a loose bunch; petals spreading, white, spotted with red on their inside. The flowers appear in April, and the seeds ripen in June.—Found in Virginia. This and the next species are propagated by seeds, and also from offsets sent out from the roots: the seeds should be sown upon a shady border of light earth, or in pots filled with the like mould, soon after they are ripe; for if they be kept out of the ground till spring, the plants will not come up till the next year; whereas those which are sown early in the autumn will grow the following spring; so that a whole year is gained: when the plants appear, they will require no other care but to keep them clean from weeds; and in the autumn, if some old tanner's bark be spread over the surface of the ground, it will secure the roots from being injured by frost; but in mild winters they will not require protection. The best time to transplant the roots is about Michaelmas.

2. Claytonia Sibirica. Leaves ovate. This is a low plant, seldom rising more than two or three inches high; flowers red, root tuberous.—Native of Siberia.

3. Claytonia Perfoliata. Leaves nerveless, root ones rhomb-egg-shaped, stem ones somewhat connate; flowers umbel-verticillate; petals entire. Root annual; stem four or five inches high; flowers white.—Native of North America.

Cleavers, or *Clivers*. See *Gallium Aparine*.

Clematis; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* none. *Corolla:* petals four, oblong, lax. *Stamina:* filamenta very many, subulate, shorter than the corolla: antheræ growing to the side of the filamenta. *Pistil:* germina very many, roundish, compressed, ending in subulate styles, longer than the stamina; stigmas simple. *Pericarp:* none; receptacle headed, small; seeds very many, roundish, compressed, furnished with the style, in various forms. Essential Character. *Calix.* none. *Petals:* four, sometimes five, or even six *Seeds:* having a tail.—The Virgin's Bowers are chiefly climbing shrubs, though some of them are erect; leaves opposite, simple, ternate, or unequally pinnate; flowers axillary, but more frequently terminating; solitary, but more frequently in corymbs; in some species diœcous, and in others furnished with a turbinate hifid calicle, removed a little from the petals.——The species are,

1. Clematis Cirrhosa; *Evergreen Virgin's Bower*. Leaves simple; stem climbing by opposite tendrils; peduncles one-flowered, lateral. This has a climbing stalk, rising to the height of eight or ten feet, sending out branches from every joint, whereby it becomes a very thick bushy plant. The leaves retain their verdure throughout the year: they are sometimes single, sometimes double, frequently ternate, serrate. The flowers are produced from the sides of the branches, are large, and of an herbaceous colour: they appear at the end of December or beginning of January.—Native of Spain, and Candia. Gerarde calls it *Traveller's Joy of Candia*; Johnson, *Spanish Traveller's Joy*; and Parkinson, *Spanish Wild Climber*. This species is valuable on account of retaining its leaves all the year, and was formerly preserved in green-houses in the winter, having been supposed too tender to endure the open air in England; but now it is generally planted in the full ground, where the plants thrive much better than in pots, and produce plenty of flowers, which they never bore when tenderly treated. They do not suffer from severe frosts, even when left uncovered. It does not produce seeds in England, and therefore is propagated by layers and from cuttings; if by the former, they should be planted in the beginning of October, when the shoots of the same year only should be chosen for this purpose; for the older branches do not put out shoots in less than two years, whereas the tender shoots will make good roots in one year; these must be pegged down; if the shoots have two inches of earth over them, it will be better than a greater depth; but then a little old tanner's bark should be spread over the surface of the ground, to keep out the frost, for the plants generally begin flowering about Christmas, and at the same time are putting out roots, which being but just formed, may be injured by severe frosts: these layers will have strong roots by the following autumn, when they may be taken from the old plant, and transplanted where they are designed to remain.—If it be propagated by cuttings, they should be planted in March, in pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed, observing to shade them from the sun in the day-time, and to water them gently twice or thrice a week, and in less than two months they will have taken root, and should be gradually inured to the open air. In the following summer they may be placed in any part of the garden till Michaelmas, and then they should be turned out of the pots and planted in the full ground, either where they are designed to remain, or into the nursery-bed, to grow a year longer, to get strength before they are placed out for good.

2. Clematis Viticella; *Purple Virgin's Bower*. Leaves compound and twice compound; leaflets ovate, sublobed, quite entire. Root perennial; stems very slender and weak, having many joints, whence come out side-branches which are again divided into smaller; leaflets from nine to fifteen, ovate acute, smooth, entire. If these be supported, they will rise to the height of eight or ten feet. The petals are of a dark worn-out purple or blue, or bright purple or red.—It grows naturally in the woods and hedges of Spain and Italy. Gerarde calls it "blue or red-flowering Ladies-Bower," from its aptness to make bowers or harbours in gardens. There are four varieties cultivated in the nurseries: 1. the single blue: 2. single purple; 3. single red; 4. double purple. They flower in June and July, but the seeds seldom ripen in England; the last continues to the end of August.—All the varieties of Purple Virgin's Bower are propagated by laying down their branches; for although the single flowers sometimes produce seeds in England, yet as these seeds when sown, generally remain a whole year in the ground before they vegetate, the other, being the more expeditious method of increasing these plants is generally preferred: in order to succeed, these layers should be laid down at different seasons from the former sort; for when they are laid in the autumn, their

shoots are become tough, so as rarely to put out roots under two years; and after being so long in the ground, not one in three of them will have made good roots; so that many have supposed that these plants were difficult to propagate, but since they have altered the season of performing it, they have found that these layers succeed as well as those of other plants. The best time for laying down the branches is in the beginning of July, soon after they have made their first shoots, for it is these young branches of the same year which freely take root; but as they are very tender, great care must be taken not to break them in the operation; therefore those branches from which these shoots were produced, should be brought down to the ground, and fastened, to prevent their rising; then the young shoots should be laid into the earth, with their tops raised upright three or four inches above ground; and after the layers are placed down, if the surface of the ground be covered with moss, rotten tanner's bark, or other decayed mulch, it will prevent the ground from drying, so that the layers will not require watering above three or four times, which should not be at less than five or six days' interval; for when the layers have too much wet, the tender shoots frequently rot. Where the method here directed is practised, the layers will be more sure to take root, than by any other way of treating them. Most of these plants have climbing branches, and should therefore always be planted where they may be supported, otherwise the branches will fall to the ground, and appear unsightly; so that unless they be properly disposed, they will cease to be ornamental, and become the reverse: where there are arbours or seats with trellis-work round them, or where any walls or other fences require to be covered from the sight, these plants are very proper for the purpose; but they are by no means proper for open borders, nor do they answer the expectation when they are intermixed with shrubs; for unless their branches have room to extend, they will not be productive of many flowers. The sort with double flowers is the most beautiful, and that should be prefered to those with only single flowers, of which a few should be planted for the sake of variety: they are all equally hardy, and are seldom injured by frost, except in very severe winters, when sometimes the very tender shoots are killed; but if these be cut off in the spring, the stems will put out new shoots.

3. Clematis Viorna; *Leathery flowered Virgin's Bower.* Leaves compound and decompound; some of the leaflets trifid. Stems many, slender, sarmentose, round, striated, prostrate, or climbing; flowers purple or blueish violet, axillary, solitary; petals with a whitish cotony border.—Native of Carolina and Virginia. It flowers from June to September, and if the autumn prove warm the seeds will ripen. This, as well as the fourth and fifth species, is a very hardy plant, and having climbing branches, may be disposed in the same manner as the first and second species: they are also propagated by layers, which will succeed, if performed at the same time, and in the same manner, as is directed for them.

4. Clematis Crispa; *Curled Virgin's Bower.* Leaves simple and ternate; leaflets entire, and three-lobed. This has weak stalks, which rise nearly four feet high, and by their claspers fasten themselves to neighbouring plants: the corolla is purple, the inside curled, and has many longitudinal furrows. The flowers appear in July, and the seeds ripen in September.—Native of Carolina, Florida, and Japan.

5. Clematis Orientalis, *Oriental Virgin's Bower.* Leaves compound; leaflets gashed, angular, lobed, wedge-form; petals villose on the inside. This also has weak climbing stalks, rising to the height of seven or eight feet when supported; flowers drooping; petals bent back, finally flat, villose within, of a yellowish green colour, with a tinge of russet on the upper part or outside; stamina collected into an oblong purple head, with oblong purple antheræ, yellow at the edge.—It flowers from July to October; and was discovered by Tournefort in the Levant.

6. Clematis Hexapetala; *Six-petalled Virgin's Bower.* Leaves compound; leaflets ovate, serrate; peduncles two-leaved; corolla spreading, six-petalled; flowers yellowish, dicœous; peduncles branching, dichotomous.—Native of New Zealand.

7. Clematis Virginiana; *Virginian Virgin's Bower.* Leaves ternate; leaflets heart-shaped, somewhat lobed and angular; flowers dicœous. Root perennial; stems numerous, six feet high or more; flowers white, in short panicles resembling umbels; petals villous on the outside, naked and veined within.—Native of North America.

8. Clematis Florida; *Large-flowered Virgin's Bower.* Leaves decompound; leaflets binate and ternate; petals ovate. Stem striated, purple, smooth; corolla large, handsome, spreading; petals acuminate, yellowish; stamina unequal, purplish.—It flowers most part of the year; and is a native of Japan.

9. Clematis Japonica; *Japan Virgin's Bower.* Leaves ternate: leaflets elliptic-ovate, serrate; flowers cylindric. Stem filiform, striated, purple, villose; petiole capillary, loose; flowers from the joints, peduncled, solitary, purple.—Native of Japan.

10. Clematis Dioica; *Trifoliate Virgin's Bower,* or *Climber.* Leaves ternate, quite entire; flowers dicœous. Root perennial; stems slender, tough, climbing ten or twelve feet high; flowers white; peduncles on the joints close to the petioles, one on each side, long, naked, horizontal; petals narrow, reflexed; stamina erect.—Native of South America. Both this, and the seventeenth species, are unable to endure the open air in this country, unless they are preserved in stoves: but as they are great ramblers, and not remarkable for beauty, they are seldom preserved in Europe, except for the sake of variety in botanic gardens: they may be propagated by layers in the same manner as the other sorts, or may be raised from the seeds imported from the country where they naturally grow, but must receive the same treatment as other exotic plants from that country.

11. Clematis Vitalba; *Common Virgin's Bower, Wild Climber,* or *Traveller's Joy.* Leaves pinnate; leaflets cordate; petioles twining. Root perennial; stems branched, leafy, furrowed, twining round other plants by means of the twisted petioles of the fallen leaves; leaves opposite, unequally pinnated; leaflets in fives, petioled, egg-shaped; flowers white, sweet-scented; seeds with long plumose tails, which adorn the hedges in autumn, and great part of the winter. The recent leaves, when rubbed on the skin, produce blisters.—Native of England, and the south of Europe, chiefly on a calcareous soil.

12. Clematis Flammula; *Sweet-scented Virgin's Bower.* Lower leaves pinnate, laciniate; upper simple, quite entire, lanceolate. Flowers white, small, sweet-scented. This is rather creeping than climbing: it flowers from July to October.—Native of the south of France, Italy, and the Grisons.

13. Clematis Maritima. Leaves pinnate, linear; stems simple, hexagonal, erect. Perennial: leaves opposite.—Found near Montpellier, Nice, and Venice.

14. Clematis Recta; *Upright Virgin's Bower.* Leaves pinnate; leaflets ovate-lanceolate, quite entire; stem erect; flowers four and five petalled. Perennial: stems herbaceous, annual, round, scarcely branched, from three to five feet high, firm, ending in a panicle at top; petals white, oblong, four in number, obtuse, somewhat villose, a little longer than

the stamina. The flowers come out in June, and the seeds ripen in September.—Native of France, Switzerland, Silesia, Austria, Carniola, Hungary, and Tartary. This, like some of the other species of this genus, is extremely acrid, on which account it was called *flammula* by the old botanists, and has obtained a place in the Edinburgh dispensatory. It is recommended by Baron Stoerck in inveterate syphilitic diseases, in ulcers, cancers, and severe head-aches: it acts as a diuretic or diaphoretic, and rests its character wholly upon Baron Stoerck's authority: he used an extract of the leaves; but he chiefly recommends an infusion of them fresh, two or three drachms to a pint of boiling water, four ounces to be taken three times a day, whilst the powdered leaves are applied as an escharotic to the ulcers. It may also be employed to raise blisters, where cantharides cannot be obtained. This, and the next sort, have perennial roots, which multiply pretty fast, but their stalks die down every autumn, and new ones arise in the spring: they are propagated either by seeds or by parting their roots, but the latter is generally preferred. The best season for parting these roots is in October or February, either just before their branches decay, or before they rise again in the spring; they will grow almost in any soil or situation; but if the soil be very dry, they should always be new planted in the autumn, otherwise their flowers will not be so strong; but if the soil be wet, it is better to defer it until the spring: the roots may be cut through their crowns with a sharp knife, observing to preserve to every offset some good buds or eyes, and then it matters not how small you divide them, for their roots increase very fast; but if they be parted very small, it will be three or four years before they will be fit to be again removed, for their flowers cannot become strong, and their roots multiplied in eyes, in less time. These plants are extremely hardy, enduring the cold of our severest winters in the open air. They are very proper ornaments for large gardens, either to be planted in extensive borders, or intermixed with other hardy flowers in the quarters of flowering shrubs, where, by being placed promiscuously in little open places, they fill up small vacancies agreeably enough. They begin to flower about the beginning of June, and often continue to produce fresh flowers untilAugust.

15. Clematis Integrifolia; *Entire-leaved Virgin's Bower*, or *Hungarian Climber*. Leaves simple, ovate-lanceolate; flowers drooping. Perennial. Stems several, annual, a foot and a half high or more, striated, erect, a little fistulous, somewhat pubescent at top, terminated by a nodding flower, and sometimes branched in the upper axils; peduncles erect, pubescent, sustaining one elegant scentless flower; petals large, lanceolate, blue, nerved, acute, waved, thick, spreading very much; filamenta very pale yellow, villose all over, and twice as long as the petals.—Native of Germany, Austria, Carniola, and Hungary. It flowers in July, or from June till August, and is not uncommon in the nurseries about London.

16. Clematis Calycina; *Minorca Virgin's Bower*. Calycine involucre approximating; leaves ternate and intermediate one three-parted. Stem climbing, smooth, striated.—It flowers in February; and is a native of Minorca.

17. Clematis Americana; *South American Virgin's Bower*, or *Climber*. Leaves ternate; leaflets cordate-acuminate, quite entire; flowers corymbed. It has strong climbing stalks, which fasten themselves by their claspers to the neighbouring trees, whereby they are supported, and rise to the height of twenty feet or more; at each joint are trifoliate leaves, heart-shaped, pointed, and entire. The flowers are white.—Native of Campeachy. See the tenth species.

18 Clematis Sinensis; *Chinese Virgin's Bower*. Leaves quinate-pinnate; leaflets lanceolate. Stems four-cornered, weak, so as to want support, scarcely climbing; flowers small; petals linear-lanceolate, dark purple, the inner edge painted with a tomentose line; tail of the seeds scarcely shorter than the antheræ.—Native of China.

19. Clematis Ochroleuca; *Yellow-flowered Virgin's Bower*. Leaves simple, ovate, pubescent, quite entire; flowers erect. A low unbranched plant; stem pubescent; leaves opposite, sessile, strongly nerved; flower single, terminating, pale yellow.—Native of North America, flowering in June and July.

20. Clematis Trifolia. Leaves ternate; leaflets ovate, serrate; serratures mucronate; peduncles three-flowered. Branches striated, smooth; seeds purple, villose, with a long plumose tail.—Native of the Isle of Bourbon.

21. Clematis Minor; *Small Virgin's Bower*. Leaves quinate; leaflets conical, three-nerved; peduncles very long. Stem suffruticose, round, slender, not very long, scandent, branched; flowers white, axillary, several together; petals oblong, striated; stamina about forty, unequal; styles four, hairy, a little longer than the corolla.—Native of the suburbs of Canton in China.

Cleome; a genus of the class Tetradynamia, order Siliquosa. Generic Character. *Calix:* perianth four-leaved, very small, spreading, the lower leaflets gaping more than the rest, deciduous. *Corolla:* four-petalled, all the petals ascending, spreading, the intermediate one smaller than the others; nectareous glands three, roundish, one at each division, except one at the calix. *Stamina:* filamenta six (sometimes twelve or twenty-four) subulate, declining; antheræ lateral, ascending. *Pistil:* style simple; germen oblong, declining, the length of the stamina; stigmas thickish, rising. *Pericarp:* silique long, cylindric, placed on the style, one-celled, two-valved. *Seeds:* very many, roundish. Essential Character. Nectareous glands three, at each sinus of the calix, except the lowest. Petals all ascending. Silique one-celled, two-valved.—Most of these plants are natives of very warm countries, and will not thrive in England without artificial heat. Therefore their seeds must be sown upon a good hot-bed in the spring, and when the plants are fit to remove, they should be planted in separate small pots, filled with fresh light earth, and plunged into a fresh hot-bed, observing to shade them until they have taken fresh root; after which they should have air admitted to them every day, in proportion to the warmth of the season, and their waterings should be frequently repeated, but not given in too great plenty. When the plants have filled the small pots with their roots, they should be put into larger, and plunged again into a hot-bed to bring them forward; and in July, when they are too tall to remain longer in the hot-bed, they should be removed into an airy glass-case, where they may be screened from cold and wet. With this management they will soon after flower, and perfect their seeds in autumn.—The species are,

1. Cleome Fruticosa; *Shrubby Cleome*. Flowers gynandrous, four-stamined; leaves simple; stem shrubby, round, frutescent; racemes terminating, simple. Native of India.

2. Cleome Heptaphylla; *Seven-leaved Cleome*. Flowers gynandrous; leaves with about seven leaflets; stem prickly. The stem is herbaceous, from three to five feet high, branched, upright, angularly grooved; branches subdivided, spreading, grooved, hirsute, viscid; leaves alternate, scattered; flowers white, or flesh-coloured, terminating, in long loose spikes; siliques five inches long, thick, tapering, pendulous.—It is an annual, flowering in June and July, growing plentifully in Jamaica, and also supposed to be a native of Egypt and the East Indies.

3. Cleome Pentaphylla; *Five-leaved Cleome*. Flowers gynandrous; leaves ternate; stem unarmed. This is an annual,

elegant, but fetid plant, upright, either wholly smooth, or with a few hairs at bottom: the stem is round and branching, two feet high, of a dusky red colour; the germen is placed on a long, slender, purple pedicel, round which are six stamina, of the same colour, and equal.—It flowers in June and July; and is a native of both Indies, &c.

4. Cleome Triphylla; *Three-leaved Cleome.* Flowers gynandrous; leaves ternate; stem unarmed. An annual plant, rising two feet high, sending out many side-branches, with leaves having one large spear-shaped lobe in the middle, and two very small ones on the side; these sit close to the branches: the flowers come out singly from the sides of the branches, upon long peduncles; they have four large flesh-coloured petals, and six stamina, which stand out beyond the petals.—Native of Jamaica.

5. Cleome Juncea; *Rushy Cleome.* Leafless; flowers gynandrous, eight-stamined; corymbs lateral; genitals elongated; silique linear, tomentose; stem shrubby. The stem is from a foot to two feet in height, hardly the thickness of a goose-quill; branches rigid, like spines, commonly ending sharply, greenish, round, spreading, smoothish; flowers dirty yellow.—Native of the Cape of Good Hope.

6. Cleome Polygama. Upper flowers four-stamined, male: leaves ternate; leaflets sessile, somewhat prickly on the edge. Stem erect, somewhat glossy, and a little branched. It seldom rises above twenty or twenty-five inches.—Native of moist bottoms in Jamaica.

7. Cleome Chelidonii. Flowers many stamined; leaflets in fives or sevens, wedge-form, rugged; racemes terminating; siliques filiform. Leaves on long petioles, digitate; leaflets acute; corolla red; petals five; stamina yellow; seeds hispid.—Found in the East Indies.

8. Cleome Felina: *Cat's-tongue Cleome.* Flowers many-stamined, axillary, solitary, peduncled; leaves ternate, wedge-form, strigose; siliques linear, compressed. The whole herb, together with the calix, is strigose; corolla angular, small, red; siliques short, smooth. Found by Kœnig in Ceylon. The leaves are singular, being hispid; the hairs very much dilated at the base, very stiff, pressed close to the leaves, pointing towards the extremity, so as exactly to resemble a cat's tongue.—Found in Ceylon by Kœnig.

9. Cleone Icosandra. Flowers icosi-tetrandrous; leaves quinate. Stem herbaceous, annual, two feet high, erect, round, unarmed, striated, viscid, hairy; branches ascending; petiole long.—Native of the East Indies, and Cochin-china.

10. Cleome Viscosa; *Viscous Cleome.* Flowers twelve-stamined; leaves quinate and ternate. Stem erect, two feet high, simple, round, striated, villose, viscid, (often red) leaves alternate, on long petioles; leaflets unequal, subrhomboid, quite entire, nerved underneath; flowers axillary and solitary along the branches, with a terminal raceme; petals yellow, lanceolate-ovate, from erect spreading, and sometimes revolute, equal, two more distant than the others; stamina eight or nine to thirteen, from the receptacle, not from the germen, unequal; silique about two inches long, very villose, terminated by a stigma on a short style.—Annual: native of Ceylon.

11. Cleome Dodecandra; *Twelve-stamined Cleome.* Flowers twelve-stamined; leaves ternate. Stem and siliques viscid, pubescent; petals white, emarginate; stamina ten to fourteen; siliques sessile, erect, fusiform, somewhat inflated.—Annual: native of both Indies.

12. Cleome Gigantea; *Gigantic Cleome.* Flowers six-stamined; leaves in sevens; stem unarmed. The stem is two and even four yards in height, round, pubescent, erect, evergreen. Branches few, irregular with scars; petioles longer than the leaves; flowers greenish; racemes terminating, erect, stiff, two feet in length; pedicels remote, standing out, glutinous, longer than the flower, without bractes. This beautiful plant has a very burning taste and stinking smell.—Native of South America.

13. Cleome Aculeata; *Prickley Cleome.* Flowers six-stamined; leaves ternate, quite entire; stipules spinescent. Stem herbaceous; stipules in pairs, very short, recurved; flowers solitary, peduncled, small; silique cylindrical, beset with fine white hairs.—Observed by Zœga in America.

14. Cleome Spinosa: *Thorny Cleome.* Flowers six-stamined; leaves in sevens and fives; stem thorny; siliques peduncled. Root annual; stems five or six feet high, erect, villose, branched; flowers large, white, on solitary one-flowered peduncles, longer than the bractes; leaflets of the calix lanceolate, linear, concave; petals oblong, entire, with elongated claws, and a roundish gland at the base of each; filamenta six, unequally inserted into the receptacle, almost of the same length, spreading, filiform, three times the length of the corolla, purple; antheræ erect, long, two-celled, yellow; germen pedicelled, round, curved; style none; seeds oblong.—Native of the West Indies.

15. Cleome Serrata; *Serrate-leaved Cleome.* Flowers six-stamined; leaves ternate; leaflets linear-lanceolate, serrate. An annual upright plant, two feet in height; racemes loose, simple, terminating; corolla white; stamina tetradynamous; silique cylindrical, three inches long.—Native of the moist woods of Carthagena in South America.

16. Cleome Ornithopodioides; *Bird's-foot Cleome.* Flowers six-stamined; leaves ternate, leaflets oval-lanceolate. Stem round, straight, from a foot to two feet in height, pale green, with short, stiffish, rough hairs; leaves strong-smelling, on a rough petiole half an inch in length; leaflets commonly bent back, of a pale glaucous hue on both sides, smooth in appearance, but roughish to the touch, having numerous short hairs along the edge, scarcely perceptible, except in the younger leaves: from the upper axils come out singly small yellow flowers, on slender peduncles, spreading horizontally; siliques two inches long, slightly hirsute. Annual; flowering in June and July.—Native of the Levant.

17. Cleome Violacea; *Violet-coloured Cleome.* Flowers six-stamined; leaves ternate and solitary; leaflets lanceolate-linear, quite entire. This is a viscid and pubescent plant; stem erect, sometimes crooked; branches diffuse; leaves on long petioles; leaflets nearly equal; floral-leaves simple; peduncles even; calix yellow, with purplish tips; the two upper petals purple-violet, with yellow dots; the two lateral cordate, clawed, crenate, concolor.—Annual; flowers in June and July.—Native of Portugal.

18. Cleome Arabica.—Flowers six-stamined; leaves ternate, lanceolate, obtuse; siliques fusiform, viscid, scabrous. Root annual; stem two feet high, viscid, rough with hairs; branches diffuse; floral-leaves simple; petals yellow, with purple tips; seeds hirsute.—Native of Arabia.

19. Cleome Monophylla. Flowers six-stamined; leaves simple, ovate-lanceolate, petioled. Root annual; stem eighteen inches high, herbaceous, erect, striated, villose, branched near the top; flowers yellow, solitary, peduncled at the extremity of the branches.—Native of the East Indies.

20. Cleome Capensis. Flowers six-stamined; leaves simple, sessile, linear-lanceolate; stem angular, simple, stiff, and upright; flowers yellow.—Native of India and the Cape.

21. Cleome Procumbens. Flowers six-stamined; leaves simple, lanceolate, petioled; stems procumbent, herbaceous, six inches high, suffrutescent, branched, smooth; flowers axillary, peduncled, solitary; peduncles longer than the petioles, one-flowered, purple; corolla yellow, turning to orange

or red.—It flowers in November, and is a native of dry sands in Jamaica and Hispaniola.

22. Cleome Tenella. Flowers six-stamined; leaves ternate; leaflets filiform, linear. Root annual; stem a span high, branching, erect; leaflets sessile, the length of the petals; siliques linear; corolla yellow.—Found by Kœnig, in abundance, in dry sandy soil in the East Indies.

23. Cleome Filifolia. Flowers six-stamined; leaves lower septenate, upper ternate. Stem erect, weak, herbaceous, a foot high, branched, striated towards the top, dotted, with raised minute scattered dots; leaves petioled: petioles shorter than the leaves; flowers yellow, with a violet base, in terminal racemes; siliques two inches long, at first erect, afterwards pendulous.—Native of Egypt and Arabia.

Cleonia: a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, angular, two-lipped, upper lip flattish, broad, three-toothed, lower two-parted, short. *Corolla:* one-petalled, ringent; upper lip straight, bifid, keeled, lower trifid; the middle segments two-lobed, the side ones spreading. *Stamina:* filamenta four, forked at the end, the two lower longest; antheræ sitting on the outer apex of the filamenta, crossed in pairs. *Pistil:* germen four-parted. *Style:* filiform, the length of the stamina; stigmas four, setaceous, equal. *Pericarp:* none. *Calix:* closed with hairs. *Seeds:* four, nearly columnar, smooth. Essential Character. *Filamenta:* forked, with an anthera at one of the tips. *Stigma:* four-cleft.——The only known species is,

1. Cleonia Lusitanica; *Sweet-scented Cleonia.* Root annual; stem erect, six to eight inches high, brachiate, in the lower part hairy; flowers violet-coloured; upper lip of the calix large, the segments reflected at the end; lower one obcordate, complicate, spreading, gibbous on the upper side of the base; all the filamenta thorny; antheræ crested at the back; seeds roundish, turgidly lens-shaped, mucronate at the base, rufescent, with a white umbilicus, shaped like the letter *y*.—Native of Spain and Portugal.

Clerodendrum: a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted, bell-shaped; segments ovate-acute, broader than the tube of the corolla, permanent. *Corolla:* one-petalled, irregular; tube slender, long; border five-parted, equal, the upper segments more deeply separated. *Stamina:* filamenta four, filiform, much longer than the corolla, ascending through the upper fissure of the corolla, two of them shorter; antheræ simple. *Pistil:* germen roundish; style the form, length, and situation of the stamina; stigma simple. *Pericarp:* drupe roundish, placed on a large calix, one-celled, with four stones, often splitting into four parts; each stone contains one seed. Essential Character. *Calix:* five-cleft, bell-shaped. *Corolla:* with a filiform tube, and a funnel-shaped, five-parted, equal border. *Stamina:* very long, gaping very much between the segments. *Berry:* one-celled, with four stones, and a single seed in each.——The species are,

1. Clerodendrum Infortunatum. Leaves cordate, tomentose. This is a tree, or rather shrub, with subtomentose branches; leaves opposite, acute, veined, somewhat scabrous, large, quite entire; petioles the length of the leaves; border of the corolla short; segments obovate; antheræ oblong; stigma bifid.—Loureiro describes it as upright, seven feet high, with quadrangular, four-grooved branches; flowers in a vast terminating racemed corymb; the peduncle, and all the parts of the flower, are of a bright scarlet colour.—Native of the East Indies, and China.

2. Clerodendrum Fortunatum; *Entire-leaved Clerodendrum.* Leaves lanceolate, quite entire. A shrub, the stem cylindrical, and slightly hoary.—Native of the East Indies.

3. Clerodendrum Phlomoides. Leaves ovate, toothed, and angular; peduncles axillary, subtriflorous. This is a hoary shrub.—Found by Kœnig in the East Indies.

4. Clerodendrum Calamitosum. Leaves oval, somewhat toothed, naked; leaves opposite, petioled; panicle brachiate.—Observed by Baster, in Java.

5. Clerodendrum Paniculatum. Leaves five-lobed, toothletted, smooth; panicle brachiate; axils woolly; branches quadrangular, smooth, purple, with a groove along the sides; leaves five or six inches long, opposite, petioled, heart-shaped; flowers in a vast expanding panicle, about six inches long; calix smooth, with lanceolate segments; corolla an inch over; tube filiform; segments of the border oblong.—Native of the East Indies.

6. Clerodendrum Trichotomum. Leaves lobed and undivided, broad-ovate, entire; panicle trichotomous. Stem shrubby; branches four-cornered, four-furrowed, smooth; leaves opposite, petioled; panicle very large, superdecompound, naked; peduncles and pedicels smooth, compressed at the division; tube of the corolla a little bent; segments of the border oblong, obtuse, spreading, white; germen four-cornered, smooth. The fruit is an almost globular capsule, which is four-furrowed, smooth, inclosed within the large calix, four-celled, and four-valved; there is one smooth seed in each. The leaves have a strong poisonous smell, like Mandragora.—It flowers in August and September; and is found near Nagasaki in Japan.

7. Clerodendrum Squamatum. Leaves cordate, obscurely angular; branches of the panicle dichotomous, smooth. Stem frutescent, erect; branches smooth, tetragonous, with a groove on each side; leaves three to five inches long; panicle terminating, spreading, smooth; peduncles thrice dichotomous; pedicels not racemed, but one-flowered; leaflets of the calix ovate, acute, coloured, smooth.—Native of the East Indies.

8. Clerodendrum Diversifolium. Leaves entire, and three-lobed, ovate; branches of the panicle dichotomous, villose; pedicels racemed. Panicle terminating, half a foot long; partial peduncles opposite, spreading, twice or thrice dichotomous; flowers pedicelled, alternate, distant; tube of the corolla pubescent, an inch long; upper bifid, with erect linear segments, the lower three-lobed, spreading very much; the lobes oblong, the side ones shorter; the lobes of the corolla are scarcely equal.—Native of the East Indies.

Clethra: a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; leaflets ovate, concave, erect, permanent. *Corolla:* petals five, oblong, broader on the outside, from erect spreading, a little longer than the calix, the upper one broadest. *Stamina:* filamenta ten, subulate, the length of the corolla; antheræ oblong, erect, gaping at the top. *Pistil:* germen roundish; style filiform, erect, permanent, increasing; stigma trifid. *Pericarp:* capsule roundish, involved in the calix, three-celled, three-valved. *Seeds:* six or eight in each cell, angular. Essential Character. *Calix:* five-parted. *Petals:* five. *Stigma:* trifid. *Capsule:* three-celled, three-valved.——The species are,

1. Clethra Alnifolia; *Alder-leaved Clethra.* Shrubby; leaves obovate, lanceolate, serrate, smooth; racemes simple, in form of spikes. The roots spread far on every side, and send up many stems, from eight or ten to fourteen feet high, which are covered with a grayish bark, and divide into small round alternate branches; the leaves are three inches long, deep green on their upper side, and whitish green underneath, alternate, on short petioles. The flowers are on loose spikes.

from four or five inches to a span long; the petals are white.—Native of moist places, and by rivulets, in North America. It is sufficiently hardy to endure the open air of our climate, and at the season of its flowering is a most beautiful shrub: it will commonly flower here by the beginning of July; and if the season be not very hot, there will be part of the spikes in beauty till the beginning of August; and as most of the branches are terminated by these spikes of flowers, they make an elegant appearance when the shrubs are strong. They will thrive much better in moist than in dry ground, and require a sheltered situation, to defend them from strong winds, which frequently break off the branches, where they are too much exposed to their violence. It is propagated by layers, but they are generally two years before they get root, so that it is now rare in England. They may also be propagated by suckers, sent out from their roots; these should be taken off carefully together with fibres, in the autumn, and planted in a nursery-bed, whence at the end of two years, they may be transplanted wherever they may be intended to remain. It may also be propagated by seeds imported from its native country, for they are never produced in Great Britain; but as the seeds seldom arrive here till spring, when they are sown in that season, the plants will not come up till the following spring; therefore the seeds should be sown in pots and placed in a shady situation till autumn, and then under a frame during winter: the plants will come up in the following spring, and may be transplanted to a nursery-bed in autumn, to acquire strength, before they are finally removed to the spot where they are to remain.

2. Clethra Paniculata; *Panicled Clethra.* Shrubby: leaves lanceolate, naked on both sides; flowers panicled.—It flowers from August to October, and is a native of North America.

3. Clethra Arborea; *Tree Clethra.* A tree: leaves oblong-lanceolate, smooth on both sides; racemes in form of spikes; calices obtuse.—Native of Madeira.

4. Clethra Tinifolia. A tree: leaves oblong, lanceolate, quite entire, hoary underneath; racemes panicled, spike-shaped, tomentose. It generally rises to the height of twelve or fourteen feet, with a thick trunk, covered with a smooth clay-coloured bark; the branches spread equally round, and towards their ends are beset with leaves five inches long, dark-green and smooth, on petioles; each flower is on a pedicel, with a subulate bracte at the base; fruit smooth, green, roundish bigger than peas, containing a sweet white mealy pulp, and a hard brownish-black stone, larger than a pepper-corn, and much like it; they are sometimes eaten in Jamaica, where it is a native. Sloane calls it the Bastard Locust tree.

Clibadium; a genus of the class Monœcia, order Pentandria.——Generic Character. *Calix:* common, imbricate; scales ovate, acute. *Corolla:* compound; corollules tubular, funnel-form; border five-cleft. *Corollules:* of the disk many, pedicelled, hermaphrodite; of the ray, three or four, sessile, female. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ oblong, approximating. *Pistil:* in the hermaphrodites; germen very small, superior; style filiform; stigma simple: in the females, germen roundish, inferior; style filiform; stigma two-parted. *Pericarp:* common, none. *Calix:* ventricose, coloured. Proper to the hermaphrodites, none: to the females, a roundish, succulent, umbilicate drupe. *Seed:* one, cordate, compressed. Essential Character. *Male:* common calix imbricate; corolla of the disk five-cleft. *Female:* common calix the same; corolla of the ray female, three or four; seeds an umbilicate drupe.——The only known species is,

1. Clibadium Surinamense. Leaves opposite, petioled, ovate, acuminate, acutely crenate, scabrous; peduncles opposite; common calix violet-coloured when ripe; corolla white; drupe green, with a yellow viscid juice.—Native of Surinam.

Cliffortia; a genus of the class Dicœcia, order Polyandria.—Generic Character. *Male. Calix:* perianth three-leaved; leaflets ovate, acute, coriaceous, spreading, deciduous. *Corolla:* none. *Stamina:* filamenta about thirty, capillary, erect, the length of the calix; antheræ twin, oblong, obtuse, erect, compressed. *Female: Calix:* perianth three-leaved, equal, erect, superior, permanent; leaflets acute, lanceolate. *Corolla:* none. *Pistil:* germen oblong, inferior; styles two, filiform, long, plumose; stigmas simple. *Pericarp:* capsule oblong, nearly columnar, two-celled, crowned with the calix. *Seeds:* solitary, nearly columnar, linear. Essential Character. *Male. Calix:* three-leaved. *Corolla:* none. *Stamina:* about thirty. *Female. Calix:* three-leaved, superior. *Corolla:* none. *Styles:* two. *Capsules:* two-celled. *Seed:* one in each cell.—This genus consists of shrubs from the Cape of Good Hope. Leaves simple or ternate, sheathing at the base; flowers axillary, subsessile.——The species are,

**With simple Leaves.*

1. Cliffortia Odorata; *Sweet-smelling Cliffortia.* Leaves ovate, serrate, ribbed, villose underneath. This is an erect shrub, three feet high, little branching; branches simple, pubescent; leaves alternate, about an inch in length and breadth, resembling those of Mint; flowers axillary, sessile.

2. Cliffortia Ilicifolia; *Ilex-leaved Cliffortia.* Leaves subcordate, toothed. This is a shrub about three feet high, with alternate declining branches, clothed with truncated membranes and stipules; leaves small, alternate, biennial, cartilaginous about the edge, a little embracing the stem, heart-shaped; flowers lateral, axillary, sessile, solitary, green; filamenta white; antheræ yellow. The flowers appear in June, July, and August, but the leaves continue in verdure throughout the year. All the plants of this and of the following species, now in European gardens, are males.—It is easily propagated by cuttings, which may be planted in any of the summer months; if these be planted in small pots filled with light earth, and plunged into a very moderate hot-bed, they will soon take root, provided they be screened from the sun and duly watered: they must be gradually inured to bear the open air when they have taken root, or they will be drawn up weak; they should therefore be placed abroad till they have acquired some strength, and may afterwards be each transplanted into a separate small pot, and placed in the shade until they have taken fresh root; after which they may be planted with other hardy exotics in a sheltered situation till October, when they should be removed into the green-house, or placed under a common hot-bed frame, where they may be screened from the hard frost, but enjoy the free air at all times when the weather is mild. The stems and branches will require support as the plants advance in height, or they will trail upon the ground. In summer they must be placed in the open air, with Myrtles and other hardy green-house plants; and in winter the plants may be treated in the same manner as those, but must not have much water.

3. Cliffortia Ruscifolia; *Butcher's Broom-leaved Cliffortia.* Leaves lanceolate, quite entire. A shrub about two feet high, thicklybranched; branches alternate, ascending, ash-coloured, and smooth near the bottom, brown, and tomentose above; branchlets alternate, very frequent, short, covered with lanceolate, acuminate, imbricate scales, in other respects naked, except at the end, where they are leafy; spikes of flowers

roundish, at the ends of the branchlets, intrenched in the leaves; bractes smaller than the leaves, involving each flower, trifid, hirsute on the outside, spiny, with a sharp membranaceous, hairy leaflet, near the base on each side.—This is not so hardy as the preceding species, which see; it will therefore require more tender treatment.

4. Cliffortia Ferruginea. Leaves lanceolate, setaceous, serrate. The stems are like those of knotgrass, filiform, usually prostrate, even, branching; branches short, ferruginous, herbaceous; flowers axillary, sessile, trifid.

5. Cliffortia Graminea. Leaves ensiform, serrulate; petioles dilated, terminated by two stipule-shaped awns. Stems many together, two feet high, scarcely branching, striated, covered with leaves; which are approximating, erect, convolute, smooth, striated, acute; petioles broad, connected with the leaves by a joint.

6. Cliffortia Polygonifolia. Leaves linear, hairy. An undershrub, about a foot high, much branched, villose; leaves very small, apparently in alternate fascicles, but growing three together upon each small sheath; capsules smaller than a grain of wheat.

7. Cliffortia Filifolia. Leaves filiform, triquetrous, smooth, quite entire. Branches naked, upright, alternate, gray, pubescent, round.

** *With compound Leaves.*

8. Cliffortia Crenata. Leaves binate, orbiculate, crenulate. An erect shrub, rather large; leaves alternate, sessile, smooth, size of a finger-nail; flowers axillary, solitary, trifid.

9. Cliffortia Pulchella. Leaves binate, orbiculate, quite entire. The leaves are converging, and guarding the flowers in the cavity which they form, beautifully adorned on the outside with radiating nerves.

10. Cliffortia Trifoliata. Leaves ternate, the middle three-toothed. Stems slender, woody, procumbent, silky with hairs, and sending out slender branches on every side; flowers axillary, on very short peduncles, shaped like those of the second species, but smaller: they appear in July and August.—It requires the same management as the second species, and is equally hardy. As there are only male plants in Europe, it can only be propagated by layers, and these are two years before they take root: the leaves continue green all the year, and being singularly shaped, make a good variety in the green-house during winter.

11. Cliffortia Sarmentosa. Leaves ternate, linear, villose. Stem shrubby, sarmentose, filiform, four feet high; branches alternate, short, simple, round, pubescent; flowers lateral, axillary, sessile, solitary, white.

12. Cliffortia Strobilifera. Leaves ternate, linear, acute, even. A shrub, with round smooth branches; stipules sheathing, scariose, subovate, having two teeth, smooth, permanent; leaves sessile, carinated or keeled, on a very short sheathing petiole.

13. Cliffortia Obcordata. Leaves ternate; leaflets roundish, the middle one obcordate. An erect lowly shrub, with distich branches; leaves small, sessile, obovate, nerveless, very obtuse, quite entire, smooth; flowers in the axils of the leaves sessile, not longer than the leaves.

14. Cliffortia Ternata. Leaves ternate; leaflets entire, hairy. A shrub, with small, ovate, lanceolate, hairy leaflets; very different from the rest of the genus.

15. Cliffortia Juniperina. Leaves ternate, triquetrous, subulate, crowded. A shrub, resembling Juniper, erect, three feet in height, branching very much; leaves on a broadish, short, scarcely perceptible peduncle; leaflets acerose, linear, channelled, mucronate, slightly serrated; flowers axillary, sessile.

16. Cliffortia Falcata. Leaves ternate, linear, falcated, smooth. A shrub, a foot in height, erect, branching strict; leaves often three from each bud: leaflets sharpish, incurved.

17. Cliffortia Teretifolia. Leaves fascicled, columnar, subulate, incurved, smooth, entire.

18. Cliffortia Ericæfolia. Leaves fascicled, columnar, furrowed, smooth.

19. Cliffortia Cuneata. Leaves wedge-shaped, serrated at the end.—All the species are natives of the Cape.

Clinopodium; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* involucre many-bristled, length of the perianth, placed beneath the whorl; perianth one-leafed, cylindric, very slightly incurved, with a two-lipped mouth; upper lip wider, trifid, acute, reflected; lower lip divided, slender, inflected. *Corolla:* one-petalled, ringent; tube short, gradually widened into the throat; upper lip erect, concave, obtuse, emarginate; lower lip trifid, obtuse; middle segments wider, emarginate. *Stamina:* filamenta four, under the upper lip of which two are shorter than the others; antheræ roundish. *Pistil:* germen four-parted; style filiform, the same situation and length with the stamina; stigma simple, acute, compressed. *Pericarp:* none; calix contracted round the neck, gibbous round the body, containing the seeds. *Seeds:* four, ovate. Essential Character. *Involucre*, many-bristled, under the whorl.—These plants may be propagated by seeds, and also by parting their roots; the latter is the mode generally adopted in England, because the foreign sorts do not perfect their seeds here. The best time to transplant and part their roots is in autumn, that they may strike root again before winter: if planted in a dry soil, they are all, except the third species, sufficiently hardy to thrive in the open air in England, and require no other care but to keep them clean from weeds; and every other year they may be transplanted and parted.——The species are,

1. Clinopodium Vulgare; *Wild Basil.* Whorls hairy; bractes bristle-shaped; pedicels branched; leaves slightly serrated. Root perennial, fibrous; stems somewhat undulated, but not regularly zig-zag; flowers purplish, rose-coloured, whorled, the whorls terminal and axillary; calix ribbed, hairy; corolla twice the length of the calix, handsome, with two hairy knobs at the orifice. The whole herb is aromatic, with a faint Thyme-like odour.—Native of England, and other parts of Europe, on the borders of woods and in dry hilly situations, flowering in June. There are three varieties; one from Canada, differing in the flowers being much smaller; two from Carolina, one which Miller calls *humile*, only half the size of the European sort; the other *Carolinianum*, with round stems, the joints four or five inches asunder, with two oblong leaves at each, hairy on their under side, having white flowers in small whorls.

2. Clinopodium Incanum; *Hoary Clinopodium.* Leaves tomentose underneath; whorls flatted; bractes lanceolate. Root perennial; stems about two feet high, putting out a few short side-branches towards the upper part; leaves oblong, oval, the size of those of Water Mint, opposite, sessile, soft to the touch, with a strong odour between that of Marjoram and Basil, the upper surface pale green, the under hoary and woolly; the edges are slightly indented; whorls flat, smooth, generally three; flowers pale purple, the stamina standing out beyond the corolla; the bractes large, lanceolate, indented.—Native of North America, where in some parts it is called snake-weed, being accounted a remedy for the bite of the rattlesnake. It flowers in England in July.

3. Clinopodium Rugosum; *Wrinkled Clinopodium.* Leaves wrinkled: heads axillary, peduncled, flatted, radiated; root

perennial; stems closely covered with brownish hairs, and between two and three feet high; leaves very unequal in size, serrate, rough on their upper side, hairy on the under; peduncles slender, hairy, about three feet long, sustaining small heads of flowers shaped like those of the scabious; corolla white, smaller than that of the foregoing; bractes radiate. It flowers in September, but never ripens its seeds in England.—Native of Carolina.

4. Clinopodium Capitatum. Leaves flat, smooth; head axillary, peduncled. Stems suffruticose, two or three feet high. The whole plant is inodorous.—Native of the West Indies. See *Hyptis Capitata*.

5. Clinopodium Asiaticum. Leaves oblong, nerved, wrinkled, tomentose underneath; spike whorled, terminating. Stem suffruticose, two feet and a half high, erect, quadrangular, four-furrowed, simple, villose; flowers violet-coloured in interrupted whorls, forming an oblong spike, with sharp hirsute involucres.—Native of Cochin-china.

Clitoria; a genus of the class Diadelphia, order Decandria. —Generic Character. *Calix:* perianth one-leafed, erect, tubular, five-toothed, permanent. *Corolla:* papilionaceous; standard very large, straight, emarginate, waved at the margin, spreading, and overshadowing the other petals; wings oblong, straight, obtuse, shorter than the standard; keel shorter than the wings, falcated, somewhat roundly. *Stamina:* in two-brotherhoods, (simple and nine-cleft) antheræ simple. *Pistil:* germen oblong; style ascending; stigma obtuse. *Pericarp:* legume very long, linear, compressed, one-celled, two-valved, with the tip subulate. *Seeds:* many, reniform. Essential Character. *Corolla:* inverted. *Standard:* very large, spreading, overshadowing the wings.—The seeds of these plants should be sown upon a good hot-bed early in the spring, and when the plants are two inches high, they should be carefully taken up, and each planted in a small pot filled with light fresh earth, and plunged into a hot-bed of tanner's bark, observing to shade them until they have taken fresh root, and refresh them with water as they may require it: after they are well rooted in the pots, they must have air every day in proportion to the warmth of the season, to prevent their drawing up weak; their waterings should be repeated sparingly two or three times a week. As these plants have climbing stalks, they will soon grow too tall to remain under common frames, therefore they must then be removed into the stove, and plunged into the bark-bed; but if their roots have filled the pots, they should then be removed into larger, and afterwards they must be treated in the same manner as other plants from their native countries.——The species are,

1. Clitoria Ternata; *Winged-leaved Clitoria.* Leaves pinnate. It rises with a twining herbaceous stalk, to the height of four or five feet, in the same manner as the Kidney-bean, and requires the like support, for in the places where it grows naturally, it twists itself about the neighbouring plants: the leaves are winged, composed of two or three pair of leaflets, terminated by an odd one; these are of a beautiful green colour, and are placed alternate on the stalks: from the appendages of the leaves come out the peduncles, each of which is encompassed by two very fine leaves about the middle, where they are bent, sustaining a very large gaping beautiful flower, the bottom part of which appears as if it grew to the top: legumes three or four inches long, narrow, lenticular-compressed, without knots or risings above the seeds, terminated by the longish awl-shaped style; seeds solitary, from seven to twelve, ovate-kidney-shaped, of a chestnut-brown colour. The flowers have a green membranaceous calix; the corolla is blue, and stains paper like Indigo, but the dye is not permanent.—Native of the East Indies and Cochin-china. There is a variety with white flowers, and another with blue flowers, very double; which is a singularity in the leguminous class of plants.

2. Clitoria Brasiliana; *Brasilian Clitoria.* Leaves ternate; calices solitary, bell-form. It has a twining stem, which rises five or six feet high, having at each joint one ternate leaf on a long petiole: the flowers come out singly from the axils, on long peduncles, encompassed about the middle with two small oval leaves; they are very large, of a fine blue colour, and make an elegant appearance in July.—Native of Brazil. There is a variety with double flowers, which was imported from India.

3. Clitoria Virginiana; *Small-flowered Clitoria.* Leaves ternate; calices geminate, bell-form. Root perennial; stem about three feet high, twining, slender, hairy; leaflets egg-shaped, hairy; flowers in short spikes or racemes; standard externally of a dull yellow colour, pubescent; wings and keel pale lilac; legume narrow, with prominent sutures. This species being tender, and flowering with difficulty in our climate, the flowers frequently come out singly in our stoves; which accounts for the difference between Mr. Miller's description and the Linnean character. Dillenius also observes, that the flowers are very apt to fall off.—Native of Virginia, Jamaica, and generally of the West Indies.

4. Clitoria Mariana; *Maryland Clitoria.* Leaves ternate, calices cylindric. The seeds of this species were imported from Carolina, where they grow naturally: it rises with a twining weak stalk about five feet high, having trifoliate leaves; the flowers come out by pairs, they are small, and of a pale blue colour within, but of a dirty white on the outside.—Native of Carolina: it flowers in August, but seldom ripens any seed in England.

5. Clitoria Galactia; *Milky Clitoria:* Leaves ternate; raceme erect; flowers pendulous. Stem about six feet high, twining, weak; leaflet elliptic-oblong, obtuse; flowers reddish; calix four-toothed, short, campanulate; corolla a little papilionaceous.—Native of Jamaica, found chiefly in the lower hills: it is easily distinguished by its long reddish flowers, milky branches, and smooth leaves.

Clivers, or *Cleavers.* See *Gallium Aparine.*

Cloud Berry. See *Rubus.*

Clove. See *Caryophyllus.*

Clove Pink. See *Dianthus.*

Clover. See *Trifolium.*

Clown's All-heal. See *Stachys.*

Club-Moss. See *Lycopodium.*

Club-Rush. See *Scirpus.*

Clusia; a genus of the class Polygamia, order Monœcia. —Generic Character. *Calix:* perianth four, five, or six leaved, imbricate; leaflets concave, permanent, the interior ones gradually smaller. *Corolla:* petals four, five, or six, roundish, spreading, concave, large. *Stamina:* filamenta many, simple, shorter than the corolla; antheræ simple, growing to the side of the tip. *Pistil:* germen ovate-oblong; style none; stigma starred, flat, obtuse, permanent. *Pericarp:* capsule ovate, marked with furrows, celled, the valves bursting in a radiate manner. *Seeds:* numerous, ovate, covered with pulp, affixed to a columnar angulated receptacle. *Observe.* The number in the fruit differs from four to twelve, according to the proportion observed in the stigma, valves, cells, &c.: some of the flowers are sterile with respect to the male organs, and others with respect to the female. In the female flowers a nectary is formed by the coalition of the antheræ, including the germen. Essential Character. *Male. Calix:* four or six leaved; leaflets

opposite, imbricate. *Corolla:* four or six petalled. *Stamina:* numerous. *Female. Calix* and *Corolla* as in the males. *Nectary:* formed by the coalition of the antheræ, including the germen. *Capsule:* five-celled, five-valved, stuffed with pulp.—This is a genus of trees, abounding in a tenacious glutinous juice, which becomes red when exposed to the air, and hardens into a gum or resin. As the seeds seldom succeed in England, and the young plants grow so slowly as not to make any figure for some years, the best method of having these plants, is to procure them from the West Indies, to be brought over in tubs: they are tender, and must be kept constantly in the stove, otherwise they will not live through the winter in England, in which season they must have very little water. They may be propagated by cuttings, which must be laid to dry for a fortnight or three weeks when they are cut off from the plants, that the wounded part may be healed over, otherwise they will rot. When the cuttings are planted, the pots should be plunged into a hot-bed of tanner's bark, and now and then gently refreshed with water: June or July is the best time for planting these cuttings, that they may be well rooted before the cold weather comes on in autumn: they must be placed upon stands in the dry-stove in winter, but if in summer they be plunged into the tan-bed, they will make great progress, and their leaves will be large, in which the principal beauty of these plants consists.——The species are,

1. Clusia Rosea; *Rose-coloured Balsam Tree.* Leaves veinless; corollas six-petalled. Height from twenty to thirty feet; flowers large, rose-coloured, and very handsome, but without smell; fruit green, the size of a middling apple, with eight lines running like meridians on a globe, from the stalk to the crown of it: when the fruit becomes ripe, it opens at these lines; and divides into eight parts, disclosing many mucilaginous scarlet seeds, resembling those of a Pomegranate; the mucilage being washed off, the seeds appear white and hard, and contain a kernel; they are found in the hollow furrows of an octagonal cove. The whole tree is exceedingly beautiful, and the structure of the fruit itself is a most exquisite piece of mechanism.—Native of the Bahama Islands, of St. Domingo, and also of other American islands between the tropics. It is found among rocks, and frequently upon the limbs and trunks of trees, occasioned by birds scattering or voiding the seeds, which being glutinous like those of Misletoe, take root in the same manner; but the roots not finding sufficient nutriment, spread on the surface of the tree till they find a decayed hole or other lodgment, wherein is some small portion of soil: the fertility of this being exhausted, a root is discharged out of the hole till it reaches the ground, though at forty feet distance, where it again fixes itself and becomes a much larger tree. The resin it produces is used to cure sores in horses, and instead of tallow for paying the bottoms of boats, in order to accelerate their motion through the water.

2. Clusia Alba; *White-flowered Balsam Tree.* Leaves veinless; corollas five-petalled. Height thirty feet; an elegant tree, parasitical, or growing on other very large trees like the first species: the trunk is frequently a foot in diameter, and supports a spreading head. The whole abounds in a very tenacious balsamic juice, of a green colour, but turning to a brownish red when exposed to the air; leaves obovate, quite entire, obtuse, shining, coriaceous, firm, marked with obliquely transverse parallel nerves, without any connecting veins, on short petioles, opposite, placed chiefly at the extremities of the smaller branches; peduncles short, thick, commonly three-flowered, and terminating; flowers inelegant and without scent, white, all hermaphrodite, but with the antheræ more or less polliniferous; fruits when ripe scarlet; seeds white, involved in a scarlet pulp; the birds are very fond of them, and when the capsules burst open, hang over them upon the wing, and pluck out the seeds with the pulp adhering.—It is common in the woods of Martinico, where it is called *aralie.* The Caribs used the juice of it for paying their boats.

3. Clusia Flava; *Yellow-flowered Balsam Tree.* Leaves veinless; corollas four-petalled.—It is pretty common in the British islands of America, where the trees grow to the height of twenty feet, and shoot out many branches on every side, with thick, round, succulent leaves, placed opposite: the flowers are produced at the ends of the branches, each having a thick succulent cover; they are of different colours in different plants, some being red, others yellow, some white, and some green. After the flowers are past, they are succeeded by oval fruit, which are also of different colours in different plants. According to Jacquin, wherever the trunk or larger branches are wounded, they throw out a thick resinous gum, which the inhabitants of Jamaica sometimes use as a vulnerary; but it has neither an extraordinary smell nor a pungent taste.

4. Clusia Venosa; *Vein-leaved Balsam Tree.* Leaves veined. This tree rises to the height of twenty or thirty feet; it has very large oval spear-shaped leaves, ending in points, placed alternate on the branches, and having several ribs, which go off from the mid-rib alternately, rising upward to the side of the leaves, and also a great number of small veins running horizontally between these ribs: the borders of the leaves are serrate, and their under surfaces of a brown colour: the branches are covered with a woolly down; and the flowers are produced in loose spikes at the end of the shoots. Jacquin describes the corolla as white, and an inch and a half in diameter.—Native of the moist mountainous woods of Martinico. Where it is called *paletuvier de montagne.*

5. Clusia Pedicillata. Leaves opposite, obovate and elliptic, quite entire, veined; cymes axillary; flowers four-petalled.—Native of New Caledonia.

6. Clusia Sessilis. Leaves opposite, obovate and elliptic, quite entire, veined; flowers axillary, solitary, subsessile, four-petalled—Native of Tongataboo.

Cluytia; a genus of the class Dicœcia, order Gynandria.——Generic Character. *Male. Calix:* perianth five-leaved, size of the corolla; leaflets ovate, obtuse, concave, spreading. *Corolla:* petals five, spreading very much, cordate; claws flat, shorter than the calix; nectaries exterior five, three-parted, oblong, spreading, length of the claws of the petals, placed in a circle within the petals; nectaries interior five, glandiform, small, melliferous at the tip. *Stamina:* filamenta five, placed on the middle of the style, remote from the corolla, spreading horizontally; antheræ roundish, versatile. *Pistil:* germen none; style cylindric, truncate, very long, bearing the stamina on its middle. *Female. Calix:* perianth as in the male, permanent. *Corolla:* petals as in the male, permanent; nectaries exterior five, twin, roundish, of the same size and situation as in the male; nectaries interior, none. *Pistil:* germen roundish; styles three, bifid, reflex, length of the corolla; stigmas obtuse. *Pericarp:* capsule globular, six-furrowed, rough, three-celled. *Seeds:* solitary, roundish, even, appendiculated at the tip. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Styles:* in the female flowers three. *Capsule:* three-celled. *Seed:* one.——The species are,

1. Cluytia Alaternoides; *Narrow-leaved Cluytia.* Leaves subsessile, linear-lanceolate; flowers solitary, erect. Stem shrubby, six or eight feet high, putting out many side-branches which grow erect; leaves of a grayish colour, and

entire. The flowers come out from the joints, at the setting on of the leaves, towards the upper part of the branches: they are small, and of a greenish white, flourishing from June till August, but not remarkable for their beauty.—Native of Africa. This, and the third species, are easily propagated by cuttings during any of the summer months: the cuttings, if planted in small pots, and plunged into a very moderate hot-bed, shaded from the heat of the sun in the middle of the day, will soon take root, and should afterwards be inured to the open air, to prevent them from being drawn up weak; afterwards these plants may be each put into a separate small pot, and placed in a sheltered situation till the middle of October, or later, if the weather continue mild. They should afterwards be removed into the green-house, and so placed that they may enjoy the free air in mild weather, for they do not require much warmth, but merely to be protected from frost; and if the green-house be too closely shut up, or the plants too much shaded by others, the tender shoots will grow mouldy, which destroys more of these plants than the cold. They must be placed abroad in summer among other hardy exotics, in a sheltered situation. As these plants are always green, they look well in the green-house during the winter season; and in summer, when they are placed in the open air, make a pleasing contrast with the other exotics.

2. Cluytia Polygonoides. Leaves lanceolate; flowers axillary, very many. The flowers are usually two together, pendulous, and small.—Native of the Cape.

3. Cluytia Pulchella; *Broad-leaved Cluytia*. Leaves ovate, quite entire; flowers lateral. This rises about three or four feet high, has a stronger stem than the first species; the leaves are much larger, sea-green, and on petioles an inch long; flowers greenish-white, axillary.—Native of Africa.

4. Cluytia Hirta. Leaves wedge-shaped, smooth; flowers lateral, glomerate, hirsute. It is a very branching shrub: the flowers come out towards the ends of the branches and branchlets, and are subsessile; petals oblong, minute, smooth.—Found at the Cape.

5. Cluytia Tomentosa. Leaves elliptic, tomentose on both sides. A shrub three feet in height, very branching, erect, tubercled with the scars of fallen leaves; branches round, pubescent; flowers lateral, solitary, sessile, longer than the leaves, white; calix five-toothed, tomentose on the outside. It flowers in May.—Found on the sandy shores of the Cape.

6. Cluytia Retusa. Leaves oval, retuse; flowers racemed, axillary. Leaves on short petioles, alternate; petals three-toothed; flowers very small; racemes axillary; no nectaries, but a ring surrounding the receptacle.—Native of the East Indies.

7. Cluytia Eluteria; *Maritime Cluytia*, or *Sea-side Balsam*. Leaves cordate-lanceolate. This is a tree with round branches; according to Miller, it rises with an upright shrubby stalk, not more than three or four feet high in England; but in places where it grows naturally it reaches more than twenty feet in height, with branches forming a large spreading head. The leaves are shaded like those of the black Poplar. On breaking the more tender branches, a large drop of thick balsamic liquor oozes from the wound: whence it has the appellation of Balsam-tree. The leaves and tender tops are said to heal sores, and are frequently used in baths and fomentations. The *cortex cascarillæ* is supposed to be the produce of this tree. Stisser recommended it, at the end of the last century, as a powerful diuretic and carminative; and he used it with success in calculous, asthmatic, phthisical, scorbutic, and arthritic complaints: since that, it has been used in Germany for the Peruvian bark, in intermittent fevers; and the German physicians have given it much credit as an astringent, having employed it in hæmorrhages and various alvine fluxes.—Native of both Indies. This plant will live through our winters in an airy glass-case. If the Cluytias be placed when young in a very moderate warmth in winter, it will greatly forward their growth; but they must not be forced with too much heat, and may be treated more hardily when they have acquired strength. The seventh species may be propagated by cuttings during the summer season, but the cuttings should be laid in a dry place for a few days, after they are taken from the old plants, that their wounded parts may dry and be healed over before they are planted. These must be planted in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tanner's bark: if the season prove very warm, the glasses should be shaded in the heat of the day, and raised up to admit the fresh air, but they must be sparingly watered: when they begin to shoot, they should be gradually inured to the open air; and when their roots have filled the pots, they should be carefully parted, and each planted in a separate pot of the same light sandy earth; they then should be placed on the back part of the stove, behind the other plants, where they may be screened from the sun until they have taken fresh root, after which they may be brought forward, and exposed gradually to the open air. In the summer they should have free air constantly in warm weather, but must be screened from heavy rain, and placed in winter in an airy glass-case, where they may enjoy the sun, and during that season have very little moisture admitted to them.

8. Cluytia Stipularis. Leaves oval, tomentose underneath. Branches flexuose, tomentose; flowers axillary, subsessile, not longer than the stipules, dark purple; style columnar, scarcely trifid at the end.—Native of the East Indies.

9. Cluytia Acuminata. Herbaceous: leaves ovate, smooth, obtuse, with a point; flowers axillary, solitary.—Native of the Cape.

10. Cluytia Lanceolata. Leaves elliptic-lanceolate; flowers lateral, tomentose; leaves broad lanceolate, above two inches long, without any dots beneath, few above, and visible only with a magnifier; calices villose-tomentose; capsules not dotted.—Native of Egypt.

Clypeola; a genus of the class Tetradynamia, order Siliculosa.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate-oblong, permanent. *Corolla:* four-petalled, cruciform; petals oblong, entire; claws rather longer than the calix. *Stamina:* filamenta six, shorter than the corolla, the two opposite ones still shorter; antheræ simple. *Pistil:* germen roundish, compressed; style simple; stigma obtuse. *Pericarp:* silicle orbiculate, emarginate, flat, compressed, erect, deciduous, bivalve; valves orbiculate. *Seeds:* orbiculate in the centre of the pericarp. Essential Character. *Silicle:* emarginate, orbiculate, compressed, flat, deciduous.—This genus consists of low plants of little beauty, which are preserved chiefly in botanic gardens.—The species are,

1. Clypeola Jonthlaspi; *Annual Treacle-Mustard*, or *Buckler-Mustard*. Annual: silicles orbiculate, one-celled, one-seeded. A low annual plant, seldom exceeding four inches high; stem slender, hardish, upright, branched at the bottom, tinged with red, covered with short whitish hairs; leaves spatulate, alternate, sessile, glaucous, with minute stars of hairs over the surface; flowers in terminating spikes, and very minute; corolla yellow, the size of the calix; style scarcely visible with a magnifying glass.—Native of the south of France, Spain, and Italy, flowering there from March to May, but in England from May to July. If the seeds be scattered on a border of light earth, the plants will thrive without further care.

2. Clypeola Tomentosa; *Hoary Treacle-Mustard.* Perennial: silicles orbiculate, two-celled, two-seeded; leaves subtomentose. Root perennial, woody, branched; stems shrubby, diffused, leafy at the end; leaves hirsutely hoary; the lower ovate-oblong, sinuate, three inches long, and half an inch broad; the stem-leaves alternate, sessile, linear-lanceolate, entire or finely toothletted; flowers terminating and axillary, at first in a sort of umbel, but afterwards panicled; calix very small, hairy on the outside; petals yellow, emarginate, longer than the calix.—First observed by Tournefort in the Levant.

3. Clypeola Maritima; *Sea Treacle-Mustard,* or *Clown's Mustard.* Stems much branching, diffused, evergreen; leaves linear-lanceolate, whitish, not stiff; racemes striated; calix deciduous; petals white, obovate, the claws and filamenta dark purple; antheræ yellow. It has the appearance of wall-flower, but the branches are weaker, and both they and the leaves much smaller.—Native of the south of France, Spain, and Italy; common on the coast of the Mediterranean. It should be sown upon a warm border in a dry soil, and does not bear transplanting well.

Cneorum; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* perianth very small, three-toothed, permanent. *Corolla:* petals three, oblong, lanceolate-linear, concave, erect, equal, deciduous. *Stamina:* filamenta three, subulate, shorter than the corolla; antheræ small. *Pistil:* germen obtuse, triangular; style erect, firm, length of the stamina; stigma trifid, spreading. *Pericarp:* berry dry, globose, three-lobed, three-celled. *Seed:* solitary, round, in a two-celled shell. Essential Character. *Calix:* three-toothed. *Petals:* three, equal. *Berry:* tricoccous. ——The only species is,

1. Cneorum Tricoccum; *Widow-wail,* or *Spurge-Olive.* An humble shrub, which seldom rises more than two feet and a half high in this country, but spreads out on every side with many lateral branches, so as to form a thick bush; the stems are ligneous, and almost as hard as those of the Box-tree, and the wood is of a pale yellow colour under the bark; the branches are garnished with thick stiff leaves, of an oblong oval shape, about an inch and a half long, and a quarter of an inch broad, of a dark green colour, having a strong vein or rib through the middle: the flowers are produced singly from the wings of the leaves, toward the extremity of the branches; they are of a pale yellow colour: after the flowers are fallen, the germen becomes a fruit, composed of three seeds joined together, in the same manner as those of Euphorbia or Spurge; they are green at first, afterwards of a brown colour, and black when ripe. The flowers begin to appear in May, and are succeeded by others during the summer months; and when the autumn proves favourable, they will continue in flower till the end of October. As this is a low evergreen shrub, it may be very ornamental, if placed in the front of plantations or evergreen trees or shrubs; for as the branches grow compactly, and are well garnished with leaves, it will conceal the ground between the taller shrubs better than most other plants, and being durable, will not want to be removed.—Native of the south of France, Italy, and Spain, in hot, dry, barren and rocky soils. It was formerly preserved in green-houses, being thought too tender to bear the open air in English winters, which it has since borne very well, being rarely killed, except by extremely hard frosts; nor do these destroy those plants which grow upon dry, rocky, or rubbishy soils, where their shoots are generally short and firm. It is propagated by sowing the seed in autumn, soon after they are ripe, which ensures the appearance of the plants in the following spring; whereas those which are not sown till the spring, will remain a year in the ground, and often miscarry. The seeds may be sown in a bed of common earth, covering them half an inch deep, and will require nothing but weeding during the following summer, and may be transplanted in the succeeding autumn whereever they are intended to remain.—The leaves and fruit are acrid, caustic, and violently purgative.

Cnicus; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* compound ovate, guarded with bractes, imbricate; scales ovate, close, branched, thorny. *Corolla:* compound, tubular, uniform; corollets hermaphrodite, equal; proper, funnel-form, oblong; border five-cleft, erect, nearly equal. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen short; style filiform, length of the stamina; stigma oblong, emarginate. *Pericarp:* none; calix closed. *Seed:* solitary; down plumose. *Receptacle:* flat, villose. Essential Character. *Calix:* ovate, imbricate with branch-thorny scales, guarded with bractes. *Corollets:* equal.—These are perennial plants, and may be propagated by parting the roots; the best time for doing which is in autumn, that the plants may get good root in winter, for those which are transplanted in the spring, do not flower well in the first year, unless they be planted in a moist soil. As these plants grow very large, they are not proper furniture for small gardens, where they will take up too much room; for if they be nearer to each other, or to other plants, than four feet apart, they will deprive them and each other of their nourishment, for their roots extend to so great a distance, that two or three for variety's sake are sufficient for any garden, where they should be planted at a distance from choicer plants. They are also propagated by seeds, which may be sown in the spring, on a bed of common ground, and will merely require to be thinned, and kept clean from weeds till autumn, when they may be transplanted to wherever they are intended to remain.——The species are,

1. Cnicus Oleraceus; *Pale-flowered Cnicus.* Leaves pinnatifid, keeled, naked; bractes concave, entire, somewhat coloured; calices lateral, sessile, usually two together, with one between on a short peduncle; a white line runs along the keel of the calycine scales; leaves smooth, stem-clasping; flowers pale yellow.—It is found near brooks in the woods of Switzerland, and grows to the height of six feet: it is also a native of most countries of Europe, except the southernmost, in moist woods, meadows, and marshes, flowering in the autumnal months. The Russians boil the leaves in the spring, and eat them as coleworts, although, according to Schreber, no cattle will eat it.

2. Cnicus Erisithales; *Clammy Cnicus.* Leaves stem-clasping, pinnatifid, awn serrated; peduncles drooping; calices glutinous. Stem three feet high and more, angular, sometimes a little tomentose, not branched, unless at the top, naked far under the flowers; flowers three or four, frequently two opposite, sessile, never guarded with leaves, seldom solitary, nodding in a state of maturity; florets purple, yellow, or white, with purple stamens and pistil.—Native of France, Switzerland, Austria, Carniola, and Silesia. It begins to flower in June, and is perennial.

3. Cnicus Ferox; *Prickly Cnicus.* Leaves decurrent, ligulate, tooth-thorny; stem branching, erect. The stem is firm, deeply grooved, covered with a cobweb-like pubescence: a large head of white or purple floscules terminates the branches, and is guarded with linear strigose bractes, having small spines about the edge. Biennial; flowering in July and August.—Native of the south of France, and Piedmont.

4. Cnicus Pigmæus; *Pigmy Cnicus.* Leaves sessile, sub-

linear, very much crowded; calix unarmed. Root perennial, black; stem upright, hollow, from two to five inches high, thickened at top, very closely covered with white hairs; leaves many, both at the root and on the stem, sharp, three inches long, some quite entire, others toothletted, unarmed, the sides rolled back: flower solitary, terminating, erect, very large in proportion to the plant, sessile in the uppermost shorter leaves: corollets purple; antheræ violet coloured. It flowers in July and August. Native of the mountains of Austria.

5. Cnicus Acarna; *Yellow Cnicus.* Leaves decurrent, lanceolate, undivided; calices pinnate, thorny. Stem herbaceous, winged by the leaves running down it, hoary, a foot high, but sometimes much smaller; leaves sessile, scattered, extremely acute, hoary, keeled, having a few teeth about the edge, with two or three yellow spines in each; calix woolly; corollets purple; flowers terminating, afterwards axillary, sessile; corollas small, purplish.—Native of the south of France and of Spain.

6. Cnicus Spinosissimus; *Thorny Cnicus.* Leaves stem-clasping, sinuate, pinnate, thorny; head simple; flowers sessile. Stem unbranched, twelve to eighteen inches high; the top entirely covered with leaves, angular, not winged; stem-leaves most fiercely thorned; pinnas angular, many-lobed, the nerves continued into strong thorns; the leaves on the top of the stem form a nest for the flower, broader, ovate-lanceolate, pinnate, whitish yellow, pubescent; floscules pale yellow.—It rises to the height of four feet in gardens, and is perennial.—Native of Switzerland, Austria, and Carniola.

7. Cnicus Centauroides; *Artichoke-leaved Cnicus.* Leaves pinnatifid; calices scariose; scales acuminate. Stem three feet high, angular, putting forth few branches, and having at the top heads the size of a small artichoke, of a tawny colour; leaves like those of the artichoke; corollas purple. It flowers in July and August.—Native of the Pyrenees.

8. Cnicus Uniflorous; *Single-flowered Cnicus.* Leaves pinnatifid; calix scariose, villose. Stem two feet high, erect, subangular, the thickness of the little finger, scarcely lanuginose, one-flowered; flower terminating, sessile; corolla large, violet; floscules six-cleft, with linear acute segments; stamina and style longer than the corolla, the former white, the latter violet.—Perennial; and a native of Siberia.

9. Cnicus Cernuus; *Siberian Cnicus.* Leaves cordate; petioles curled, thorny, stem-clasping; flowers drooping; calices scariose. Root perennial, large, and rough, sending out many thick black fibres, which strike deep in the ground; the stalks rise six or seven feet high, sending out a few small branches: they are striated, of a brown colour, and at bottom have heart-shaped leaves half stem-clasping; the leaves towards the top of the stalk are long and narrow, ending in acute points. Each branch is terminated by one large head of flowers; calycine scales imbricate, ending in a sharp spine; florets pale yellow, with an agreeable scent.—It flowers in the second year after the seed has been sown, in July, and the seeds ripen in the autumn, when the plant decays. The inhabitants of Siberia, of whose country it is a native, eat the tender stalks boiled.

Coccocypselum; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-parted, superior; segments acute, erect. *Corolla:* one-petalled, funnel-form; tube longer than the calix, gradually widening toward the border, which is four-parted, the parts ovate, erect. *Stamina:* filamenta four, the length of the tube, inserted into the base, filiform, erect; antheræ erect. *Pistil:* germen ovate, inferior; style the length of the stamina, bifid at the tip; stigmas simple. *Pericarp:* berry roundish, inflated, two-celled, crowned. *Seeds:* numerous, minute. Essential Character. *Calix:* four-parted, superior. *Corolla:* funnel-form. *Berry:* inflated, two-celled, many-seeded.——The species are,

1. Coccocypselum Repens. Stems creeping at the base; leaves egg-shaped; cymes axillary, nearly sessile. It grows in spreading tufts, each stalk creeping eighteen or twenty inches from the root, and shooting out a few lateral branches as it runs; the flowers and fruit rise on short divided peduncles from alternate axils.—Native of Jamaica, frequent in the cooler mountains of Liguanea, and Mont Diable.

2. Coccocypselum Virgatum. Stems rod-like; leaves acuminate; cymes lateral, peduncled; peduncles longer than the petiole.—Native of South America.

Coccoloba; a genus of the class Octandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; divisions oblong, obtuse, concave, spreading most widely, coloured, permanent. *Corolla:* none. *Stamina:* filamenta eight, subulate, patulous, shorter than the calix; antheræ roundish, twin. *Pistil:* germen ovate, trigonal; styles three, short, filiform, spreading; stigma simple. *Pericarp:* none. *Calix:* berried, thickened, converging, involving the seed. *Seed:* nut ovate, acute, one-celled. Essential Character. *Calix:* five-parted, coloured. *Corolla:* none. *Berry:* calycine, one-seeded.—The plants of this genus are all easily propagated by seeds, whenever they can be obtained fresh from the places where they naturally grow, for none of them have hitherto produced seeds in England. The seeds should be sown in small pots of kitchen-garden earth, and plunged into a hot-bed; if they be fresh and good, and the bed be of a proper temperature, the plants will appear in five or six weeks, and will be fit to transplant in about a month after: they should then be shaken out of their pots, carefully separating their roots, and each replanted in a separate small pot of the same kind of earth, plunging them into a hot-bed of tanner's bark, taking care to shade them in the day-time until they have taken new root, after which they should be treated like other tender exotic plants, which require to be constantly kept in the bark-stove.——The species are,

1. Coccoloba Uvifera; *Round-leaved Sea-side Grape,* or *Mangrove Grape Tree.* Leaves cordate-roundish, shining. This is a lofty, spreading, branched, irregular, inelegantly formed tree, but rendered handsome by its leaves and fruits; bark cinereous, thin, in the younger trees smooth, in the older ones full of chinks; timber hard, ponderous, red, but fit for little except as fire-wood, on account of its fibrous texture, unless it should turn out to be serviceable in dying; flowers small, whitish, smelling like those of the cherry; racemes about a foot long, simple, terminal, solitary. Gærtner calls the fruit a superior drupe, formed of the berried calix, obovate, of a purple colour, with a bloom, becoming black when ripe, and wrinkled; pulp soft, drying into a thin crust. The fruit is very astringent, and may be used in emulsions, boluses, or electuaries, but its action is not of long continuance; it has the exact taste of Bistort; the berries possess an agreeable flavour, but the pulp is not considerable. This tree is common in the sugar colonies, and is generally found near the sea. It frequently grows to a considerable size, and is then looked upon as a beautiful wood for all sorts of cabinet ware, but it seldom rises straight or regular. The Spaniards call it *uvero,* and the French *raisinier du bord de la mer.*

2. Coccoloba Pubescens; *Great-leaved Sea-side Grape.* Leaves orbiculate, pubescent. This is an upright tree, sixty or eighty feet high: the head has frequently no more than two or three thick branches, but little divided and irregular: the bole is sometimes forty feet in length, and puts forth a

branch or two about the middle. The timber is deep red, heavy, very hard, and also incorruptible, but brittle; when used for posts, the part placed in the ground becomes as hard as stone.—It is common in the thick mountainous woods of Martinico, where the French call it *bois à grandes feuilles*. The fruit is said to be eatable.

3. Coccoloba Excoriata; *Oval-leaved Sea-side Grape*, or *Mountain Grape Tree*. Leaves ovate; branches as it were barked. This grows to a very large size, and the leaves, flowers, and fruits, are all large; the leaves are very smooth, and of a fine lucid green colour. Browne informs us, that it grows to a considerable size in Jamaica, and is looked upon there as a fine timber wood.

4. Coccoloba Nivea; *White Sea-side Grape*. Leaves elliptic, acuminate, veined, shining above; racemes almost upright, It grows to the height of twenty feet, is upright, and the boughs form a head; flowers small, yellowish. The calix becomes thick, succulent, and snow-white, covering to the middle a three-sided black shining nut; fruit sweet and pleasant. The French call it *raisinier de coude*.—Native of St. Domingo, Jamaica, and Martinico.

5. Coccoloba Leoganensis. Leaves roundish, quite entire, shining, flat; racemes of the fruit erect. This is a small upright branching tree, ten feet high; leaves veined, coriaceous. —Native of Port-au-Prince, and Leogane, in St. Domingo.

6. Coccoloba Obtusifolia. Leaves oblong, very obtuse. This is a small, very branching, irregular tree, about twelve feet high, with smooth ash-coloured branches; leaves quite entire, shining; flowers small white; fruit astringent.—It flowers in August; and is a native of Carthagena.

7. Coccoloba Flavescens. Leaves lanceolate-oblong, blunt, with a point. A small branching tree, twelve feet high; leaves quite entire, coriaceous, shining, somewhat rigid; racemes simple, terminating, erect; drupes roundish, dark purple, the size of a large pea; the pulp sweet and eatable.—Native of St. Domingo at Port-au-Prince.

8. Coccoloba Punctata. Leaves lanceolate, ovate. A small, upright, branched tree, fifteen feet in height; leaves quite entire, subcoriaceous, veined, shining; flowers white: almost the whole receptacle, with a small part only of the calix, becomes a roundish drupe of a dark red colour, and a sweetish but austere taste.—Native of Carthagena.

9. Coccoloba Emarginata. Leaves coriaceous, roundish, gash-emarginated.—Native of the West Indies.

10. Coccoloba Barbadensis. Leaves cordate-ovate, waved. Bark of the branches cinereous; leaves very coriaceous, five inches long: wood red.—Native of Barbadoes.

11. Coccoloba Tenuifolia; *Small Sea-side Grape*. Leaves ovate, membranaceous. This is of a humbler growth than any of the preceding species, having also smaller fruits and flowers; flowers scattered and pedicelled, in simple terminal racemes.—Native of Jamaica.

12. Coccoloba Australis. Leaves cordate-ovate, acute; flowers polygamous.—Native of New Zealand.

13. Coccoloba Asiatica. Scandent: leaves oblong-ovate, veined; racemes terminating. Stem suffruticose, branching; leaves subacuminate, quite entire, coriaceous, alternate; flowers white, in loose racemes; fruit a roundish five-lobed berry, formed from the five segments of the calix, blackish, pellucid, small.—Native of Cochin-china, where it is found in bushes and hedges.

14. Coccoloba Cymosa. Scandent: leaves oblong-ovate, veined; flowers axillary and terminal, in sessile cymes.—Found also in the hedges of Cochin-china.

Cocculus Indicus. See *Menispermum Cocculus*.

Cochlearia: a genus of the class Tetradynamia, order Siliculosa.—Generic Character. *Calix*: perianth four-leaved; leaflets ovate, concave, gaping, deciduous. *Corolla*: four-petalled, cruciform; petals obovate, spreading, twice the size of the calix; claws narrow, shorter than the calix, patulous. *Stamina*: filamenta six, subulate, length of the calix, the opposite ones shorter; antheræ obtuse, compressed. *Pistil*: germen heart-shaped; style simple, very short, permanent; stigma obtuse. *Pericarp*: silicle heart-shaped, gibbous, turgid, emarginate, furnished with a style, two-celled, scabrous; valves gibbous, obtuse. *Seeds*: about four in each cell. Essential Character. *Silicle*: emarginate, turgid, scabrous; valves gibbous, obtuse.——The species are,

1. Cochlearia Officinalis; *Common Scurvy Grass*. Root-leaves roundish; stem ones oblong, somewhat sinuated; fruit globular; root annual or biennial, white, rather thick, elongated, with hairy fibres; stems angular, branched in a corymbose manner, leafy; root-leaves petioled, roundish, kidney-shaped; stem-leaves alternate, sessile, embracing the stem; flowers white, in terminal corymbs, afterwards lengthening into racemes; petals inversely egg-shaped, entire; siliques globular, slightly veined, crowned with a short style. The whole herb smooth, somewhat fleshy, various in size. The common Scurvy-grass has been long held in very high estimation, as an antiscorbutic and purifier of the blood; it has a somewhat unpleasant smell, and a warm bitter taste. Its active matter is extracted by maceration both in watery and spirituous menstrua, and accompanies the juice obtained by expression. The most considerable part of it is of a very volatile kind, the peculiar penetrating pungency totally exhaling in the drying of the herb, and in the evaporation of the liquors. Its principal virtue resides in an essential oil, separable in a very small quantity by distillation with water. Scurvy-grass is antiseptic, attenuant, aperient, and diuretic, and is said to open obstructions of the viscera and remoter glands, without heating or irritating the system: it has long been considered as the most effectual of all the antiscorbutic plants, for which we have the testimony of the most celebrated physicians: and it has been observed to grow naturally in those high latitudes where the scurvy is most prevalent. In rheumatic pains of long continuance, accompanied with fever, this plant, combined with arum and wood-sorrel, is highly recommended by Sydenham and Lewis. A remarkably volatile and pungent spirit, prepared from this herb, and called *spiritus antiscorbuticus*, was found by Werlhof to be a useful remedy in the palsy, and other disorders requiring an active stimulant; he gave it in the dose of thirty drops several times a day: but no preparation seems so beneficial, by way of an antiscorbutic, as the fresh plant eaten as a salad, or its expressed juice drank. If the green herb be infused in ale or beer, and put into a bottle well-corked, it will communicate to it all its antiscorbutic virtue, or volatile spirit, in three or four days' time. Mr. Ray recommends this ale, from his own experience, to be taken as the ordinary drink of those who are troubled with the scurvy: he says, it is not so good if the Scurvy-grass be long infused in it, for the earthy and fixed parts are thereby forced from the herb, and communicated to the ale, while the volatile parts either fly off, or, being jumbled with the more fixed parts, lose a great deal of their virtue. The juice of the Scurvy-grass, with the bruised herb, applied to the face or any other part, has been recommended as a cosmetic, but should be afterwards washed off with a decoction of bran. According to Withering, Scurvy-grass is a powerful remedy in the moist asthma, and also in what some authors call the scorbutic rheumatism. A distilled water and conserve are preserved from

the leaves, and kept in the shops, and its juice is frequently prescribed, when mixed with that of Seville oranges, under the name of antiscorbutic juices.—It is found on the mountains and sea-shores of the north of Europe: in England, it will be met with near Lynn and Yarmouth; near Hull, Boston, Whaploud, Holbeach; in Cornwall, Cumberland, Lancashire, and Wales; and at a great distance from the sea, near Castleton, in Derbyshire, Penigent, Ingleborough, Stanemore, and near Settle, in Yorkshire; and on the Highlands of Scotland. It is propagated for its medicinal uses, and ought to be found in every garden: the seeds should be sown in July, soon after they are ripe, in a moist shady spot of ground, and when the plants come up they should be thinned, so as to be left at about four inches' distance each way; the plants which may be taken out in thinning, may be transplanted into other shady borders, if there be occasion for them; if not, they may be hoed out in the same manner as onions, carrots, &c. taking care at the same time to hoe down all the weeds together with them, that the remaining plants may have room to grow strong: in the spring the plants will be fit for use, while those which may be suffered to remain, will produce their seeds in May, and ripen them in June.

2. Cochlearia Danica; *Danish Scurvy Grass.* Leaves hastate-angular, all deltoid. Stems about five inches long, seldom branched, partly decumbent, striated, reddish; flowers white, small; silicle elliptical.—Found upon the sea-coasts of Denmark and Sweden; and in Great Britain, in the isle of Portland, and about Plymouth; also at Wells, in Norfolk; isle of Walney, and Blackpool, in Lancashire; near Llanbadrick church, Anglesea; and in Scotland.

3. Cochlearia Anglica; *English* or *Sea Scurvy Grass.* Root-leaves egg-shaped, entire; stem-leaves lanceolate, toothed; silicles elliptical, reticularly veined; root annual or biennial. The herb smooth, somewhat fleshy; flowers like those of the first species, of which, according to Hudson, it is only a variety. According to Mr. Woodward, it is undoubtedly a distinct species; and he affirms, that at Yarmouth, where it grows abundantly, as well as in other places, it is never known to vary. Hill recommends the leaves of this plant, or the juice of them, to be taken in the same manner as those of the first species, as he affirms their virtues to be the same, and even greater, although the taste be less agreeable.—It is found in muddy soils upon the sea-coasts, on the banks of the Thames, near Portsmouth, Bristol, in the salt-marshes of Kent and Essex, in the isle of Wight, near Kings-weston, and upon the rocks of Inch-columb, &c.

4. Cochlearia Groenlandica; *Greenland Scurvy Grass.* Leaves kidney-form, entire, fleshy. Root-leaves very small, underneath very convex and fleshy, veinless, very entire, on long petioles; stem-leaves hastate, angular, on short petioles. Not above two inches high.—It is found on the sea-coasts of Muscovy, and Davis's Straits; on the mountains of Caernarvonshire, about Llanberys; near Settle; on the Highlands of Scotland; and in the Orkneys.

5. Cochlearia Coronopus; *Wild Scurvy Grass*, or *Swine's Cress.* Leaves pinnatifid; stem depressed. Stem and leaves smooth, lying flat upon the ground, all about the roots; the flowers grow in short axillary tufts, are very small, and have white petals. It is acrid, and tastes like garden-cress. The ashes were an ingredient in Mrs. Stephens's once celebrated medicine for the stone. The expressed juice of this plant is a safe but powerful diuretic, and is good for all inward obstructions, the jaundice, and scorbutic complaints; the leaves may be eaten as a salad, or dried and given in decoction.—It is an annual, and commonly found on road-sides, dung-hills, and among rubbish; flowering from June to August.

6. Cochlearia Armoracia; *Horse Radish.* Root-leaves lanceolate, crenate; stem-leaves gashed. Root perennial, creeping; leaves very large, varying much, sometimes deeply pinnatifid, sometimes entire, and only crenated; flowering-stem a foot or eighteen inches high, branching at top, almost naked; flowers white, in loose panicles; silicle nearly ovate.—Found on the sides of ditches, and it also grows among rubbish, and in pastures, flowering in May. Horse-radish, the scraped root of which is used for many culinary purposes, possesses a volatile and pungent quality, which evaporates in drying. It impregnates both water and spirit very richly with its active matter, whether it be extracted by infusion or distillation. It is a moderately stimulating, aperient, and antiseptic medicine, which sensibly promotes perspiration, urine, the expectoration of viscid phlegm, and excites appetite when the stomach is weakened or relaxed: it is principally used in paralytic and rheumatic complaints, in scurvies, and impurities of the humours, in cachectic disorders, and in dropsies, particularly those which often follow intermitting fevers: it provokes vomiting, if taken in considerable quantities. Thomas Bartholin extols the virtues of Horse-radish in the stone, from his own experience; he declares, that the juice of Horse-radish dissolved a calculous or stony concretion that was taken out of the human body. An infusion of it in cold milk is said to make one of the safest and best cosmetics. One dram of the root infused in four ounces of water for two hours in a close vessel, and made into a syrup with double its weight of sugar, a tea-spoonful of which to be taken occasionally, removes hoarseness. The Horse-radish is propagated by cuttings or buds, from the sides of the old roots; the best season for this work is in October or February; the former for dry lands, the latter for moist: the ground should be trenched at least two spits deep or more, if it will allow of it. The manner of planting is as follows: Provide yourself with a good quantity of offsets, which should have a bud upon their crowns, but it matters not how short they are, therefore the upper part of the roots which are taken up for use, may be cut off about two inches long, with the bud to it, which is esteemed the best for planting; then make a trench about ten inches deep, in which place the offsets, about four or five inches' distance each way, with the bud upward, covering them with the mould that was taken out of the trench; after this proceed to prepare other trenches, and plant them in the same manner, until the whole ground be filled; after this is done, level the surface of the ground even, observing to keep it clean from weeds, until the plants be so far advanced as to be strong enough to overbear and keep them down. Under this management, the roots of the Horse-radish will grow long and straight, and free from small lateral roots, and the second year after planting they will be fit for use. The ground in which they are planted ought to be very rich, otherwise they will not thrive. The roots may be preserved for some time in their juicy state, by putting them in dry sand.

7. Cochlearia Glastifolia; *Wood-leaved Scurvy Grass.* Stem-leaves cordate, sagittate, stem clasping. Root biennial; stem usually a foot and half high, with upright stalks; the flowers in loose spikes at the ends of the branches, very small, white; and are succeeded by short oval pointed swelling pods filled with round seeds.—Native of Germany and the south of France; flowering from May to July.

8. Cochlearia Draba. Leaves lanceolate, stem-clasping, toothed. Root perennial, striking deep; stems several, about a foot high, striated, leafy, almost simple, annual; leaves distantly toothed, pale green or hoary; flowers small, white, in several short racemes.—Native of Italy, Austria, &c.

9. Cochlearia Acaulis. Stemless: leaves cordate-kidney-shaped; scapes filiform, one-flowered, quite simple. The whole plant scarcely half an inch high, growing in smooth tufts; flowers blue or white; silicle inflated, thick, oblong, many-seeded.—Native of Portugal and Morocco.

10. Cochlearia Auriculata. Leaves oblong, arrow-shaped at the base, auricled, embracing the stem; racemes long, loose, simple. Stem six inches high; flowers white.—Found near Auvergne.

Cock's-comb. See *Celosia.*

Cock's-foot Grass. See *Dactylis.*

Cock's-head. See *Hedysarum.*

Cockle. See *Agrostemma.*

Cocoa-nut. See *Cocos.*

Cocoa Plum. See *Chrysobalanus.*

Cocos; a genus of the class Monœcia, order Hexandria; of the natural order of Palms.—Generic Character. *Male Flowers,* in the same spadix with the females. *Calix:* spathe universal, univalve; spadix branching; perianth three-parted, very small; divisions subtriquetrous, concave, coloured. *Corolla:* petals three, ovate, acute, patulous. *Stamina:* filamenta six, simple, length of the corolla; antheræ sagittate. *Pistil:* germen scarce manifest; styles three, short; stigma obsolete. *Pericarp:* abortient. *Female Flowers,* on the same spadix with the males. *Calix:* spathe common with the hermaphrodites, as likewise the spadix; perianth three-parted; divisions roundish, concave, converging, coloured, permanent. *Corolla:* petals three, permanent, like the calix, but rather larger. *Pistil:* germen ovate; style none; stigma three-lobed. *Pericarp:* drupe coriaceous, very large, roundish, obscurely triangular. *Seed:* nut very large, subovate, acuminate, one-celled, valveless, obtusely three-cornered, the base perforated by three holes; kernel hollow. Essential Character. *Male. Calix:* three-parted. *Corolla:* three-petalled. *Stamina:* six. *Female. Calix:* five-parted. *Corolla:* three-petalled. *Stigmas:* three. *Drupe:* coriaceous.——The species are,

1. Cocos Nucifera; *Cocoa-nut Tree.* Unarmed: fronds pinnate; leaflets folded back, ensiform. The roots are very slender, simple, and flexile; they arise separately from the bottom of the trunk, and spread in all directions, some running to a great depth, while others creep almost parallel to the surface. The trees grow to a great height; their stems are composed of strong fibres like net-work, which lie in several laminæ over each other, out of which come the branches, or rather leaves, which grow twelve or fourteen feet long, forming a terminal head; the upper ones erect, middle ones horizontal, lower ones rather drooping; leaflets numerous; petioles in two ranks; spathes oblong, acute, opening on one side. The flowers come out round the top of the trunk of the tree, in large clusters; they are inclosed in a large spathe or sheath; and the nuts also are afterwards formed in large clusters, ten or twelve together. The fruit is properly a berried drupe, superior, very large, ovate, rounded-three-cornered; the shell itself is of a bony substance; the kernel adheres all round the inner wall of the shell, and the cavity is filled with a milky liquor. The kernel in some nuts is nearly an inch thick; and the hollow contains about a pint of sweet, delicate, wholesome, and refreshing liquor. While the nut is growing, it contains nothing but this liquor; but as it approaches towards maturity, the kernel begins to settle round the inside of the shell, like soft cream, which, as the nut ripens, increases in substance until it becomes hard. The ripe kernel is sweet, but difficult of digestion, and seldom eaten except by strangers; but while it is young and soft, some will eat it, scraping it out with a spoon after they have drank the liquor. While the nuts are young, the liquor is very pleasant; as they grow old, it becomes more sharp and cooling, and far more agreeable to feverish habits. The kernel is certainly nourishing in a high degree, and is much used in making soups, curries, &c. and may be substituted for almonds, in emulsions and apozems, whenever it can be procured fresh: a pure sweet oil is extracted from it, which is fit both for medicinal and culinary uses: the inhabitants of the Society Isles scent this oil with sandal wood, and other perfumes, in order to anoint their hair and skin with it. Beside the liquor contained in the fruit, there is a sort of wine drawn from this tree, which looks like whey, and is called toddy: it is sweet and very pleasant, when fresh; but if not drank within twenty-four hours after it is drawn, will turn sour. From this wine, in its sour state, they who have a great many trees distil a spirit called arack. It is also distilled from rice, but none is so much esteemed for making punch, as this sort made from toddy, or the sap of the Cocoa-nut tree; although it requires a dash of brandy to hearten it, because it is not strong enough to make good punch of itself. This sort of liquor is principally used about Goa, and has thereby acquired the name of *Goa arack.* In order to make arack, the trees must be prevented from bearing fruit: and to accomplish this the sprout which produces the nut, and which shoots every month, is cut, and jars fastened to it to receive the liquor; or the body bored, and a plug put into the orifice, which is occasionally taken out when the liquor is wanted: this liquor is permitted to ferment, and is afterwards distilled into the spirit called arack, which is of a far better quality than that of the same name which is drawn from rice. If this liquor be exposed to the sun, it will soon turn to vinegar. The coat or husk of the shell is composed of strong fibres, and is two or three inches thick. With these fibres, after soaking them in water, sail cloth, cables, and cordage, are made for the largest ships; as also oakum, and a variety of yarn used in caulking ships, and for other nautical purposes. The shells answer a variety of purposes as household utensils; and when worn out, are burnt to make lamp-black, for painting, &c. The trunk of this tree is formed into gutters, and occasionally employed for enclosing and roofing outhouses; and being nailed close, is so hardy as to resist the weather for many years. The Indians make boats, rafters, and the whole frame of their houses, from the body of this tree; the leaves of which they use for thatching them, and are wrought into mats, baskets, and many other things, for which osiers are used in Europe. The tender shoots at the top afford a pleasant green or cabbage, which is dearly acquired by the destruction of the tree, which seldom survives their being cut off.—This useful tree is common almost every where within the tropics, and is cultivated in both Indies; but is supposed to be a native of Asia, and is found in a wild state in the Maldives and Ladrones, as well as in the islands of the South Seas. It is propagated by planting the nuts wherever they are intended to remain; for it will not bear transplanting unless the operation be performed while the trees are very young, for their roots shoot deep and wide, so that if they be cut or broken the plants seldom survive it, which is the case with most of the Palms. Where any persons desire to have a plant or two of this sort, they should procure some fresh nuts from the nearest place of their growth, which on their arrival should be buried, lying on one side in a warm bed of tanner's bark, that the young shoot which comes out from one of the three holes may not be injured by wet, covering them at the same time six inches deep with the tan. In this situation, if the nuts be good, they will put out shoots in six weeks or two months, when

they should be carefully taken up, and each planted in a separate pot filled with kitchen-garden earth, and plunged into the tan-bed in the stove, where the plants should always remain, as they are too tender to thrive in any other situation; but they should be shifted into larger pots as they advance in their growth, taking care not to cut or tear their roots in the removal. Very few of the nuts brought to England are ripe, being commonly gathered in an unripe state, that they may keep during their passage. The best way to bring them for planting is to put some that are fully ripe in dry sand in a tub, where vermin cannot get at them. These will often sprout upon the passage; which is an advantage, because they may be immediately planted into pots of earth, and plunged into the bark-bed. These trees make considerable progress in the West Indies, but they are many years before they attain to any considerable height in Europe: however, as the young leaves are rather large, they make a good appearance among tender exotics in the course of two or three years. The other species of this genus may be propagated by seeds in the same way: and for further information upon the subject, consult the article *Phœnix*.

2. Cocos Butyracea. Unarmed: fronds pinnate; leaflets simple. A loftier tree than the preceding, with a larger head; universal spathe an oblong cylinder, drawn to a point at each end, woody, smooth within, marked on the outside with numerous woody parallel ribs uniting towards the end; it opens longitudinally, falls off after the bursting of the spadix, and is from four to six feet long; kernel cartilaginous, very hard, having the same taste as in the common Cocoa-nut. The pulp of the nut is very mucilaginous, and therefore used for fattening hogs: an oil or butter prepared from it is in constant use among the Indians in South America, both in food and medicine.

3. Cocos Guinensis; *Prickly Pole*. The whole spiny: spines bristle-shaped; fronds distant; root creeping. Root knotty, round, thicker than the trunk, short, horizontally bent in directly below the surface, creeping and presently putting out another trunk, so as to make a thicket, while it fixes itself firmly in the soil by slender fibrous roots: trunk erect, armed with very numerous prickles, seldom exceeding twelve feet in height, and one inch in diameter; flowers scentless, with a very slight tinge of yellow; corolla triquetrous, frequently three-parted almost to the base; fruits dark purple, the size of a common cherry, containing an acid juice, of which the Americans make a sort of wine: the fruit is eatable, but not pleasant, yet they furnish the wild hogs of Jamaica with abundant fare. Canes are made of the trunk when stripped of its bark; they are black, shining, jointed, and very light. The French call them *cannes de Tobago*, aud they are sometimes brought to Europe. The outward part is extremely hard and elastic, looking like whalebone, and being very fit for bows and rammers.—Native of Carthagena in South America.

4. Cocos Aculeata; *Great Macaw Tree*. Aculeate-spiny; trunk fusiform; fronds pinnate; stipes and spathes spiny. The trunk of this tree is about the thickness of the human body, and rises to the height of thirty feet, with an ash-coloured bark, very thickly set with sharp black prickles of different lengths, placed usually in rings. The fruit is as large as a crab, and of the same shape; under a green skin it has a thin sweetish astringent pulp, and within that, a nut full of a white sweet eatable kernel. Browne says, that the husks of this and of the small Macaw-tree are full of oil, and the nut black and shining. The negroes say, that it yields the true palm-oil. The outside of the trunk is made into laths, bows, and darts.—Native of the Caribbee islands.

5. Cocos Nypa. Unarmed: fronds pinnate; spadices to the male flowers round, to the females roundish; drupe grooved. This is a very thick palm, only four feet high, frequently shorter, or even without a stem; fronds fifteen feet long, almost upright, irregularly pinnate, with a subcylindric rachis or midrib.—It is very frequent in salt marshes, and at the muddy mouths of rivers in Cochin-china, Cambodia, the Philippine Islands, the streights of Malacca, &c. See *Nipa Fruticans*.

Codia; a genus of the class Octandria, order Digynia.—Generic Character. *Calix:* common four-leaved; leaves reflected below the head; proper four-leaved; leaflets elliptic, erect. *Corolla:* petals four, linear. *Stamina:* filamenta eight, filiform, two, each growing to the base of a petal, longer than the corolla; antheræ ovate-angulate. *Pistil:* germen very small, superior, extremely villose; styles two, subulate, the length of the stamina; stigmas simple. *Receptacle:* common villose. Essential Character. *Calix:* four-leaved. *Petals:* four. *Common Receptacle:* involucred.——The only known species is,

1. Codia Montana. Leaves opposite, petioled, elliptic, very smooth, entire, obtuse; heads of flowers globular, terminating, and axillary, very short, peduncled. It is a shrub.—Native of New Caledonia.

Codlin Tree. See *Pyrus Malus*.

Codlins and Cream. See *Epilobium*.

Codon: a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, ten-parted; leaflets subulate, permanent, somewhat erect, alternately shorter. *Corolla:* one-petalled, bell-shaped, torulose at the base: border ten-parted, equal; nectary ten-celled, consisting of ten scales inserted into the claws of the stamina, converging, covering the receptacle. *Stamina:* filamenta ten, length of the corolla; antheræ thick. *Pistil:* germen superior, conic; style simple, length of the stamina; stigmas two, long, setaceous, divergent. *Pericarp:* two-celled. *Seeds:* several, roundish, echinate, with soft papillæ, situated in a juiceless coloured pulp. Essential Character. *Calix:* ten-parted, permanent; leaflets alternately shorter. *Corolla:* bell-shaped, ten-cleft. *Nectary:* ten-celled, composed of ten scales. *Pericarp:* two-celled, containing several seeds.——The only known species is,

1. Codon Royeni. Stem herbaceous, firm, eighteen inches in height, round, with rising branches, cottony, and full of pith; leaves alternate, petioled, cordate-ovate, subrepand, undivided, acuminate, subcoriaceous, clothed with a short cottony down, and rough with small hard prickles; flowers supra-axillary, solitary, peduncled, having the appearance of the corolla of Atropa Belladonna, whitish, with ten purple streaks on the outside; fruit a capsule, contained within the segments of the calix, ovate-acuminate, two-valved, with numerous small seeds of a shining blood-red colour. The whole herb is striated.—Native country unknown.

Cœli Rosa. See *Agrostemma*.

Coffea: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-toothed, very small, superior. *Corolla:* one-petalled, salver-shaped; tube cylindric, slender, many times longer than the calix; border flat, five-parted, longer than the tube; divisions lance-shaped; sides rolled back. *Stamina:* filamenta five, subulate, placed on the tube of the corolla; antheræ linear, incumbent, length of the filamenta. *Pistil:* germen roundish, inferior; style simple, length of the corolla; stigmas two, reflected, subulate, thickish. *Pericarp:* berry roundish, umbilicated by a one or two celled puncture. *Seeds:* one or two, solitary, elliptically hemispherical, gibbous on one side, flat

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

CITRUS — *The Citron.*

P. 535.

COLCHICUM — *Variegated Meadow Saffron.*

P. 541.

P. 509.

P. 557.

CISTUS LADANIFERUS — *Spanish Gum Cistus.*

COFFEA ARABICA — *Eastern Coffee Tree.*

on the other, where it is furrowed longitudinally, involved in an aril. ESSENTIAL CHARACTER. *Corolla:* salver-shaped. *Stamina:* upon the tube. *Berry:* inferior, two-seeded. *Seeds:* arilled.——The species are,

1. Coffea Arabica; *Eastern Coffee-Tree.* Flowers five-cleft; berries two-seeded. The Coffee-tree seldom rises more than sixteen or eighteen feet high in its native country, or more than ten or twelve in Europe. The main stem grows upright, and is covered with a light brown bark; branches horizontally opposite, brachiate at every joint; leaves opposite, four or five inches long when fully grown, an inch and a half broad in the middle, ovate-lanceolate, the borders waved, and the surface of a lucid green, but paler beneath. The flowers are produced in clusters at the base of the leaves, four or five together, sitting close to the branches; they are of a pure white, with a very grateful odour, but of short duration; and are succeeded by berries, which are at first green, but turn red when fully grown, and are black when ripe: they are of an oblong spheroidal form, with a little circular area at the top, within which is a callous dot; the pulp is pale, insipid, and gelatinous; within it is two-celled, each containing one seed, of an elliptical form, convex on one side, and flat on the other, with a longitudinal cleft.—Dr. Patrick Browne, who resided many years in Jamaica, informs us that the Coffee-tree thrives best in a rich soil, and cool shaded situation, where it produces so great a quantity of fruit, that the very trunk itself yields to the load. This fruit is large and succulent, and the berries lax and clammy; they are gathered when only half ripe; and instead of being stripped of their pulp, and carried down to the low lands to be dried, the seeds are left soaking in their clammy juices, to dry slowly in a damp air. This will sufficiently account for the inferiority of the Jamaica, when compared with the Arabian Coffee, which grows in a sandy, dry, hot soil, where the berries acquire but little pulp, and are soon dried by being spread upon mats, and exposed to the sun. The same accurate writer, however, consoles us by his opinion, founded upon repeated experiments, that the West India Islands might furnish Coffee equal in quality to the Turkish, if the following remarks were attended to: 1. New Coffee will never parch or mix well, from the natural clamminess of the juices: 2. the smaller the grain, the less pulp the berry has, the better the Coffee, and the sooner it will parch, mix, and acquire a flavour: 3. the drier the soil, and the warmer the situation, the better will be the Coffee it produces: 4. the larger and more succulent the grain, the worse the quality will prove: 5 the worst Coffee produced in America, will in the course of years, not exceeding ten or fourteen, be as good as the best we now receive from Turkey, if care be taken to keep it in a dry place, and to preserve it properly. Small-grained Coffee is the best. Mr. Miller advices those who cultivate the Coffee-tree in the West Indies; first, to prefer a dry before a moist soil; secondly, to permit the berries to remain upon the trees until the skin shrivels and turns black; thirdly, to gather, or rather shake them from the trees when they are perfectly dry, spreading them afterwards upon cloths or mats in the sun, and carrying them every evening under cover, until they are wholly dry, as is done in Arabia Felix: and when they are thus perfectly dried, deprived of their husks, and winnowed, he advises to pack them up carefully in bags, and not to ship them with rum or other goods, from which they may imbibe a disagreeable flavour. In addition to this, Dr. Browne recommends the possessors of large Coffee walks to have a convenient platform to dry the seeds on, and he thinks it would be a useful experiment to try whether sweating would remove the clamminess of the large berries. They should, however, be pulped and dried as soon as possible, then husked, and cleared from all the outward coverings. This is generally done, in Jamaica, by pounding the dried berries lightly in a large wooden mortar; they are then winnowed, cleared, again exposed to the sun for some days, and then casked for the market. If it be not well dried, the Coffee is liable to heat on its way to Europe, and when that occurs it loses all its flavour. Long, in his history of Jamaica, observes, that the berries never ought to be gathered until the pulp is exhaled, and the coat suffered to become thoroughly dry and shrivelled, so that they may appear ready to drop off, and actually fall upon a slight touch. In confirmation of this, he affirms that he has experienced the best-flavoured Coffee to have been collected from under the trees, where it had recently fallen quite dry, black, and shrivelled: he adds that the trees should be planted at distances proportioned to their growth, which is five feet in the low lands, and ten or more in the mountains; and that the produce of a good tree is from one pound and a half to two pounds weight: he also thinks, that the mountain Coffee might be improved by sending the berries to the low lands, where the heat is greater, and the air more dry; and by having a drying house under a roof, with one or more platforms, admitting a free current of air, and excluding the rain and the beams of the sun: he further informs us, that the husks are no longer beaten off in mortars, but by rollers turned by mules; that wooden rollers are preferable to iron or stone; and that the most approved machine, invented by Mr. Latham, will clean one hundred hogsheads in a day. Dr. Fothergill very reasonably suggests, that the removal of the Coffee-tree from the dry sterile sandy soil of Arabia, into the rich deep staple of Batavia, where the quantity of water falling in the rainy season is excessive; its removal from thence into Holland and France; and its subsequent transportation to a climate much more abounding in moisture than that of which it was a native,—may so far have altered the quality of the fruit, as to make it difficult to restore it to its original perfection; which he nevertheless thinks may be accomplished by making the plantations in soils as similar as possible to that out of which it was originally taken: he also hints that the fruit of young trees is in general more insipid, or has a less refined taste, than the old, and that this probably applies to the Coffee-tree, the fruit of which he asserts to be smaller in the old than in the young trees. The French cultivate it with great attention in both Indies; and the consequence is, that their Coffee is much superior to ours, and by some is even accounted nearly equal to the best Turkey. They are also more careful in not shipping it among goods which destroy its flavour, and communicate an ill taste in its stead, as with rum and coarse sugars, the ill flavour arising from which can hardly be removed, even by roasting it in the fire. It is also probable, adds Dr. Fothergill, that our plantation Coffee is used too soon; and that one part of the excellence of the Mocha Coffee may arise from the intervention of two or three years between its growth and consumption. Mr. Miller, however, controverts this hypothesis. "It is (says he) contrary to all the experience I have had, and the information I have obtained from those who have been eye-witnesses to the whole process of managing Coffee in Arabia. Two gentlemen who have lived there some years assure me, that the berries, when first gathered, are much better than those which have been kept any time. And a curious observer, who resided two years in Barbadoes, also informs me, that he never drank better Coffee in any part of the world than what he made fresh from the berries he gathered himself, and roasted as he had occasion for them."

This account is further and fully confirmed, by trials with berries produced in our English stoves, which make a better flavour than the best Arabian Coffee-berries that can be procured in England. It is no misfortune to the planter that his Coffee is not improved by age, for if it were, it would be extremely difficult for him to keep it so long as is proposed; which would entirely deprive him of all profit whatever. Fuller, however, informs us, that after a multitude of experiments, the Jamaica planters have by the most laudable exertions, discovered the art of cultivating, picking, and curing the berries, so as to make their Coffee equal to the growth of Arabia. Some samples are said to have been produced which the London dealers pronounced superior to the best brought from the East. Two of them were equal to the best Mocha Coffee; and two more superior to any that could be procured at the grocers' shops in London, unless at the price of picked Coffee, which is two shillings per pound more than what they call the best Coffee; to which the remainder of the samples were little, if at all, inferior.—*Propagation and Culture.* As the Coffee-tree is an evergreen, it makes a beautiful appearance in the stove at every season, but particularly when it is in flower, and also when the berries are red, which is generally in winter; and as they continue a long time in that state, there is scarcely any plant that better deserves a place in the stove. It is propagated by the berries, which must be sown soon after they are gathered from the trees; for if not soon afterwards placed in the ground, they will not grow. They should be planted in small pots filled with light kitchen-garden earth, and plunged into a hot-bed of tanner's bark; they must be watered gently once or twice a week, but not so as to make the earth too moist, for that would rot the berries. If the bed be of a proper temperature of warmth, the plants will appear in a month or five weeks' time, and in about two months more will be fit to transplant: for as many of the berries will produce two plants, so the sooner they are parted, the better the roots will be formed; for when they grow double till they have made large roots, they will be so intermixed and entangled, as to render it difficult to separate them without tearing off their fibres, which will greatly prejudice the plants. When they are transplanted, they must be each put into a separate small pot filled with the same earth as before, and plunged into the tan-bed again, which should be stirred up to the bottom, and, if required, have new tan added, to increase or restore the heat. The plants should then be gently watered, and the glasses of the hot-bed must be shaded every day till they have taken fresh root, after which they must have free air daily admitted to them in proportion to the warmth of the season; and during the summer they will require to be refreshed with water, but it must be given sparingly, for if their roots be kept too moist, they are very subject to rot, which will cause the leaves to decay and drop off, leaving the plants naked, after which they are seldom recovered again. The first sign of the disorder in these plants, is their leaves sweating out a clammy juice, which attracts the small insects that too frequently infest the plants in stoves, when they are not in health; and these insects cannot be destroyed till the plants are recovered to vigour, for although they be ever so carefully washed and cleaned from them, yet they will soon be attacked again, if not fully restored; so that upon the first attack, the plants should be shifted into fresh earth, and all possible care taken to recover them. The disorders attending the Coffee-trees generally proceed either from being put into pots too large for them, nothing being worse than overpotting them, or from the earth being too stiff, or from their being overhung by other plants, or from being overwatered. If these things be avoided, and the stove be always kept in a proper temperature, the plants will thrive, and produce plenty of fruit. The plants should not be too often transplanted, for that will greatly retard the growth; if they be new-potted twice a year at most, it will be sufficient; though, unless they make great progress, they will not require removing more than once a year, which should take place in summer, that they may have time to acquire good root again before winter. This tree has been propagated from layers and from cuttings; but these are long before they make roots, and the plants so raised are never so strong and thriving as those which arise from berries; the plants raised from which produce fruit in two years even in our climate, and much sooner in hot countries. In Arabia Felix the Coffee-tree is raised from seeds sown in nurseries, and planted out as there is occasion. The plantations are in moist shady situations, on small eminences at the foot of the mountains, whence little rills of water are conducted in small channels to the roots of the trees, to secure the production and ripening of the fruit. When they remove or transplant a tree, they make a trench three feet wide, and five feet deep, which they line or cover with stones, that the water may the more readily sink deep into the earth, and be thereby prevented from evaporating. When the fruit is nearly ripe, the water is turned off, lest it should become too succulent. In places that are much exposed to the south, the Coffee-trees are planted in regular lines, sheltered by a kind of Poplar-tree, which affords a thick shade. Without these precautions the Arabians suppose that the blossoms would be so parched by the excessive heat of the sun, as not to be succeeded by any fruit.——The liquor which we call *coffee*, or *coffea*, prepared from the berry of this tree, has been drank in Ethiopia from time immemorial. Du Thour recommends the following method of making this beverage: Pour into a Coffee-pot filled with boiling water, in the proportion of two ounces and a half of the powder, to two English pints of water. Let the mixture be stirred with a spoon, and the Coffee-pot be set on the fire, but soon taken off, and suffered to remain about two hours on the warm ashes, closely shut up; during this period it should be frequently agitated, and finally left a quarter of an hour to clear. Coffee thus prepared, he adds, is perfect. The Galla, a wandering nation of Africa, in their incursions on Abyssinia, being obliged to traverse immense deserts, and desirous also of falling upon the Abyssinians unawares; in order that they may be encumbered with as little baggage as possible, carry nothing with them to eat, but Coffee roasted till it can be pulverized, and then mixed with butter into balls, and put into a leathern bag. One of these, which is about the size of a billiard-ball, keeps them, according to their account, in better health and spirits, during a whole day's fatigue, than a loaf of bread or a meal of meat. The Coffee-tree was introduced into Aden in Arabia, from Persia, by Gemaleddin, only about the middle of the fifteenth century. Not long after it reached Mecca, Medina, and Grand Cairo, whence it continued its course to Damascus and Aleppo, and in 1554 became known at Constantinople, being introduced there by two persons, one from Damascus, and the other from Aleppo, each of whom opened a public Coffee-house in that city. The first European author who has mentioned Coffee, is Rauwolf, who was in the Levant in 1573; but the first who has particularly described it, is Prosper Alpinus, in his *Medicina Ægyptiorum*, 1591, and in his *History of Egyptian Plants*, 1592. The use of Coffee was known in London soon after the year 1652, for Mr. Daniel Edwards, a Turkey merchant, brought home with him a Ragusan Greek servant, who understood the roasting

and making of Coffee. This Greek was the first who sold Coffee, and kept a house for this purpose in George-yard, Lombard-street; or, according to Mr. Houghton, who wrote in 1701, in a shed in the church-yard of St. Michael's Cornhill, which is now, says he, a scrivener's brave house: he adds, that one Rastall, whom he knew, went to Leghorn in 1651, and there found a coffee-house; that he met Mr. Daniel Edwards there, with his Greek servant; and that Mr. Edwards was the first who brought the use of Coffee into England, except it were the famous Dr. Harvey, who, some say, did frequently use it. Pasqua, who first sold Coffee in London, being no freeman, the ale sellers petitioned the lord-mayor against him; which induced alderman Hodges, whose daughter Mr. Edwards had married, to join his coachman, Bowman, who was free, as Pasqua's partner; and thus Mr. Rastall found them in 1654. For some misdemeanor, Pasqua was forced to leave the country; and Bowman, by his trade, and a contribution of 1000 sixpences, turned the shed to a house. Bowman's apprentices were, first, John Painter, then Humphry, from whose wife Mr. Houghton first obtained the above minute account of the introduction of Coffee into London. Two English travellers notice this beverage at the very beginning of the seventeenth century. Biddulph, in 1603, says, "The Turks have for their most common drink *coffa*, which is a black kind of drink, made of a kind of pulse like peas, called *coava*:" and William Finch, in 1607, says, "that the people in the island of Socotora have for their best entertainment a china dish of *cobo*, a black bitterish drink, made of a berry like a bay-berry, brought from Mecca, supped off hot." Lord Bacon mentions Coffee in 1624; and Mr. Thevenot, the French traveller into the East, at his return in 1657, brought with him some Coffee to Paris for his own use. It was, however, known at Marseilles in 1644, although Mons. du Tour, who wrote upon Coffee in 1685, says, that the French knew nothing of it till 1645. The first mention of Coffee in the English statute-books, occurred in 1660. Monsieur la Roque, who published his Journey into Arabia Felix in 1715, contends, that his father, having been with Monsieur de la Haye, the French ambassador at Constantinople, did, when he returned to Marseilles in 1644, drink Coffee every day; but he allows, notwithstanding, that Thevenot was the first who taught the French to drink it: however, until the year 1660, it was drunk by those only who had been accustomed to it in the Levant; but in that year some bales were imported from Egypt, and in 1671 a Coffee-house was opened at Marseilles; and it was not known at Paris till two years before, except among Mr. Thevenot and his friends, but in that year it was effectually introduced by Solyman Aga, ambassador from sultan Mahomet; and, two years after, Pascal, an Armenian, sold it publicly in the Foire St. Germain, and afterwards set up a Coffee-house on the Quai de l'Ecole; but meeting with little encouragement, he left Paris, and came to London. Not long after this, spacious rooms were fitted up in an elegant manner for selling Coffee and other refreshments at Paris, and in a short time the number of Coffee-houses was increased to three hundred. In 1688 the celebrated naturalist Mr. Ray affirms, that London might rival Grand Cairo in the number of its Coffee-houses, and that they were to be found not only in the capital, but in every town of note in England. Probably the ill-judged proclamation of Charles II. against Coffee-houses, in 1675, contributed much to establish them. In his history of plants, published also in the year 1688, Mr. Ray, speaking of Coffee as a drink very much in use, supposes that the Arabs destroyed the vegetable quality of the seeds, in order to confine their commodity to themselves, and adds, that he wondered the neighbouring nations did not contrive to bring away some sound seeds or living plants, in order to share in so lucrative a trade: this was soon done, for Nicholas Witsen, burgomaster of Amsterdam, and governor of the East India company, desired Van Hoorn, governor of Batavia, to procure from Mocha, in Arabia Felix, some berries of the Coffee-tree, to be sown at Batavia, which was accordingly done about the year 1690: and Van Hoorn having raised many plants from the seeds, sent one over to governor Witsen, who presented it to the garden at Amsterdam, where it bore fruit, which in a short time produced many young plants. From these, the East Indies, and most of the European gardens, have been supplied; and even in the year 1696 it had reached Fulham, where it was cultivated by Bishop Compton. In 1714 the magistrates of Amsterdam presented Louis XIV. with a Coffee-tree, which was placed in the royal garden at Marli, under the care of the celebrated Jussieu, who had written a memoir, printed in the History of the Academy of Sciences for 1713, describing the characters of the genus, with a figure of it from a smaller tree, which he had received from the burgomaster of Amsterdam, and director of the botanic garden there. In 1718, the Dutch colony of Surinam began first to plant Coffee; and in 1722, M. de la Motte Aigron, governor of Cayenne, contrived by an artifice to bring away a plant from Surinam, which in the year 1725 had produced many thousands. Rochon, in his account of Madagascar, asserts, that in 1718 the inhabitants of the Isle of Bourbon sent to Mocha and Aden for some young plants of the Coffee-tree, which being carefully cultivated, in a few years became very productive, and soon afforded the French East India company a very important article of trade, until 1727, when perceiving that this acquisition might be of great advantage to their other colonies, they conveyed some of the plants to Martinico, whence it most probably spread to the neighbouring islands; for in the year 1732, it was cultivated in Jamaica, and an act was passed to encourage its growth in that island. The first plant that appeared in that island was carried thither by Sir Nicholas Laws, and placed in the garden of Townwell, at present called Temple Hall, the property of Mr. Lutterel; but he dying in 1731, did not see the cultivation of it make any considerable progress. In the year 1752, the exportation of Coffee from Jamaica was rated at 60,000 pounds weight; in 1775, at 440,000; and in 1790, at 1,783,740. The abbé Raynal says, that 12,550,000 pounds weight is annually exported from Arabia Felix.

2. Coffea Occidentalis; *Western Coffee Tree.* Flowers four-cleft; berries one-seeded. It is upright, branching, and six feet high; leaves lanceolate-ovate, ending in a blunt point, quite entire, shining, petioled, opposite, only on the young twigs, four inches long; corolla white, very sweet-scented; the flowers appear in December.—It is found near Cape François in St. Domingo, and is pretty common in the lower woods of Jamaica, where Brown calls it the *wild jessamine*, the flowers having much of the shape and smell of our white jessamine.

3. Coffea Racemosa. Very much branched; leaves rugged; racemes terminating. This is a small tree, only four feet high, with many diffused round branches; leaves ovate-lanceolate, quite entire, beset with many tubercles, opposite, on short petioles; flowers subterminating, in erect brachiate racemes; berry roundish, small, red, watery, one-celled, with two hemispherical seeds.—Native of the island of Mosambique.

4. Coffea Zanguebariæ. Corollas six-cleft; fruit angular, nerved. This is a small upright tree, six feet high, with thick short spreading branches; flowers white, axillary, several together on short one-flowered peduncles; border

six or seven parted; berries red, oblong, ovate.—Native of Africa, on the coast of Zanguebar, and cultivated near Mosambique, with the preceding species.

5. Coffea Guianensis. Flowers four-cleft; berries small, violet-coloured, two-seeded. Stem branching, from one to two feet in height; branchlets quadrangular, knotty; flowers axillary, several together, small and white; berry spherical, and violet coloured.—It flowers and fruits in September; and is a native of the great forests of Orapu in Guiana.

6. Coffea Paniculata. Branches quadrangular; leaves ovate-oblong, acute; corollas four-cleft; berries two-seeded. Trunk seven or eight feet high, and five or six inches in diameter, covered with a gray, wrinkled, cloven bark; boughs opposite, branched, knotty, quadrangular; flowers terminating, panicled; corolla white, very sweet-scented.—Native of Guiana; flowering and fruiting in April.

7. Coffea Sambucina. Leaves oblong-lanceolate, acute; cymes corymbed, terminating. — Native of the Friendly Islands in the South Seas.

8. Coffea Opulina. Leaves ovate-lanceolate; cymes contracted, globular, terminating.—Native of New Caledonia.

9. Coffea Odorata. Leaves ovate, acute; cymes corymbed, axillary.—Native of Tanna, and the Friendly Islands.

10. Coffea Triflora. Leaves ovate-lanceolate, acuminate; peduncles terminating, three together, one-flowered.—Native of Otaheite.

Coix; a genus of the class Monœcia, order Triandria.—Generic Character. *Male Flowers*, disposed in a loose spike. *Calix:* glume two-flowered, two-valved; valves oblong-ovate, obtuse, awnless, the outer thicker. *Corolla:* two-valved; valves ovate-lanceolate, length of the calix, very thin, awnless. *Stamina:* filamenta three, capillary; antheræ oblong, four-cornered. *Female Flowers*, fewer, at the base of the male spike, on the same plant. *Calix:* glume two-flowered, two-valved; valves rounded, thick, shining, hard; the outer larger, shining. *Corolla:* glume two-valved; outer valve ovate, larger; inner narrower, smaller; both awnless. *Pistil:* germen ovate, very small; style short, two-parted; stigmas two, horned, longer than the flower, pubescent on every side. *Pericarp:* none: the outward calycine glume grows closely to the seed, it increases, grows shining, falls, does not gape. *Seed:* solitary, roundish, covered by the ossified calix. Essential Character. *Males*, in remote spikes. *Calix:* glume two-flowered, awnless. *Corolla:* glume awnless. *Female. Calix:* glume two-flowered. *Corolla:* glume awnless. *Style:* two-parted. *Seed:* covered by the calix, ossified.——The species are,

1. Coix Lachryma; *Job's Tears*. Seeds ovate. Culm six feet high, perennial, subcylindric, solid, jointed, erect, branched; leaves lanceolate, quite entire, long, wrinkled underneath, reflex, clasping; flowers axillary, on a long slender, suberect, common peduncle; at the top many males, in a subovate spikelet, and at the base a solitary female; the two styles are capillary, and entirely distinct, with long villose stigmas; seed bluish-white, very hard, shining like pearls. Annual.—Native of the East Indies; cultivated in Spain and Portugal, where, in times of scarcity, a coarse kind of bread is made of its seeds, and eaten by the poor. It is applied to the same use in China and the Levant. The seeds are sometimes bored and threaded for necklaces, and other female ornaments. Those who wish to cultivate this plant in England, may procure the seeds from Portugal, and should sow them upon a moderate hot-bed in the spring, to bring the plants forward, and afterwards transplant them on a warm border, allowing each two feet room apart; when they have taken root, they only require to be kept clean from weeds; they will flower about midsummer, and in warm seasons ripen seed at Michaelmas. There is a variety of this with much broader leaves, which was imported from Smyrna.

2. Coix Angulata; *Large Job's Tears*. Seeds angular. This grows to the height of seven or eight feet; the stems become hard, like the reed, or Indian corn, branching out; and producing several spikes of flowers.—Native of America; and a perennial. This species will not bear the open air in England, but must be plunged into the bark-bed, where it will flourish, and produce ripe seeds the second year, and may be continued longer if desired.

3. Coix Agrestis; *Small Job's Tears*. Culm entirely simple; leaves smooth and even; seeds roundish. Root perennial, creeping; culm three feet high; leaves lanceolate-linear, acuminate, quite entire, suberect, alternate, clasping: peduncles long, erect, axillary, many-flowered; males and females from the same axil; seed roundish, brown, shining, small.—Native of Amboyna, Ceylon, and Cochin-china.

Colchicum; a genus of the class Hexandria, order Trigynia.—Generic Character. *Calix:* none, except scattered spathes. *Corolla:* six-parted; tube angulated, rooted; divisions of the border lance-ovate, concave, erect. *Stamina:* filamenta six, subulate, shorter than the corolla; antheræ oblong, four-valved, incumbent. *Pistil:* germen buried within the root; styles three, thread-form, length of the stamina; stigmas reflex, channelled. *Pericarp:* capsule three-lobed, connected internally by a suture, obtuse, three-celled; sutures gaping inwardly. *Seeds:* many, nearly globular, wrinkled. Essential Character. *Calix:* a spathe. *Corolla:* six-parted, with a rooted tube. *Capsule:* three, connected, inflated.—All the plants of this genus form a very suitable variety for a flower garden, as they flower in autumn, when few other plants are in beauty. In May the leaves begin to decay, soon after which time the roots should be transplanted, for if they be suffered to stay in the ground till August, they will send forth fresh fibres, and after that it will be too late to remove them; the roots may be kept above ground till the beginning of August, and if not then planted, will produce their flowers as they lie out of the ground; but this will greatly weaken their roots. For the manner of planting these roots, see *Tulipa*. Whoever desires to obtain varieties in the flowers, must propagate them from seeds.—The species are,

1. Colchicum Autumnale; *Common Meadow Saffron*. Leaves flat, lanceolate, erect. It has a bulbous root, about the size and shape of the Tulip, but not so sharp pointed at the top; the skin or cover is also of a darker colour: these bulbs are renewed every year, for those which produce the flowers decay, and new roots are formed above. The flowers come out in autumn, and rise, with long slender tubes about four inches high, from the root; these tubes are shaped like those of the Saffron, but larger; and the number of flowers is generally in proportion to the size of the roots, from two to seven or eight. The green leaves appear in March, and are generally four in number to a full-grown root; they are folded over each other below, but spread open above ground, standing crossways; their colour is a deep green, and when fully grown they are five or six inches long, and one and a half broad. The seed-vessel comes out between the leaves in April, and the seeds ripen in May, soon after which the leaves decay. The seeds lie buried all the winter within the bulb; in spring they grow up on a fruitstalk, and are ripe about the time of hay-harvest. May not the very great length of the styles account in some measure for the delay in the ripening of the seeds? As this plant blossoms late in the year, and would not probably have time to ripen its seeds

before winter, Providence has so constructed it that they may ripen at a considerable depth in the earth, out of the reach of the usual effects of frost; and, as seeds buried at a certain depth are known not to vegetate, a no less admirable provision is made to raise them above the surface when they are perfected, and to sow them at a proper season.—This plant is a native of most parts of Europe. Mr. Miller observed it in great plenty in the meadows near Castle Bromwich in Warwickshire, in the beginning of September; and says, that the country people call the flowers *naked ladies*, because they come up without any leaves; a name they also apply to the *Hepatica*, and indiscriminately to any plant which has flowers on naked scapes, appearing at different times from the leaves. It is also found near Derby and Northampton; Bury in Suffolk; in orchards on the borders of Malvern Chase, and the meadows under Malvern Hills, in Worcestershire; near Wallington and Hales-Owen, Shropshire; about Bath, Bristol Warminster, Shepton Mallet, Southgate, and also near Comb in Oxfordshire, with a double flower, and some varieties of colour; besides some parts of Scotland, where however it is not very common. The following are the varieties most cultivated by the florists: 1. The Meadow Saffron, with white flowers; 2. Meadow Saffron, with striped flowers; 3. Broad-leaved Meadow Saffron; 4. Striped-leaved Meadow Saffron; 5. Many-flowered Meadow Saffron; 6. Meadow Saffron with double purplish flowers; 7. Meadow Saffron with double white flowers; and 8. Meadow Saffron with many white flowers. Cattle will not eat it: in a pasture where there were several horses, and which was eaten down rather bare, not a leaf of the Meadow Saffron was bitten, although the grass was closely cropped even under the leaves. Notwithstanding the concurrent testimony of ages has condemned this plant as poisonous, Dr. Stoerck, of Vienna, has taught us that it is a useful medicine: the roots are very acrimonious; and an infusion of them in vinegar, formed into a syrup with the addition of sugar or honey, is found to be a very useful pectoral and diuretic. It seems to resemble Squill very much in its virtues, but is less acrid and nauseous, though more sedative. Allioni, however, relates, that he has found the Squill to be more safe and efficacious than the Meadow Saffron; and Meyrick also informs us, "that, indiscreetly used, this root is poisonous, two drachms having killed a large dog after twelve hours of excessive torment: it operated violently by vomit, stool, and urine. A single grain only, being swallowed by a person in health, by way of experiment, produced heat in the stomach, and soon after flushings in various parts of the body, with frequent shiverings, which were followed by colic-like pains, after which he felt an itching in the loins and urinary passages, and soon after that a continual inclination to make water, with a tremor and pain in the head, great thirst, a very quick pulse, and other disagreeable symptoms. Yet, notwithstanding these effects, it is, when properly prepared, a safe but powerful medicine. The best way of preparing it is, to make it into a kind of syrup, by digesting an ounce of the fresh roots, sliced in a pint of white-wine-vinegar, over a gentle fire, for the space of forty-eight hours, and then mixing twice its weight of honey with the strained liquor, and letting it afterwards boil gently until it becomes of a proper consistence: this syrup is agreeably acid, gently vellicates or bites the tongue, is moderately astringent, and excellent for cleansing the tongue from mucus: in an increased dose, it vomits and sometimes purges, but its most common operation is by urine, for which it is a remarkably powerful medicine: the dose at first should be but small, half a tea-spoonful twice or thrice a day is enough to begin with, and the quantity may afterwards be gradually increased, as the stomach will bear it, or the case may require. It has been given with the most astonishing success in dropsies, and tertian agues, and it frequently succeeds as an expectorant when all other means fail.

2. Colchicum Montanum. Leaves linear, spreading very much. The leaves of this species come up soon after the flowers decay, and continue green all the winter, like the Saffron; they are long, narrow, and spread on the ground, decaying in June; the flowers, which appear earlier than the common sort, are of a reddish purple colour, and come forth in August and September.—Native of Spain, Portugal, Italy, the south of France, and Switzerland.

3. Colchicum Variegatum; *Variegated Meadow Saffron.* Leaves waved, spreading. The leaves of this are smaller than those of the common sort, for the most part three in number, and of a paler and fresher green colour, broad at the bottom, a little pointed at the end, waved about the edges, and lying close upon the ground; root not so large as that of the common sort; flowers smaller, but very beautiful, whitish, with deep blue or purple spots. It flowers late, frequently not till October or November, and is somewhat tender.—Native of the Greek islands.

Coldenia; a genus of the class Tetrandria, order Tetragynia.—Generic Character. *Calix:* perianth four-leaved; leaflets lanceolate, erect, length of the corolla. *Corolla:* one-petalled, funnel-form, with the opening pervious; border patulous, obtuse, four-cleft. *Stamina:* filamenta four, inserted into the tube; antheræ roundish. *Pistil:* germina four, ovate; styles as many, capillary, length of the stamina; stigma simple, permanent. *Pericarp:* none; fruit ovate, compressed, scabrous, acuminate, terminated by four beaks. *Seeds:* two, muricate, two-celled. Essential Character. *Calix:* four-leaved. *Corolla:* funnel-form. *Styles:* four. *Seeds:* two-celled.——One species only is known,

1. Coldenia Procumbens. An annual plant, the branches of which trail on the ground, extending nearly a foot from the root, and dividing into many smaller branches; leaves alternate, egg-shaped, roundish at the summits, deeply crenated, clothed with white hairs; corolla of a pale blue colour, and very small.—Native of the East Indies. This plant is propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they should be each put into a separate small pot, plunged into a hot-bed of tanner's bark, observing to shade them until they have taken fresh root, after which they should have air admitted to them every day in proportion to the warmth of the season, and gently watered two or three times a week in warm weather, but they must not have too much moisture: they require always to remain in the hot-bed, where they will flower in June, and ripen seed in September.

Coleworts, Coleseed, Colliflower. See *Brassica.*

Collinsonia: a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubular, two-lipped; upper lip three-cleft, reflex, wider; lower lip two-parted, more erect, subulate, permanent. *Corolla:* one-petalled, unequal; tube funnel-form, many times longer than the calix; borders five-cleft; upper divisions obtuse, very short, the two upper ones reflex; lower lip longer, many-cleft, capillary. *Stamina:* filamenta two, bristle form, erect, very long; anthæra simple, incumbent, compressed, obtuse. *Pistil:* germen four-cleft, obtuse, with a larger glandule lying below the germen; style bristle-form, length of the stamina, inclined to one side; stigma bifid, acute. *Pericarp:* none; calix cherishes the seeds in its bottom, and is ringent, with an irregular mouth. *Seed:* single, globose.

Essential Character. *Corolla:* unequal. *Calix:* of the fruit one-leafed, toothed; of the flower, bifid. *Seed:* one under the calix of the flower.——The species are,

1. Collinsonia Canadensis; *Nettle-leaved Collinsonia.* Leaves ovate, both they and the stems smooth. It has a perennial root, and attains to the height of four or five feet in America, but seldom grows above three feet high in England: the stalks decay in the autumn, and fresh shoots come out in the spring; they are square, with heart-shaped leaves, opposite, and serrate; the flowers are produced at the extremity of the stalks, in loose spikes; they are of a purplish yellow, and appear in July: the seeds ripen in autumn; one seed only in general attains to maturity, the others being almost always abortive; this is globose, ash-coloured, obscurely reticulated with dusky veins.—Native of North America, in Pennsylvania, and that latitude, in little woods, and among bushes, in a rich soil. Mr. Barton was the first who discovered and sent it to Europe: it has a peculiar and very strong, but agreeable scent, and is reputed to be an excellent remedy against pains in the limbs, and a cold, if the affected parts be rubbed with it: a decoction of it is also said to have cured the bite of the rattlesnake. The Americans call it *horseweed*, because the horses eat it in the spring before any other plant comes up.—It may easily be propagated by parting the roots in October: they should be planted at three feet distance, for they require much nourishment to make them thrive, which they will do in the open ground, if planted in a sheltered situation: unless, however, it be kept warm and duly watered, it seldom flowers well; therefore many persons keep them in large pots; but these very rarely produce good seeds: whereas those which stand in the full ground, and are regularly watered, will ripen seeds very well in good seasons.

2. Collinsonia Scabriuscula; *Rough-stalked Collinsonia.* Leaves ovate, subcordate, somewhat hairy; stem somewhat hairy, scabrous.—Native of East Florida: perennial. This species is more tender than the first, and requires the protection of the green-house.

Columbine. See *Aquilegia.*

Columnea; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted, subventricose at the base; divisions erect, equal, lanceolate, permanent. *Corolla:* one-petalled, ringent, villose; tube long, gibbous above at the base; border two-lipped; upper lip straight, emarginate; lower lip three-parted; lateral divisions lanceolate, the intermediate longer and more deeply separated, lanceolate. *Stamina:* filamenta four, of which the two longer are hid under the upper lip; antheræ simple, connected into a little crown. *Pistil:* germen ovate; style filiform, length of the upper lip; stigma bifid, obtuse. *Pericarp:* capsule two-celled, ovate. *Seeds:* numerous, small, lying on a very large receptacle. Essential Character. *Calix:* five-parted. *Corolla:* ringent, upper lip three-parted, the middle-part vaulted, emarginate, gibbous above at the base. *Antheræ:* connected. *Capsule:* two-celled. *Seeds:* nestling.—As all these plants are natives of hot countries, and in general of the West Indies, they are too tender to live in England out of the stove. They are propagated by seeds sown in a good hot-bed; and when the plants come up they must be treated in the same way as other tender exotics which are kept in the bark-stove.—— The species are,

1. Columnea Scandens; *Climbing Columnea.* Leaves ovate, acute, entire, subvillose; leaflets of the calix entire; corollas and calices pubescent, upper lip undivided. Stem scandent, rooting, angular, striated, succulent, brittle, somewhat hirsute; leaves petioled, opposite, small, scarcely nerved; flowers peduncled, solitary, axillary, blood-red, somewhat villose. It is said to be subparasitical.—Native of the Caribbee islands, Martinico, and Guiana, in moist parts of woods at the foot of mountains. The Columnea with a yellowish flower is only a seminal variation.

2. Columnea Longifolia; *Long-leaved Columnea.* Leaves lanceolate, very long, somewhat serrated, smooth. Stem two feet high, herbaceous, quadrangular, smooth, branched; leaves three inches long, opposite; flowers red, opposite, in simple, long, erect, terminal racemes. Native of the East Indies.

3. Columnea Hirsuta; *Hairy Columnea.* Leaves ovate, acuminate, serrate, roughly hairy on the upper surface; calycine leaflets toothletted, lanceolate; they and the corollas hirsute, the upper lip bifid. This beautiful vegetable is a native of the cooler mountains of Jamaica; it is very succulent, and grows luxuriantly in every rich and shady soil, throwing its branches frequently to the height of four or five feet, and higher when supported; the stem is moderately thick; the leaves opposite, and alternately larger; the flowers are large, beautifully variegated, and hairy on the outside, like the other parts of the plant; the divisions of the calix are pinnated, somewhat like those of the garden rose. It has an uncommon appearance, and it is highly worthy of cultivation: it flowers in November.

4. Columnea Hispida. Leaves ovate, obtuse, toothletted, hispid-hirsute; leaflets of the calix lanceolate, entire, hairy; stem hairy, rugged.—Native of Jamaica.

5. Columnea Rutilans. Leaves ovate-lanceolate, villose, toothletted; leaves of the calix jagged; corollas villose, the upper lip two-parted.—Native of Jamaica.

6. Columnea Stellata; *Starry Columnea.* Leaves stellate; flowers solitary; stem creeping. Stem herbaceous, perennial, round, slender, whitish; branches suberect, four inches long, very tender; flowers white, striped with red, hirsute, axillary, peduncled. It is an aquatic plant, of a very pleasing appearance and agreeable smell, and being emollient and cooling, it is used as a wash by the women.—Native of Cochin-china, where it is cultivated in pots and tubs filled with water, having earth at the bottom.

Colutea: a genus of the class Diadelphia, order Decandria. —Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-cleft, erect, nearly equal, permanent. *Corolla:* papilionaceous. *Standard, wings,* and *keel,* differ in figure and various proportion; the wings are pressed close together, lanceolate. *Stamina:* filamenta diadelphous, single, and nine-cleft, ascending; antheræ simple. *Pistil:* germen oblong, compressed, attenuated to each end; style ascending; stigma is a bearded line, extended from the middle of the style to its tip, from the upper part. *Pericarp:* legume very large, very broad, inflated, transparent and membranaceous, the upper suture erect, the lower gibbous, one-celled, gaping on the upper suture at the base. *Seeds:* several, kidney-shaped. Essential Character. *Calix:* five-cleft. *Legume:* inflated, gaping on the upper suture at the base.—The plants of this genus are, in general, easily distinguished by their membranaceous inflated pod. ——The species are,

1. Colutea Arboreseens; *Common Bladder-Senna.* Leaflets oval-obcordate; standard gibbous, abbreviated. This species has several woody stems, which attain to the height of twelve or fourteen feet, sending out many woody branches, with winged leaves, composed of four or five pairs of oval lobes, placed opposite, terminated by an odd one; these are indented at the top in form of a heart, and are of a grayish

CONVALLARIA POLYGONATA.

CNICUS — *Siberian Cnicus.*

P. 332.

Solomon's Seal.

P. 350.

Least Solomon's Seal.

P. 342.

P. 343.

COLUTEA — *Common Bladder Senna.*

F. Hilliard Sc.

COLUTEA — *Peacocke's Bladder Senna.*

Published by Nuttall, Fisher & Dixon, Liverpool. 1817.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

colour. From the wings of the leaves come out slender peduncles, about two inches long, each sustaining two or three yellow flowers, whose standard is reflexed and large, with a dark-coloured mark on it. In England it flowers from June to August.—It is a native of the south of France, of Italy, and the warmer parts of Switzerland, and Carniola. Mr. Ray observed it about Montpellier, and in many parts of Italy, especially on Mount Vesuvius, even in the ascent to the crater itself, where there were scarcely any other plants. The leaves are recommended as answering all the purposes of Senna; and Allioni has given particular directions for the preparation of them, as a larger dose of them seems to be required to produce the same effect. The seeds, in the quantity of a drachm or two, occasion vomiting; but the plant itself is said to afford grateful food for cattle.—This, and the second and third species, are very hardy shrubs, which thrive extremely well in the open air, and are generally propagated for sale in the nursery gardens. They are all propagated by sowing their seeds any time in the spring, in a bed of common earth, keeping them clear from weeds when they come up, and transplanting them at the Michaelmas following, either into nursery rows, or into the places where they are intended to remain; for if they be suffered to grow too long in the seed-bed, they are very subject to have downright roots, which render them unfit for transplantation; nor should they be suffered to remain too long in the nursery before they are transplanted, for the same reason. The first sort growing to the height of twelve or fifteen feet, is very proper to intermix with trees of a middling growth in wilderness quarters, or in clumps of flowering trees, where the singularity of their flowers and pods will make a pretty variety, especially as these trees usually begin flowering by the end of May, and are seldom destitute of flowers until September. Mr. Curtis has learned by experience, that a very wet soil proves fatal to the common Bladder-senna. The earwigs also, finding a commodious retreat within the bladders, are very destructive to the seeds. Mr. Miller therefore recommends the hanging lobster-claws, or bowls of tobacco-pipes, on the shrubs, to entice the insects. The third species does not grow so tall as the common, but makes a more regular shrub, and is less liable to split: the flowers of this sort being of a dusky red colour, spotted with yellow, it makes a very pretty variety, and is as hardy as the common sort, and may be propagated by seeds in the same manner. It sends forth many suckers, by which it may also be increased; but the seeds are much to be preferred.

2. Colutea Cruenta; *Oriental Bladder-Senna.* Shrubby: leaflets wedge-form, obcordate; standard gibbous, obtuse, very small. This has a woody stem, which sends out many branches on every side, which does not rise above seven or eight feet high. The leaves are composed of five or six pairs of small heart-shaped leaflets, terminated by an odd one. The flowers proceed from the side of the branches, standing upon peduncles, each sustaining two or three flowers, of a dark-red colour, marked with yellow; which appear in June, and the seeds ripen in autumn.—Discovered by Tournefort in the Levant. See the first species.

3. Colutea Pocockii; *Pococke's Bladder-Senna.* Shrubby: leaflets ovate; standard gibbous, elongated, ascending. This shrub seldom exceeds six or seven feet high in England. The branches are very slender, and much more pliant than the common sort; the leaves are composed of nine pairs of leaflets, and are much smaller. The flowers also appear a month earlier, and are of a brighter yellow; and as there is a succession of them till late in the autumn, and they are not so liable to be destroyed by the strong winds in summer, the value of this species is much increased.—Native of the Levant. Dr. Russel, who resided many years at Aleppo, reports, that this shrub is very common in the neighbourhood of that city. See the first species.

4. Colutea Frutescens; *Scarlet Bladder-Senna.* Shrubby: leaflets ovate-oblong. This is a hoary shrub, with tomentose leaflets, smooth on the upper surface: height from two to four feet: in favourable seasons and in a warm situation, plants of three years' standing will be six feet high, with large heads, and all the branches covered with flowers, making a very fine appearance. Those plants, however, which are exposed to the air, seldom last beyond two years, and are generally destroyed in severe winters; but they make much stronger plants while they last, and produce a greater number of flowers than those which are housed. The flowers appear in June, are of a fine scarlet colour, intermixed with silvery leaves, affording an agreeable variety.—Native of the Cape of Good Hope. This is tender, and cannot endure the open air in severe English winters. It is propagated by seed sown early in the spring, upon a warm border of light earth. The plants will flower in August, and ripen seeds very well in favourable autumns; but if the seeds be sown upon a moderate hot-bed in the spring, the flowers will appear as early as July, which gives them a fine opportunity of ripening their seed during the hot weather. They must never be transplanted, except while young, for when they are grown large they will not bear removing. In a well-sheltered situation, they will sometimes live in the open air for three or four years, growing to have large heads, which make a very fine appearance when they are in flower, and the flowers of which also continue much longer in beauty than those produced by plants which have been more tenderly treated.

5. Colutea Perennans; *Perennial Bladder-Senna.* Herbaceous: leaflets ovate-oblong, pubescent. Root perennial; stems erect, round, striated, pale green, annual, quite simple, or with almost barren branchlets; flowers small, and without scent; corolla flesh-coloured.—It flowers in August; and is a native of Africa.

6. Colutea Herbacea; *Annual Bladder-Senna.* Herbaceous: leaflets linear, smooth. Annual; corollas dark blood-red, with a striated standard, the length of the wings and keel; stem a foot and a half high, and slender, dividing at top into three or four branches.—Native of the Cape. It is a low annual plant, which seldom grows more than a foot and a half in height: the flowers are small, and having but little beauty, it is seldom preserved but in botanic gardens. The seeds of this sort must be sown upon a moderate hot-bed in the spring, and the plants put into small pots, and brought forward in another hot-bed. They flower in July; when they may be exposed in the open air in a warm situation, where the seeds will ripen in September, and the plants soon after decay.

7. Colutea Fistulosa. Herbaceous: leaflets ovate, complicate, pubescent underneath. Stems angular, striated, fistulous, flowering the second year; calix pubescent; corolla small, whitish or red, with blood-red streaks.—This appears to be only a variety of the fifth species.

8. Colutea Americana. Shrubby: leaflets ovate, emarginate; legumes oblong, compressed, acuminate. It has a shrubby stalk, rising to the height of fourteen feet; the leaves are composed of three pairs of oval leaflets, terminated by an odd one; the flowers are of a bright yellow.—Sent from Vera Cruz by Dr. Houston. It will not bear the open air in England; but is propagated by seeds sown on a hot-bed in the spring; and when the plants are two inches high, they should be each transplanted into a separate small pot filled with light earth, and plunged into a hot-bed of tanner's bark, observing to shade them till they have taken fresh root; after

which they must be treated in the same way as other plants from the same climate, always keeping them in a stove, which should be of a moderate temperature.

9. Colutea Procumbens. Stems trailing; leaflets ovate-oblong, tomentose; flowers axillary, on very long peduncles. This species has many slender woody stems, which trail on the ground, and are divided into many smaller branches; leaves composed of twelve or fourteen pairs of leaflets, terminated by an odd one. The flowers are very small, of a purple colour, and stand three or four together, upon very long slender peduncles: they appear in June and July, and ripen seeds in autumn.—Native of the Cape. This is a perennial plant, which, if sheltered in the winter, will continue several years. It is raised from seeds on a moderate hot-bed in the spring.

Comarum: a genus of the class Icosandria, order Polygynia.—Generic Character. *Calix:* perianth one-leafed, ten-cleft, very large, spreading, coloured; alternate divisions smaller, inferior, permanent. *Corolla:* petals five, oblong, acuminate, three times smaller than the calix on which they are inserted. *Stamina:* filamenta twenty, subulate, inserted into the calix, length of the corolla, permanent; antheræ lunular, deciduous. *Pistil:* germina numerous, roundish, very small, collected into a head; styles simple, short, from the sides of the germen; stigmas simple. *Pericarp:* none; common receptacle of the seeds ovate, fleshy, very large, permanent. *Seeds:* numerous, acuminate, covering the receptacle. Essential Character. *Calix:* ten-cleft. *Petals:* five, smaller than the calix. *Receptacle* of the seeds: ovate, spongy, permanent.——The only species is,

1. Comarum Palustre; *Marsh Cinquefoil.* This plant has creeping woody roots, which send out many black fibres, penetrating deep into boggy ground; stems many, herbaceous, about two feet high, generally inclined to the ground; at each joint is one leaf, composed of five, six, or seven leaflets. The petals are not more than a third part of the size of the calix.—Native of most parts of Europe, on boggy ground. A few plants grow upon a bog at Hampstead; but the nearest place to London where it grows wild in plenty, is in the meadows near Guildford in Surry. It is found at Selburne in Hampshire, near Bromsgrove Lickey in Worcestershire, Gamlingay in Cambridgeshire, in Norfolk, near Colchester in Essex, Giggleswick Tarn near Settle, and also in Scotland and Ireland. It flowers in June. The roots dye wool of a dirty red colour; and have astringency enough, with other plants of the same order, to tan leather. The Irish rub their milk-pails with it, to make the milk appear thicker and richer. Goats eat it. Cows and sheep are not fond of it. Horses and swine refuse it.—There is a variety with thicker and more villose leaves, which grows plentifully in the north of England, and in Ireland; but after one year's growth in a garden, it cannot be distinguished from the common sort.—As this plant is a native of bogs, it cannot well be preserved in a garden, except it be planted in a soil resembling that in which it naturally grows. The roots may be removed from the place of their growth in October, and will be in no danger of failing, if they be planted in boggy ground.

Combretum; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, bell-shaped, four or five toothed, deciduous. *Corolla:* petals four or five, ovate, acute, inserted into the calix, and scarcely longer than it. *Stamina:* filamenta eight or ten, bristle-form, erect, very long; antheræ a little oblong. *Pistil:* germen inferior, linear; style bristle-form, length of the stamina; stigma acute. *Pericarp:* none, except the crust of the seed. *Seed:* single, four or five angled; angles membranaceous, acuminate. Essential Character. *Calix:* four or five toothed, bell-shaped, superior. *Corolla:* four or five petalled, inserted into the calix. *Stamina:* very long. *Seed:* one, four or five angled; the angles membranaceous.——The species are,

1. Combretum Laxum. Spikes lax; leaves opposite. It is a shrub, with round scandent branches, the younger ones brachiate; leaves three inches long, petioled; spikes erect, three inches long, axillary, and terminating; flowers small, whitish on very short pedicels.—Native of the West Indies.

2. Combretum Secundum. Spikes in one row; leaves opposite. A small tree, twelve feet high, supporting itself on other trees by its round and very long branches; leaves four inches long, ovate-oblong; flowers very numerous, with scarcely any scent, yellowish-green colour, except the antheræ, which are red, all turned upwards and erect, altogether appearing like a crest. The broken branches and the bruised leaves have a fetid and very unpleasant smell.—Native of Carthagena in South America, and also of Guiana.

3. Combretum Purpureum. Leaves ovate-oblong, both they and the calices naked; spikes simple, directed one way. This is a smooth shrub, with round brachiate branches; flowers copious, scattered; corolla purple; seed roundish, retuse, very smooth, of a shining golden colour.—Native of Madagascar, and the East Indies.

4. Combretum Decandrum. Leaves opposite, oblong, acuminate; racemes lax; bractes larger than the flower; flowers decandrous, in two rows, white.—Native of woody mountains in the East Indies.

5. Combretum Alternifolium. Leaves alternate; flowers ten stamined. This is a weak branching shrub, climbing to twenty feet in height, with prickles on the older branches; pedicels very short; flowers small and very numerous, coming out usually before the leaves.—Native of Carthagena, flowering in May and June, and fruiting in July and August.

Cometes; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* involucre three-flowered, (flowers sessile) four-leaved; leaflets oblong, equal, spreading, ciliate-hispid; perianth four-leaved; leaflets oblong, equal, length of the involucre. *Corolla:* none. *Stamina:* filamenta four, capillary, length of the perianth; antheræ roundish. *Pistil:* germen roundish; style filiform, length of the flower; stigma three-cleft. *Pericarp:* capsule tricoccous. *Seed:* solitary. Essential Character. *Involucre:* four-leaved, three-flowered. *Calix:* four-leaved. *Capsule:* tricoccous.——The only known species is,

1. Cometes Alterniflora. Root annual; stem herbaceous, a foot high, round; leaves opposite, sessile, obovate, acuminate, very entire, smooth; peduncles in pairs, terminal and axillary.—Native of Surat.

Comfrey. See *Symphytum.*

Commelina; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spathe cordate, converging, compressed, very large, permanent. *Corolla:* petals six, of which the three exterior are small, ovate, concave, resembling a perianth; the three inferior ones alternate, very large, roundish, coloured; nectaries three, resembling stamina, seated on their proper filamenta, cruciform, horizontal. *Stamina:* filamenta three, subulate, reclined, agreeing in figure and circuit with the filamenta of the nectary, but inferior to them; antheræ ovate. *Pistil:* germen superior, roundish; style subulate, revolute, length of the stamina; stigma simple. *Pericarp:* capsule naked, nearly globular, three-celled, three-valved. *Seeds:* two, angulated. Essential Character. *Corolla:* six-petalled. *Nectaries:* three, cross-shaped, pedicelled.—Every species of this genus

is propagated by seeds, and the first will even grow if planted in the full ground. If the seeds be sown in a warm border of light earth in autumn, the plants will rise early in the spring, and will produce good seed, if the season be favourable; whereas those which are sown in the spring often lie long in the ground, and rarely ripen seed. These plants have but little beauty; so that two or three of each sort is all that are worth retaining. The seeds should be sown in autumn; where the plants are designed to remain, or else permitted to scatter, and the plants will require nothing but to be kept free from weeds.——The species are,

** With two Petals larger.*

1. Commelina Communis; *Common American Commelina.* Corollas unequal; leaves ovate-lanceolate, acute; stem creeping, smooth. This is an annual plant, having several trailing stalks, that put out roots at the joints; at each joint is one leaf, smooth, dark green, nerved, embracing the stalk; flowers axillary, two or three together, on short peduncles; corolla composed of two large blue petals, and four small green ones; leaves resembling those of *Sopewort.* It flowers in June and July, and the seeds ripen in autumn. —Native of America, the West Indies, and Africa.

2. Commelina Africana; *African Commelina.* Corollas unequal; leaves lanceolate, smooth; stem prostrate. Root fibrous; stalks many, trailing, three feet long, putting out roots at every joint, so that it will cover a large surface, where it has room to spread; leaves like those of the first species; the flowers are larger, and of a deep yellow colour. —Native of Africa. It seldom ripens seed in England; but the roots send out offsets, by which it is easily propagated; but it is too tender to live in the full ground in winter, unless placed in a warm sheltered situation; it should therefore be planted in pots, and sheltered under a common frame in winter, and exposed abroad in summer. The best time to transplant and part these roots, is by the end of March. It flowers in July, and ripens seed in autumn.

3. Commelina Benghalensis; *East India Commelina.* Corollas unequal; leaves ovate, obtuse; stem creeping. Root annual; stems numerous, diffused, about a span high, hirsute, jointed; branches alternate; leaves, before they are open rolled in, from an inch to an inch and a half in length, nerved, pubescent, waved; peduncle within the spathe double, one slender, longer, one-flowered, the other thicker, channelled, bearing from two to four flowers, on jointed, round, inflex pedicels; the two inner petals very large, blue, the four outer pale blue; nectaries yellow.—Native of Bengal and Cochin-china. This, like all the other species of this genus, except the first, second, and sixth, are so tender that it will not grow unless sown upon a moderate hot-bed in the spring, and must be transplanted to a moderate hot-bed when they are two inches high, in order to bring them forward. When they have again taken root, a large share of fresh air should be admitted to them every day in warm weather, to prevent their growing weak. In June they may be taken up carefully, and transplanted into a border of warm light earth, observing to shade them until they have taken fresh root; after which they will require no further care but to keep them clean from weeds.

4. Commelina Erecta; *Upright Virginian Commelina.* Corollas unequal; leaves ovate-lanceolate; stem erect, subhirsute, entirely simple. Root perennial; stems a foot and a half high, having a single leaf at each joint, shaped like those of the first sort, and embracing the stem; flowers axillary, at the upper part of the stalk, on short peduncles; petals blue.—Native country unknown.

*** With three Petals larger.*

5. Commelina Virginica. Corollas nearly equal; leaves lanceolate, subpetioled, bearded on the edge; stems upright, simple, glossy, two feet high; spathes terminating, subcordate; flowers blue, with the petals cordate, and very entire; the lower one on a short pedicel.—Perennial, and a native of Virginia.

6. Commelina Tuberosa; *Tuberous-rooted Commelina.* Corollas equal; leaves sessile, oval-lanceolate, subciliate. This has a thick fleshy root, composed of several tubers, somewhat like those of Ranunculus, several joining together at the top, where they form a head, and diminish gradually downward; thence arise one or two inclining stalks, which put out side-branches from their lower parts. The flowers are axillary towards the upper part of the stalk, on slender peduncles.—It is said to grow in the mountains of Mexico; and the natives apply it externally for discussing tumors, and internally in hot plethoric habits: it was also sent to Mr. Miller, by Dr. Houston, from Vera Cruz in New Spain. If the roots of this species be taken out of the ground in autumn, and kept in a warm place in winter, they may be planted again in the spring, placing them on a hot-bed, to forward their shooting, whereby they will become stronger plants than those which rise from seeds.

7. Commelina Zanonia: *Gentian-leaved Commelina.* Corollas equal; peduncles thickened; leaves lanceolate; sheaths swelling, hirsute about the edge; bractes in pairs. This has trailing stalks, embraced by narrow grassy leaves. The flowers are produced at the ends of the stalks, upon thick peduncles, which generally have three on each. The corolla has three, equal, large, sky-blue petals, and three smaller which are green. It flowers from June to August, but does not perfect seeds in England.—Native of the West Indies. See the third species.

8. Commelina Vaginata; *Sheathed Commelina.* Corollas equal; leaves linear; flowers two-stamined, sheathed with an involucre. Annual; stems ascending, numerous, somewhat scabrous; antheræ yellow, spotted with black.—Found by Kœnig in the East Indies.

9. Commelina Nudiflora. Corollas equal; peduncles capillary; leaves linear; involucre none; flowers two-stamined. Annual; stem somewhat erect, decumbent at the base, somewhat scabrous, a span in height; flowers from four to six, pedicelled, (without any involucre) nodding.—Found by Kœnig in dry pastures of the East Indies.

10. Commelina Spirata; *Spear-leaved Commelina.* Corollas equal; leaves lanceolate; flowers panicled. Annual; stem creeping, ascending, somewhat scabrous. The style and stigmas are spirally convolved, and evolved variously.—Observed near brooks, and in moist places, in the East Indies. It flowers in July and August.

11. Commelina Cucullata. Corolla unequal, two-petalled; leaves ovate; involucres cowled, turbinate. Stem erect, a span high, creeping at the base, with filiform roots; flowers peduncled, minute; the two large petals blue.—It is a weed in the gardens of the East Indies, and Cochin-china.

12. Commelina Japonica. Leaves ovate-lanceolate waved; stem erect, angular, hairy; flowers panicled. Stem grooved, erect, hairy, panicled at top, a foot high; flowers on the panicled branches in racemes.—Native of Japan.

Commersonia: a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, corolliferous; divisions ovate, acute. *Corolla:* five-petalled; petals linear, dilated at the base on both sides, with an inflected lobe, spreading; nectary five-parted, within the stamina; divisions lanceolate, erect,

shorter than the petals; corpuscles filiform, five, villose, from the divisions of the nectary. *Stamina:* filamenta five, very short at the bases of the petals; antheræ roundish, twin. *Pistil:* germen globular, villose, with five swellings; styles five, filiform, approximating, short; stigmas globular. *Pericarp:* capsule globular, five-celled, echinate, with long hairy bristles; cells two-seeded. *Seeds:* ovate. Essential Character. *Calix:* one-leafed, bearing the corolla. *Petals:* five. *Nectary:* five-parted. *Capsule:* five-celled, echinate.——The only known species is,

1. Commersonia Echinata. A tree, with alternate, obliquely ovate, acuminate, serrate leaves, hoary underneath; flowers white, minute, panicled, hoary.—Native of Otaheite, the other Society Isles, and the Moluccas.

Comocladia; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, three-parted, spreading, coloured; divisions roundish. *Corolla:* petals three, ovate, acute, flat, very spreading. *Stamina:* filamenta three, subulate, shorter than the corolla; antheræ roundish, incumbent. *Pistil:* germen ovate; style none; stigma obtuse, simple. *Pericarp:* drupe oblong, crooked, marked above with three dots. *Seed:* nut membranaceous, the figure of the drupe. Essential Character. *Calix:* three-parted. *Corolla:* three-parted. *Drupe:* oblong, with a two-lobed nucleus.—These plants are propagated by seeds, which can only be obtained from those countries where they naturally grow, and should be sown in pots, and plunged into a hot-bed; when they are fit to remove, they must be each planted in a small pot, and plunged into a tan-bed, and in the autumn into the bark-bed in the stove, where they must be treated as other tender plants.——The species are,

1. Comocladia Integrifolia. Leaflets entire. It seldom exceeds twenty feet in height; trunk erect, dividing into few branches, adorned at the end with pinnated smooth leaves, two feet long, like a frond; flowers very numerous, small, sessile, scentless, of a deep-red colour, in loose panicled racemes, a foot and a half long; many of them have the calix and corolla four-parted, with four stamina. The whole tree abounds in a watery and slightly glutinous sap, which grows black in the air, and stains the hands so deeply with black, that it can scarcely be washed out. The fruit is eatable, but not inviting; and the wood is hard, of a fine grain, and reddish colour.—Native of Domingo and Jamaica, where it flowers in December, January, and February.

2. Comocladia Dentata. Leaflets egg-shaped, acute, toothed, somewhat prickly, veined, and villose underneath. A tree, much like the first; the trunk is upright, with few branches; and the leaves a foot and half long, in tufts at the ends of the branches. The juice is milky, glutinous, turning very black, not to be washed out from the skin or cloth. If the tree be ever so slightly wounded, it has a strong smell of dung.—Native of Cuba, where the inhabitants imagine it to be dangerous to sleep under it.

3. Comocladia Ilicifolia. Leaflets roundish, angular-spiny, smooth on both sides.—Native of the West Indies.

Composts. See *Manures*, Vol. II. p. 86.

Comptonia; a genus of the class Monœcia, order Triandria.—Generic Character. *Male Flowers. Calix:* ament cylindric, loosely imbricate all round with concave, kidney-form, acuminate, caducous, one-flowered scales; perianth two-leaved; leaflets equal, boat-shaped, shorter than the scale of the ament. *Corolla:* none. *Stamina:* filamenta three, shorter than the calix, forked; antheræ six, two-valved. *Female Flowers. Calix:* ament ovate, closely imbricate all round with one-flowered scales, as in the male; perianth six-leaved; leaflets opposite, in pairs, filiform, membranaceous at the base, many times longer than the scales of the ament. *Corolla:* none. *Pistil:* germen roundish; styles two, capillary. *Pericarp:* none. *Seed:* nut oval, one-celled, valveless. Essential Character. *Male:* ament. *Calix:* two-leaved. *Corolla:* none. *Antheræ:* two-parted. *Female:* ament. *Calix:* six-leaved. *Corolla:* none. *Styles:* two. *Nut:* oval.——The only known species is,

1. Comptonia Asplenifolia; *Fern-leaved Comptonia.* It rises with slender shrubby stalks, nearly to the height of three feet, which are hairy, and divided into several slender branches; leaves three inches long or more, dark green, hairy on the under side, and sitting close to the stalks. The aments of male flowers come out on the side of the branches between the leaves; they are oval, and stand erect. The fruit is a bony nut, the size of a hazel nut, inclosing a single seed. It flowers in England from March to May, and is a native of North America, among Firs, in the county of Lancaster, and on the banks of the Northampton river. When planted here in a loose moist soil, it thrives very well, sometimes creeping at the roots, and sending up suckers plentifully, as in its native country. It may be propagated by these suckers, and will endure English winters very well.

Conferva, or *River-weed;* a genus of the class Cryptogamia, order Algæ.—Generic Character. Simple, uniform, hair-like, thread-shaped fibres; which are either continuous or jointed. Essential Character. Unequal tubercles, in very long capillary filamenta. Linnæus specifies twenty-one species in his system of vegetables; these are all inhabitants of the water, some in fresh, but more in salt water. Dr. Withering has sixty species, which are natives of England, in his fourth volume of the *Botanical Arrangement of British Plants,* published in 1796. A singular instance of irritability has been observed by Major Velley in the *Conferva Corollina,* upon its being immersed, when quite recent, into fresh water: after it had been in the water a few minutes, several fibres were observed to move in an horizontal direction, with a quick convulsive twitch, and to stop suddenly; this they continued to do for some length of time; and the same effect may be produced several times, provided the plant be fresh. The experiment does not succeed in salt water.

Conium; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal with many spreading rays; partial similar. Involucre universal, many-leaved, very short, unequal; partial halved, three-leaved; perianth proper, scarcely observable. *Corolla:* universal, uniform; proper of five petals, inflex, heart-shaped, unequal. *Stamina:* filamenta five, simple; antheræ roundish. *Pistil:* germen inferior; styles two, reflex; stigmas obtuse. *Pericarp:* none. *Fruit:* nearly globose, five-streaked, the streaks notched, bipartile. *Seeds:* two, convex on one side, almost hemispherical, striated, flat on the other side. Essential Character. *Partial Involucre:* halved, three-leaved. *Fruit:* nearly globular, five-streaked, notched on each side. The species are,

1. Conium Maculatum; *Common Hemlock.* Seeds striated. Root biennial, resembling that of a small parsnip; stem from three to four feet and upwards in height, hollow, round, shining, smooth, covered with a bluish powder which easily wipes off, spotted and streaked with livid purple, branched and striated towards the top; bottom-leaves very large, two feet in length, of a dark green colour, but paler underneath, shining, superdecompound, or several times pinnate; pinnules oblong, gashed, and serrate; petiole spotted, smooth, fistulous, succulent, round, being scarcely flatted at top; sheath grooved;

rays of the umbel ten to twelve, of the umbellule fifteen or sixteen; calix entire; corolla white: outer petals largest; fruits ovate, gibbous, with compressed ribs, waved before it is ripe, but becoming almost straight; seeds brownish, resembling those of aniseed, with five notched elevated ridges, three on the back and two on the side.—Hemlock is obviously distinguished by its large and spotted stalk, by the dark and shining green colour of its bottom leaves, and particularly by their disagreeable smell when bruised.—It is common by road and hedge sides, in cultivated ground, among rubbish, and on dunghills; flowering in June and July. According to Linnæus, sheep eat the leaves, while horses, cows, and goats, refuse them. Ray informs us, that the thrush will feed upon the seeds, even when corn is to be had; and Mr. Curtis remarks, that scarcely any insects appear to touch it. The dried fistulous stalks of this and several other umbellate plants, are called by the country people *kaxes* or *kecksics*. This plant, which was stigmatized as one of the most noxious of vegetable poisons, has of late years been considered as a highly useful and powerful article of the materia medica; and it has been proved by indisputable experiments, that though highly deleterious when imprudently used, it has been productive of considerable benefit in cases which have resisted the usual methods. It has been particularly celebrated in cancerous cases; the leaves are frequently employed in poultices, fomentations, and plaisters, to discuss and disperse hard tumors: taken internally in any considerable quantity, they occasion disorders of the senses, convulsions, and sometimes death. The dried leaves, put into little bags, and boiled for a few minutes in water or milk, then squeezed from the superfluous moisture, and applied warm to gangrenous sores check the progress of the mortification, and procure a separation of the unsound parts: the same application being made to gouty members, immediately abates the pain, softens and dissolves the hard concretions which frequently are formed about the joints in this disorder, and occasions the next fit to be milder and of shorter continuance. In hard glandulous swellings, and cancerous ulcers, its effects are likewise very considerable; and though some have made a trial of it without receiving any benefit, there has hitherto no instance occurred of its proving prejudicial to any: Baron Stoerck recommends an extract made from the juice of the plant, to be taken internally at the same time, and for the same purposes; and relates a number of cases, wherein the worst kinds of ulcers, glandular swellings, fistulas, and cancers, were effectually cured by it. The manner in which he orders the extract to be taken, is, to begin with giving one pill of two grains twice a day, then three times, and after that gradually increase the number, till six or more of them are taken for a dose. Withering recommends the extract of Hemlock, when prepared with attention and accuracy, as a valuable addition to medicine. "Not" says he, "that I have been a witness to any cures performed by its use, either in occult or ulcerated cancers, but I have never given it without mitigating the pain, and producing an alteration for the better in the discharge. Fifteen or twenty grains of the powdered leaves, taken twice or three times a day, have been found of very great efficacy in obstinate rheumatic complaints, and several other disorders, which are usually supposed to arise from an acrimonious state of the fluids." The following is Dr. Withering's method of preparing this powder of the dried leaves: Gather them about the end of June, when the plant is in flower; pick off the little leaves, and throw the stalks away; dry these small leaves in a hot sunshine, or in a tin dripping-pan, or other convenient vessel, before the fire; preserve them in bags of strong brown paper, or powder them and keep them in glass phials, and put them away in a drawer, or place where no light can come upon them, for the light not only takes away their fine green colour, but also their virtue. When administered with prudence, it agrees with all ages and constitutions; joined with pectoral medicines, it promotes perspiration, and has been of great utility in the falling sickness and convulsions: taken inwardly, and applied outwardly at the same time, it abates inflammations of the eyes, takes away pain, and occasions sleep; and though it has all the good properties of opium, it never produces thirst, or occasions the head-ache, which that drug generally does; nor does it bring on costiveness, but generally produces a loose stool or two the day following. It possesses the property of rendering the corrosive ichorous discharge from cancerous ulcers mild, and of a better consistence, and has been given with great advantage to such as are troubled with bloody ulcers, gleets, and other painful and weakening discharges: it powerfully promotes the menses, particularly when they have been suddenly restrained, by cold, or any other external accident; it moreover cures the itch, promotes perspiration in some, and a copious flow of urine in others; and though not a cure for cancerous complaints, it is one of the best palliatives in those dreadful disorders, and far superior to opium. The best way of administering Hemlock is, to give the powder or extract in very small doses at first, which are to be increased gradually till the full dose is arrived at, which may be known by its producing giddiness in the head, a motion of the eyes as if something pushed them outwards, a slight sickness attended with a universal trembling of the body, and a loose stool or two the day after. One or more of these circumstances are the signs of a full dose, which should be continued for a considerable time, as little advantage can be expected without a perseverance in the use of it. When Hemlock is imprudently eaten, or taken in too large doses, it occasions giddiness in the head, dimness of sight, a sort of madness, coldness of the extremities, convulsions, and even death. The mode of obtaining relief in such cases, is to empty the stomach as soon as possible, by means of the most active emetics, and then to give frequent doses of sharp vinegar.—This plant may be easily propagated from seed, which will come up plentifully if permitted to scatter, and will only require to be thinned for medical use.

2. Conium Rigens; *Fine-leaved Hemlock*. Seeds somewhat muricated; peduncles grooved; leaflets channelled, obtuse. Root perennial; stem shrubby, short, stiff; branches longer, spreading very much, remote; leaves twice-winged, somewhat fleshy, doubled, obtuse, crenulate, hard; florets all fertile, white.—Native of the coast of the Cape of Good Hope, where it flowers in June. The seeds of this and the following species should be sown in pots in autumn, soon after they are ripe, and placed under a common frame in winter, where they may always be exposed to the open air in mild weather, and be only covered in severe seasons; they appear early in the spring, and must then be as much in the open air as the weather will permit, otherwise they will be drawn up weak: they do not bear transplanting well, and should therefore be thinned to four or five in a pot, after which they only require to be kept clean, and to be watered in very dry weather.

3. Conium Africanum; *Rue-leaved Hemlock*. Seeds muricated; petioles and peduncles glossy; leaflets flattish, not channelled, smelling like Smallage or Celery; peduncles opposite to the leaves, not furrowed, as in the foregoing; many of the florets barren; the central fruit sessile; seeds longer than in the common sort.—Annual: native of the Cape.

4. Conium Rugosum. Seeds wrinkled. Stem somewhat shrubby.—Native of the Cape.

5. Conium Tenuifolium. Root and stem-leaves simple, linear. Stem herbaceous, upright, a foot high, scarcely branched, slender, round, smooth, slightly streaked; leaves very narrow, a little wider at the base, and somewhat sheathing, very smooth, the lower ones four inches long or rather more; stem-leaves remote; umbel small, five-rayed, about eight or ten flowers in the umbellule: seeds oblong, striated, small, smooth; styles permanent, divaricating.—Native of the Cape of Good Hope.

Connarus; a genus of the class Monadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, five-parted, erect, tomentose, permanent. *Corolla:* petals five, lanceolate, erect, equal. *Stamina:* filamenta ten, subulate, erect, connected at the base, alternately of the length of the flower, and alternately very short; antheræ roundish. *Pistil:* germen roundish; style cylindric; stigma obtuse. *Pericarp:* capsule oblong, gibbous, one-celled, two-valved. *Seed:* single, ovate, large. Essential Character. *Style:* one. *Stigma:* simple. *Capsule:* two-valved, one-celled, one-seeded.——The species are,

1. Connarus Monocarpus; *Ceylon Sumach.* Leaves alternate, trifoliate, on long petioles; leaflets ovate, smooth, entire, thick, each on short petiolules, and remaining green the whole year; flowers in large upright racemes, at the ends of the branches; they are small, hairy, and of a greenish yellow colour, and rarely produce seeds in Europe. It rises with a woody stalk, about eight or ten feet high, hard, rigid, covered with a blackish bark, dividing at top into two or three branches.—Native of Ceylon. It is usually propagated in gardens, by laying down the young branches, which if tongued, in the manner practised for Carnations, and duly watered, will put out roots in twelve months, when they may be cut off from the old plants, and each planted in a separate small pot, filled with fresh light earth, plunged into a moderate hot-bed to forward their taking new root, observing to shade them from the sun every day, and to water them as they may require it. They should afterwards be treated in the same manner as other exotics, placing them in the dry-stove in winter, and for about three months in the summer in a warm sheltered situation in the open air.

2 Connarus Africanus. Leaves ternate, lanceolate, elliptic; veins protuberant underneath; branches round, smooth; flowers in a terminating spreading panicle.—Native of the mountains of Sierra Leone.

3. Connarus Santaloides. Leaves pinnate; leaflets ovate-acuminate; peduncles axillary, aggregate; flowers racemed. A tree, the branches round, smooth, with a purplish brown bark; calix ovate, the five segments lanceolate, acute, when in fruit bell-shaped; petals twice as long as the calix; filamenta unequal, the length of the corolla, scarcely united at the base. Native of the East Indies.

4. Connarus Mimosoides. Leaves pinnate, with about ten pairs of oval-oblong emarginate leaflets; racemes axillary. A tree, the branches round, villose towards the top; leaves towards the ends of the branches, petioled, alternate, approximating, unequally pinnate, with from nine to eleven pairs of leaflets, on very short petioles, opposite or alternate, the inner ones smaller, smooth, very finely veined on the upper surface, blunt, deeply emarginate, paler underneath; petioles slightly villose.—Native of the island of Nicobar.

Conocarpus; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, very small, five-parted, acute, erect, divisions subulate. *Corolla:* petals five, converging, (or none.) *Stamina:* filamenta either five or ten, subulate, erect; antheræ globose. *Pistil:* germen large, compressed, obtuse, inferior; style single, short; stigma obtuse. *Pericarp:* none, distinct from the seed. *Seed:* single, obovate, with a membranaceous thick margin, projecting on each side. Essential Character. *Petals:* five, or none. *Calix:* bell-form. *Seeds:* naked, solitary, inferior. *Flowers:* aggregate.—The species are,

1. Conocarpus Erecta; *Jamaica Button Tree.* Erect: leaves lanceolate. This is an upright branching tree, frequently exceeding thirty feet in height; the younger branches are angular; leaves alternate, two to three inches long, on short petioles, and greasy to the touch; the flowers small, and of a yellowish colour.—Native of the West Indies, and all the coasts of America, between the tropics, in great plenty, near the sea and in salt water: it is esteemed the best fuel in those latitudes, and being small, it is of scarcely any other use. The English call it button-tree, and button-wood; the Spaniards *mangle saragoza.* Both this and the second species are preserved in some curious gardens for the sake of variety, but they are plants of no great beauty. They are propagated from seeds, which must be obtained from the places where they naturally grow, as the plants never produce them in Europe. If the seeds be fresh, they will come up very soon when sown upon a hot-bed; and if the plants be potted and preserved in the bark-stove, they will thrive rapidly; but they are too tender to bear the open air in this country, and will not live unless constantly kept in the stove, and treated in the same manner as other exotic plants, observing, as they are natives of swamps, to supply them often with water, but giving them only small quantities in winter. They are evergreen, casting off their old leaves when the new come out.

2. Conocarpus Procumbens. Procumbent: leaves obovate; cones somewhat racemed, sessile. It is a very branching shrub.—Native of Cuba, on rocks near the coast.

3. Conocarpus Racemosa. Leaves lanceolate-ovate, bluntish; fruits not aggregate. This is a lofty and branching tree, sometimes dividing into three or four trunks close to the ground; the younger branches are shining, red, and opposite; leaves quite entire, shining, thickish, greasy to the touch, deep green, opposite, three inches long, on a red petiole, with two glands at the top of it; the flowers are small and sessile, and have a slight and not an unpleasant smell; the petals are five, and whitish.—Native of the Caribbee islands, and the neighbouring continent, on sandy and muddy shores. The Spaniards call it *mangle bobo,* or foolish mangle; the English *white mangrove.* The Caribbees employ the bark for tanning leather; and this is the only use to which it seems possible to apply these trees.

Conopea; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-cornered, permanent, five-cleft; segments subovate, acuminate, erect. *Corolla:* one-petalled, ringent; tube oblong, gradually widening; border two-lipped; upper lip erect, emarginate, lower trifid, the middle segments larger, concave. *Stamina:* filamenta four, two larger, fastened at bottom to the tube of the corolla; antheræ sagittate. *Pistil:* germen roundish; style filiform, hairy; stigma two-lobed. *Pericarp:* capsule roundish, one-celled, four-valved. *Seeds:* very many, small, oblong, striated, fixed to a roundish receptacle. Essential Character. *Calix:* five-cleft. *Corolla:* ringent, two-lipped, lower lip trifid. *Stigma:* two-lobed. *Capsule:* one-celled, four-valved, many-seeded.——The only known species is,

1. Conopea Aquatica. This is a creeping plant, with

parcels of small fibrous roots at the joints; it spreads over the neighbouring grass, and on the surface of the water, by the side of which it naturally grows; the stems and branches are square, and each angle is bordered its whole length by a very thin sharp leaf or wing; leaves opposite at each joint, clasping, distant three quarters of an inch from each other, kidney-form, plaited at the nerves, and waving on the edge; flowers either solitary or in pairs, opposite from the axil of the leaves, on a slender peduncle an inch in length; corolla blue.—Native of Guiana; flowering in June.

Conservatory. See *Green-house.*

Contrayerva. See *Dorstenia.*

Convallaria; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none *Corolla:* monopetalous, bell-shaped, smooth; border six-cleft, obtuse, open, reflected. *Stamina:* filamenta six, subulate, inserted into the petal, shorter than the corolla; antheræ oblong, erect. *Pistil:* germen globose; style filiform, longer than the stamina; stigma obtuse, three-cornered. *Pericarp:* berry globose, three-celled, spotted before maturity. *Seeds:* solitary, or in pairs, roundish. Essential Character. *Corolla:* six-cleft. *Berry:* spotted, three-celled.——The species are,

* *Corollas bell-shaped.*

1. Convallaria Maialis; *Sweet-scented Lily of the Valley.* Flowers on a scape; root perennial, with numerous round fibres, transversely wrinkled, creeping horizontally just below the surface to a considerable distance. The whole plant is smooth. Leaves radical, two, on long petioles, elliptical, ribbed, entire, acute, four to five inches long, of a bright green colour; flowers six to eight in a raceme, nodding, white, fragrant; berry scarlet when ripe. There are several varieties of the Lily of the Valley, as: One, with narrow leaves, mentioned as having been found by Mr. Lawson in Westmoreland, but upon being removed into a garden, it became in all respects like the common sort. A second, with broader leaves, from the Alps, which Mr. Miller informs us retained its difference in the garden in the same soil and situation with the common sort, and therefore he has no doubt of its being a distinct species. A third, with a double variegated flower, supposed to be only a variety of the preceding, though the flowers are much larger, and beautifully variegated with purple, but the roots do not increase so much as the common sort. A fourth, with reddish or red flowers, which Mr. Miller affirms remained the same for forty years; the flowers are smaller, the stalks redder, and the leaves a darker green, than in the common sort: both this and the white vary with double flowers. The Lily of the Valley claims our notice both as an ornamental and a medicinal plant; in the former point of view, few are held in greater estimation, because few can boast such delicacy with so much fragrance. When dried, they have a narcotic scent; and if reduced to powder, excite sneezing, and relieve the head-ache: an extract prepared from the flowers or the roots, partakes of the bitterness as well as of the purgative quality of aloes; the dose is from twenty to thirty grains: an infusion of the flowers, constantly taken instead of tea, is an excellent remedy for nervous head-aches, trembling of the limbs, and other similar complaints.—The Lily of the Valley is a native of Europe, from Lapland to Italy, in woods. Since the trees on Hampstead Heath near London have been destroyed, it has been but sparingly found there: it is found in lord Mansfield's wood, near the Spaniard; between Shooter's Hill and Woolwich; and in Norwood it abounds, where large patches have been observed, with very few flowers and no berries. It may also be met with on Bushy Heath, and Cashioberry in Hertfordshire; near Chiselhurst, in Kent; near Lee, in Essex; near Woburn, in Bedfordshire, whence, according to Mr. Miller, the London markets are generally supplied with the flowers; it has been observed in Wichwood forest in Oxfordshire; in Beechwood, near Stokenchurch; in Whitewood, near Gamlingay, Cambridgeshire; in Norfolk; in Buddon and Okely woods, Leicestershire; King's Cliff, Northamptonshire; Kendal, in Westmoreland; in the county of Durham; upon Ingleborough in Yorkshire; and in Scotland. It flowers in May, and is therefore named May-lily. Gerarde calls it *convall lillie*, and informs us, that in some places it is called *liriconfancie*.—It is propagated by parting the roots in autumn, placing the sets a foot asunder: they require a loose sandy soil and a shady situation. They spread and multiply greatly in a rich soil, but are less productive of flowers. The only culture they require, is to keep them clean from weeds, and to transplant and separate the roots every third or fourth year; for if this be neglected, the flowers will be small, and few in number. As the Lily of the Valley forces very well, by that means its elegant flowers may be enjoyed in a succession for two months.

2. Convallaria Japonica; *Grass-leaved Lily of the Valley.* Scape ancipital; raceme drooping; root-leaves ten or more, linear, drawn to a point at bottom, three-cornered, flat on one side, entire, striated, bent back, two feet long and upwards; scape finely striated, smooth, a short span in height, flowering at the end, four-cornered; corolla white; divisions lanceolate, patulous, a line in length; filamenta hardly any; antheræ linear, acute, brown; style the length of the corolla; berry ovate, obtuse, smooth, blue, the size of a pea, one-celled, adorned with the permanent calix. There are two varieties, a larger and a smaller.—They are found near Nagasaki in Japan, and are there used, as well as among the Chinese, in some disorders for which the tubers of the roots preserved with sugar, are supposed to be a remedy.

3. Convallaria Spicata; *Spiked Lily of the Valley.* Scape striated; raceme spiked; flowers aggregate. Root fibrous; root-leaves linear, drawn to a point at bottom, bluntish, much striated; scape from four inches to a foot in height; raceme a finger's length, with the flowers scatteringly aggregate; corolla six-cleft, almost globular, violet.—Native of Japan, flowering in September.

** *Corollas funnel-shaped.*

4. Convallaria Verticillata; *Narrow-leaved Solomon's Seal.* Leaves in whorls. Root perennial, toothed; stem simple, angular, striated, erect, eighteen inches high; leaves three or four in a whorl, three or four inches long, and from half an inch to an inch in breadth, bright green, glaucous beneath; peduncles axillary, solitary, branched, pendulous, two or three flowered; corollas oblong, greenish-white, striated at the ends, and divided into six bluntish segments, bearded within at the tip, three or four lines in length; berries globular, blue.—It flowers in June; and is a native of the north of Europe, Germany, Switzerland, and Carniola. Ray observed it near Spa, and on mount Saleve, near Geneva; and it was found by Mr. Arthur Bruce in the Den Rechip, four miles N. E. of Dunkeld in Perthshire, in July 1792. All the Solomon's Seals are very hardy plants; they prefer a light soil and a shady situation, and are therefore very proper for plantations, where, if they be not crowded by shrubs, they will thrive and multiply exceedingly, making an agreeable variety during the summer season. They have a very singular appearance; and multiply very fast by their creeping roots, in a proper soil and situation. The best time to transplant and part the roots is in autumn, soon after the stalks decay; but it may be safely done at any time until they begin to shoot in the spring, when the

ground should be dug about them, and kept clean from weeds: they should also have room to spread, and must not be removed oftener than every third or fourth year.

5. Convallaria Polygonatum; *Single-flowered Solomon's Seal.* Leaves alternate, stem-clasping; stem angular; pedunceles axillary, generally one-flowered. Root twisted, and full of knots; on a transverse section of it, characters appear that give it the resemblance of a seal, from which it derives its name of Solomon's Seal; flowers white, with a green line down the segments, sweet-scented, nodding; berry blue, with three seeds. It varies with a double flower.—Native of the north of Europe, Holland, Germany, Hungary, Switzerland, Carniola, and Piedmont. It is found in England, in the fissures of rocks near Wherf, Settle, and Skipton, and Syke's Wood, near Ingleton, in Yorkshire; and also in Virginia. The variety above mentioned, which has white leaves like Hellebore, and a purplish stalk, was found in woods on the north side of Mendip Hills. Hill says, that the root of this plant is used, and extremely commended for an outward application against bruises; he recommends it to be taken, when dried and powdered, to assuage violent purgings with bloody stools; and when fresh, beaten up into a conserve with sugar, as a preventive against the whites. The roots of this, and of the seventh species, have been made into bread by the Turks in times of scarcity.

6. Convallaria Latifolia; *Broad-leaved Solomon's Seal.* Leaves alternate, stem-clasping, acuminate; stem angular; pedunceles axillary, many-flowered. This has at first a sweet and afterwards an acrid taste, and is glutinous; stem from half a foot to two feet in height, round at bottom, and angular from thence the whole length, the angles being more remarkable below the middle of the back of the leaf; it has a short pile of hairs toward the top.—Native of Austria.

7. Convallaria Hirta. Leaves alternate, a little embracing the stem; stem hispid; pedunceles with about three flowers. Root spreading; stem about a foot high, crooked, angular, sprinkled with white stiff hairs; leaves egg-shaped, broad, ending in a long obtuse point; flowers nodding, unilateral; pedunceles axillary, about an inch long.—Native of North America.

8. Convallaria Multiflora; *Many-flowered Solomon's Seal.* Leaves alternate, stem-clasping; pedunceles axillary, many-flowered. Stem round, from eighteen inches to two or three feet high, simple, leafy, nodding; leaves elliptical, nerved, usually bent upwards and to one side, underneath glaucous; flowers white, green at the base and tip, several together, (from two or three to seven or eight) axillary, on branched compressed pedunceles; berries round, of a blackish blue colour, varying to purple and red, and containing three or four seeds. It varies with a double flower.—Native of the north of Europe, Germany, Switzerland, and Carniola: in England it is found at Newbury, and other places in Berkshire; at Bramdean, in Hampshire; Rochill, in Kent; High Wycomb, in Bucks; and Gorlestone in Suffolk. The Dwarf Solomon's Seal is found in the woods of Wiltshire. It would be unpardonable to omit what old Culpeper says concerning the distilled water of the whole plant, which, when applied to the face, cleanseth it from morphew, freckles, spots, or marks whatsoever, leaving the place fresh, fair, and lovely, for which it is much used by the Italian dames. The roots are recommended externally as vulneraries, restringents, and discutients; internally, as incrassants and mild corroborants; they have little or no smell, and are rather sweet at first to the taste, which is soon followed by a very slight impression of bitterness and acrimony: their virtues do not appear to be very great. Haller asserts, that the berries excite vomiting, and even the leaves a nausea. The Turks eat the young shoots in the same manner as we eat asparagus. The medical properties of this and the fifth species are nearly the same.

**** Corollas wheel-shaped.*

9. Convallaria Racemosa; *Cluster-flowered Solomon's Seal.* Leaves sessile; raceme terminating, compound. Stems two feet high, unbranched, with many oblong leaves embracing them at the base, resembling the leaves of Plantain; the flowers are small and white, produced in single spikes at the top, and are succeeded by small red berries, about the same size as in the first sort, and contain two hard shining seeds. It flowers in the beginning of June, and the berries ripen in autumn.—Native of Virginia and Canada. This is a hardy perennial, easily propagated by parting the roots; but thrives most in a light soil, and shady situation. It is called *oile nowote*, child's physic, by the Cherokee Indians.

10. Convallaria Stellata; *Star-flowered Solomon's Seal.* Leaves stem-clasping, very many. Stem upright, about two feet high. The flowers come out from the same joints as the leaves, on short pedunceles, each of which sustains five or six; they are small, with short tubes of a dirty white, tipped with green, and slightly cut into six parts at top; berries red.—Native of Canada.

11. Convallaria Trifoliata. Leaves stem clasping, in threes; racemes terminating, simple. Root perennial, creeping, jointed; flowers small, on long simple pedunceles; corolla open, deeply divided; berries red, round.—Native of woods in Siberia.

12. Convallaria Bifolia; *Least Solomon's Seal*, or *One-Blade.* Leaves cordate; flowers four-stamined. This plant seldom exceeds four or five inches high, rising with a single stalk from the root, with one or two heart-shaped leaves, which closely embrace it; the top of the stalk is terminated by a loose raceme of white flowers, which have short tubes, and spread open at the top, where they are divided into four obtuse segments; the fruit is a soft berry, including a hard seed.—Native of the north of Europe, Holland, Germany, Switzerland, and Carniola. As it propagates very fast by its creeping roots, they will soon spread over a large space, unless confined in pots. It is remarkable, that where these and other creeping plants are allowed to spread, they seldom produce any fruit.

Convolvulus: a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, converging, ovate, obtuse, very small, permanent. *Corolla:* one-petalled, bell-shaped, spreading, large, plaited, obscurely five-lobed. *Stamina:* filamenta five, subulate, shorter by half than the corolla; antheræ ovate, compressed. *Pistil:* germen superior, roundish: style filiform, length of the stamina: stigmas two, oblong, broadish. *Pericarp:* capsule enwrapped by the calix, roundish, two-celled, one, two, or three valved. *Seeds:* in pairs, roundish. Essential Character. *Corolla:* bell-shaped, plaited. *Stigmas:* two. *Capsule:* two-celled, with two seeds in each cell.—The general description of this genus is, that the stems are herbaceous, milky, in the greater part twining, in a very few shrubby; leaves alternate; pedunceles axillary or terminating, one-flowered, with two bractes, or many-flowered.——The species are,

** With a twining Stem.*

1. Convolvulus Arvensis; *Small* or *Field Bindweed.* Leaves sagittate, sharp on each side; pedunceles generally one-flowered; bractes subulate, at a distance from the flower. Root perennial, milky, white, the thickness of a crow-quill, creeping so as scarcely to be eradicated; stalks numerous, slender, twisted, procumbent, branched, frequently suffocating

plants by twisting round them; leaves alternate, hastate, smooth, running out into two points behind; corolla elegantly variegated with red and white, sometimes wholly white; seeds angular and brown. This plant is the pest of gardens and arable land, and is more destructive than the second species, because that keeps to the hedges for the sake of climbing, whereas this wanders over whole fields, and cannot be rooted out, except by repeated ploughings in dry weather, every atom of which will grow as well as quick-grass, its rival in creeping. Mr. Miller says, it is generally a sign of gravel lying under the surface, and that the roots run very deep into the ground, whence some country people call it *devil's guts*. It is called *corn-bind* in Yorkshire, in other parts *with-bind*, *bind-weed*, *hare-bind*, and *hedge-bells*. The blossoms give a deep yellow or orange tincture to water, which is heightened by alum and alkalies. The root of this plant, says Meyrick, is a rough purgative, and, to such constitutions as can bear the operation, will prove serviceable in the jaundice, dropsies, and other disorders arising from obstructions of the viscera. The best method of administering it is to bruise the roots, and give their expressed juice in strong beer. It is remarkable, that hogs devour the roots of this and the next species in large quantities, without any visible effect. The best way to destroy this and the second species is, according to Mr. Curtis, to plough them up repeatedly in dry weather, and then pick out the roots and burn them. He declares, that the more he cut and hoed them, the more they spread and grew; although Mr. Miller observes, that in an open clear spot of ground, where the plants are carefully hoed down for three or four months, they may be effectually destroyed; for when the stalks are broken or cut, a milky juice flows out, and the roots, being thereby exhausted, soon decay.

2. Convolvulus Sepium; *Great* or *Hedge Bind-weed*. Leaves sagittate, truncate behind; peduncles four-cornered, one-flowered, with heart-shaped bractes close to the flower. Root perennial, white, the thickness of a goose-quill, creeping, and propagating itself exceedingly, so as not to be destroyed without great difficulty; corolla large, and white.—It flowers in hedges, from July to September. The inspissated juice of this plant, taken in doses of twenty and thirty grains, is a powerful drastic purge. Can it then be worth while, says Dr. Withering, to import Scammony from Aleppo, when a medicine with the very same properties, grows spontaneously in many of our hedges? The smallness of the roots, however, in our common Bindweed, would prevent its juice from being collected in the same manner with that which flows on incision from the large root of the Scammony, and which by hardening forms that purgative substance. The country people in Northamptonshire use the root of this plant, fresh gathered, and boiled in ale, as a purge. It would certainly offend a delicate stomach; but it saves the expense of an apothecary, and answers the purpose better than any other medicine, for persons of a strong constitution. See the first species.

3. Convolvulus Scammonia; *Syrian Bindweed*, or *Scammony*. Leaves sagittate, truncate behind; peduncles round, bearing about three flowers; corolla pale yellow. The roots are three or four feet long, and from nine to twelve inches in circumference, covered with a light-gray bark, tapering, branched at bottom, and containing a milky juice.—Scammony is a gummy resin, obtained from the milky juice of the root, by clearing away the earth from the upper part of it, and cutting off the top in an oblique direction, about two inches below where the stalks spring from it; then, under the most depending part of the slope, a shell or other convenient receptacle is fixed, to receive the juice, which gradually becomes hard, and is the genuine Scammony. It is brought from Aleppo and Smyrna, and appears to have been well known to the Greek and Arabian physicians, who used it for various other purposes, as well as by way of purgative. It is a stimulating cathartic, but somewhat uncertain in its operation, and is frequently, and indeed generally, employed in composition with other ingredients. The dose is generally from three to twelve grains. Meyrick calls it a rough and powerful, but very useful purgative, of great service in rheumatic and other chronical disorders, for it will reach the seat of many disorders that a common purge will not affect. It should however seldom be given alone, and ought never to be administered to those of irritable habits, or in inflammatory complaints, though even then it is no more hurtful or dangerous than other strong cathartics. Hill says, that a great misfortune is, that the compositions made with Scammony are never perfectly to be depended upon, because there is so much difference in several parcels of Scammony, that they hardly seem the same medicine, some are so very strong, and some so very weak.—This plant will bear the open air of our climate, and will thrive well on a dry soil. Sow the seeds in the spring, on a border of light earth; keep the plants clean from weeds, and thin them to the distance of three feet. The stalks decay in autumn, but the roots will remain many years.

4. Convolvulus Sibiricus; *Siberian Bindweed*. Leaves cordate, acuminate, even; peduncles one-flowered. Root annual; stem six feet high, even, two angled from the decurrent stipules, but not ancipital; leaves scarcely repand, quite entire, ending in a point, the length of the leaf, paler underneath, and veined; corolla whitish, or having a shade of flesh-colour, with a yellowish bottom.—It flowers in July and August; and is a native of Siberia.

5. Convolvulus Farinosus; *Mealy-stalked Bindweed*. Leaves cordate, acuminate, repand; peduncles three-flowered; stem mealy. Corolla three times the size of the calix, somewhat flesh coloured, acute, five-cleft; stigmas oblong. Perennial: flowering in May and June.—Native of Madeira.

6. Convolvulus Medium; *Arrow-headed Bindweed*. Leaves linear, hastate-acuminate; ears toothed; peduncles one-flowered; calices sagittate. Stem twining, not rooting.—It is annual, flowers in July and August; and is a native of the East Indies. This, and the tenth, thirteenth, fourteenth, seventeenth, eighteenth, nineteenth, twenty-first to the twenty-sixth, twenty-eighth, thirtieth, thirty-first, thirty-fifth to the forty-first, fifty-seventh, fifty-eighth, sixtieth, sixty-second to the seventy-first, seventy-sixth, eighty-first, and from the eighty-fifth to the hundred and ninth species inclusive, being natives of warm climates, chiefly of the East and West Indies, are tender. When raised from the seed, they must be sown on a hot-bed in the spring; and when the plants are fit to remove, they must be transplanted each into a separate pot filled with light earth, and plunged into a moderate hot-bed, observing to shade them from the sun until they have taken fresh root; then they should have a large share of air admitted to them every day, to prevent their drawing up weak, and also moderate waterings every other day. When the plants are become too tall for the hot-bed, they must be shifted into larger pots, and placed in the bark-stove, where, if they be allowed room, they will flower; but they rarely produce seeds in England. Many of them, therefore, are propagated by cuttings.

7. Convolvulus Japonicus. Leaves hastate-lanceolate, the side-leaves one-toothed; peduncles one-flowered. Stem filiform, simple, smooth. It flowers from May to July; and is a native of Japan, where it is also cultivated

8. Convolvulus Panduratus; *Virginian Bindweed.* Leaves cordate, entire, panduriform; calices even. Root perennial, thick and long, like that of a carrot; stems very long and slender; peduncles long, slender, sustaining from one to three flowers, large and white, with the bottom of a fine purple; seeds hirsute. It flowers from June until September, and will endure the open air of Great Britain.—It is a native of Virginia and Carolina.

9. Convolvulus Carolinus; *Carolina Bindweed.* Leaves cordate, entire, and three-lobed; corollas undivided; fruits erect; stems slender reddish towards the root, and hairy at the joints; leaves somewhat entire and cordate, others like ivy leaves; peduncles near an inch in length, with a few narrow bractes; corollas pale purple.—The seeds were imported among rice sent from Carolina to England, where it will thrive in the open air.

10. Convolvulus Hederaceus; *Ivy-leaved Bindweed.* Leaves cordate, entire, and three-lobed; corollas undivided; fruits erect. This much resembles the next species; the flowers, however, are much larger, they are solitary, on very short peduncles, of a very elegant blue colour, with a whitish base. It is an annual plant, and was first raised in England from seeds brought by a slave-ship from the river Gambia in Africa.—It is a native of Asia, Africa, and America.

11. Convolvulus Nil; *Blue* or *Azure Bindweed.* Leaves cordate, three-lobed; corollas half five-cleft; peduncles shorter than the petiole. It is an annual plant, rising with a twining stalk eight or ten feet high; leaves woolly, ending in sharp points, and on long petioles. Each peduncle sustains two flowers of a very deep blue colour; whence it receives its name of Anil, or Indigo. It is one of the most beautiful plants of the whole genus: some have supposed it to be a mere variety of the twelfth sort; but the leaves have three deeply-divided lobes, whereas in the other they are entire. It flowers all the latter part of the summer; and in good seasons the seeds ripen well in the open air.—It is a native of America. It is now rarely met with in our gardens, although Gerarde cultivated it before the year 1597; but it appears to have perished before it ripened its seeds. He says, that the Arabians call it *nil;* the Italians *campana azurea,* from its beautiful azure flowers; and also *fior di notte,* or *night-flower,* because its beauty appeareth most in the night. This species must be brought forward on a hot-bed, and planted out on a warm border toward the end of May.

12. Convolvulus Purpureus; *Purple Bindweed.* Leaves cordate, undivided; fruits drooping; pedicels thickened; peduncles erect, but the pedicels of the fruit thickened and drooping; the calix dotted, scabrous, and hairy. It is commonly known in the gardens by the name of Convolvulus Major. There are three or four lasting varieties of it, which are annual plants; the commonest has a purple flower; but there is one with a white, a second with a red, and a third with a whitish blue flower, and white seeds. If properly supported, these plants will rise ten or twelve feet high; they flower in June, July, and August, and will continue till the frost kills them. The seeds ripen in autumn.—Native of America and the West Indies. This is able to endure the open air in England. It is propagated by sowing the seeds in the spring, upon a warm border, where the plants are designed to remain. Some tall stakes must be placed by them for the stalks to twine about, otherwise they will spread on the ground, and make a bad appearance.

13. Convolvulus Angularis. Leaves cordate, five-cornered, quite entire, villose; peduncles many-flowered. Stem pubescent; leaves on short petioles, rough with reddish shining hairs; flowers orange; peduncles the length of the leaves; calix hairy; corollas bell-shaped, thrice the length of the calix.—Native of Java.

14. Convolvulus Obscurus; *Hairy Bindweed.* Leaves cordate, undivided; stem somewhat pubescent; peduncles thickened, one-flowered; calices smooth. Root annual; stem round.—It flowers in August: and is a native of Batavia, China, Cochin-china, Ceylon, and Surinam.

15. Convolvulus Batatas; *Tuberous-rooted Bindweed,* or *Spanish Potatoes.* Leaves cordate-hastate, five-nerved; stem hispid, creeping, bearing tubers; root perennial; stem cylindrical, prostrate, sending out tubers, which are purple or pale on the outside; leaves angular, on long petioles; flowers purple, lateral, large, three or thereabouts together, on upright peduncles.—Native of both Indies, also of China, and Cochin-china. They came first into Spain from the West Indies or the Spanish Main, and the roots are annually imported into England from Spain and Portugal. They were the common Potatoes of our old English writers; the roots which are now so generally cultivated among us under that name, being then little known. They are sweet, sapid, and esteemed nourishing. They are commonly cultivated in all the tropical climates, where they eat not only the roots, but the young leaves and tender shoots boiled.—There are several varieties, if not distinct species, of Batatas. Loureiro mentions one, the roots of which are in bunches, white within, and of a tougher substance, though not so sweet as the common sort, but yet more esteemed among the natives. Forster mentions a second, which is found, not only in the South-sea islands within the tropics, but also in Easter Island, and in the northern parts of New Zealand.—They are cultivated in warm climates by their roots, in the same manner as our common Potatoe, but require much more room, for the trailing stalks extend every way four or five feet, sending out large tubers, forty or fifty of which are produced from a single root. In England, the roots must be planted on a hot bed in the spring: and if the plants be kept covered in bad weather with glasses, they will produce flowers, and many small roots from the joints; but if they be exposed to the open air, they seldom make much progress.

16. Convolvulus Biflorus. Leaves cordate, pubescent; peduncles in pairs; lobes of the corolla trifid. Root annual; stem round, hairy, branched at the base; petioles round, hairy, shorter than the leaf; corollas white, five-cleft, small; the lobes three-cleft, the middle cleft smallest; tube shorter than the calix; stamina the length of the tube; pistil white, the length of the stamina; stigmas two, headed, purple.—Native of China.

17. Convolvulus Verticillatus. Leaves cordate, oblong, naked; peduncles umbellate, bifid, many-flowered. Corolla bell-shaped; flowers bluish and small.—Native of America.

18. Convolvulus Umbellatus; *Umbelled Bindweed.* Leaves cordate: peduncles umbellate. Stem herbaceous, twining, filiform, stiff, subdivided, pubescent, round; flowers many, terminating, on peduncles three inches long or more; corollas yellow, the border plaited obtusely, pentangular. It flowers in June and July.—Native of the West India Islands.

19. Convolvulus Malabaricus. Leaves cordate, smooth; stem perennial, villose. Stem twining, round, slender; leaves acuminate, quite entire; peduncles one-flowered; corolla bell-shaped, with a long tube, white, with a dusky purple base.—Native of the East Indies and Cochin-china.

20. Convolvulus Canariensis; *Canary Bindweed.* Leaves cordate, pubescent; stem perennial, villose; peduncles many-flowered. Roots strong, fibrous; stems woody, branched, growing twenty feet high and more when supported; flowers axillary, several on one peduncle, for the most part of a pale

blue, but sometimes white. It flowers in June, July, and August, and sometimes ripens seeds in England.—Native of the Canaries, Cochin-china, &c. It is easily propagated by layers or cuttings; the seeds are not much regarded. Those plants, however, which are raised from layers or cuttings do not produce seed, whereas those which come from seeds seldom fail. If the young shoots be laid down in the spring, they generally put out roots in three or four months; they may be taken off an old plant at that season, and each put into a separate pot filled with light earth, and shaded until they have taken new root; after which they may be placed with other hardy green-house plants till autumn, when they must be removed into the green-house, and treated as Myrtles, &c. The tender cuttings planted during any of the summer months in pots filled with light earth, plunged into a moderate hot-bed, and shaded from the sun, will take root, and may be treated as the layers. The leaves continuing green all the year, this plant makes a pretty variety in the green-house during the winter.

21. Convolvulus Muricatus; *Rough-stalked Bindweed.* Leaves cordate; peduncles thickened; they and the calices even; stem muricate. Stalk very smooth, with harmless prickles scattered over it; leaves undivided; peduncles usually two-flowered; corolla purple.—Native of Surat. It is annual, and flowers in July and August.

22. Convolvulus Anceps. Leaves cordate; stem keeled on both sides, smooth; leaves three inches long, smooth, veined, obtuse, quite entire, on petioles nearly the length of the leaf.—Native of Ceylon and Java.

23. Convolvulus Turpethum; *Square-stalked Bindweed,* or *Turbith.* Leaves cordate, angular; stem membranaceous, quadrangular; peduncles many-flowered. Root perennial, having thick fleshy tubers, spreading far in the ground, and abounding with a milky juice, which flows out when the plant is wounded, and soon hardens into a resinous substance when exposed to the air. Corolla white, scarcely twice as long as the calix, bell-shaped, plaited, five-cleft.—Native of Malabar, of the Island of Ceylon, and of the Society and Friendly Isles, and also of the New Hebrides in the South Seas.

24. Convolvulus Grandiflorus; *Large-flowered Bindweed.* Leaves cordate, ovate, bluntish, quite entire, peduncled, bearing about two flowers; calices coriaceous; stem and petioles pubescent. Stem arboreous at first erect, then twining, pubescent; leaves large, with rounded lobes, obtuse, smooth, on pubescent petioles; flowers large.—Native of the East Indies.

25. Convolvulus Maximus; *Great Bindweed.* Leaves cordate, ovate, acuminate, quite entire, very smooth; stem and petioles very smooth. Stem woody at bottom, then twining and mounting to a great height. The whole plant very smooth.—Native of Ceylon.

26. Convolvulus Speciosus; *Broad-leaved Bindweed.* Leaves cordate, tomentose, silky on the lower surface; peduncles longer than the petiole, umbellate; calices acute. Stem arboreous, erect, then twining, round, pubescent; leaves very large, hairy on the upper surface, covered with a white down on the lower, and shining like silver in the sun-beams, the lobes rounded, and very obscure; petioles round and pubescent.—Native of the East Indies.

27. Convolvulus Trinervius. Leaves cordate, oblong, smooth, three-nerved; stem round; peduncles one-flowered. Stem filiform, smooth, simple; leaves opposite, petioled, acuminate, quite entire, pale underneath, an inch or somewhat more in length.—Native of Japan.

28. Convolvulus Peltatus. Leaves peltate; peduncles many-flowered.—Native of Amboyna and the Society Isles.

29. Convolvulus Jalapa; *Jalap Bindweed.* Leaves ovate, subcordate, obtuse, obscurely repand, villose underneath; peduncles one-flowered. Root large, oval, full of milky juice; stems many, herbaceous, triangular, eight or ten feet high; leaves different in shape, lower ones triangular, almost heart-shaped, upper ones more long, and acute; petioles long; flowers reddish on the outside, but dark purple within, probably varying in colour; seeds covered with a very white down like cotton.—Native of South America, as at Xalapa between La Vera Cruz and Mexico. The medicinal virtue of jalap resides in the resin. The powdered root is the part used. It is in general a safe and efficacious purge, and has been much celebrated in large doses as a hydragogue in dropsies. It is often prescribed in a compound form, as with cream of tartar, &c. The dose of the simple powder is commonly from one scruple to two. The roots of jalap, says Lewis, have scarcely any smell, and but very little taste while kept in the mouth, but after they are swallowed, the throat is affected with a slight pungency and heat, which continues for a considerable time. When reduced to powder, and taken in doses of a scruple and half a drachm, it proves in general an effectual and very safe purge, seldom occasioning any sickness or griping pains, which are the too common attendants of strong purgatives. Some of the faculty have prohibited the use of this root to children; but there appears no rational ground for such a prohibition. Young children, from the laxity of the solids, and the soft lubricating nature of their food, in general bear this kind of medicine better than adults; and adults of a weak lax habit of body better than those who are robust; and in both cases, few, if any, of the strong purgatives now made use of, are stronger than jalap. Motherby remarks, that jalap is of a diuretic, as well as a purgative nature; on which account it is peculiarly serviceable in dropsies, for which purpose it is best given in wine, wherein it has stood some hours before taking it. There is a tincture made from the root of this plant, and kept in the shops, which has all the effects of the root in substance, and may be thought by some persons to be more agreeable to take.—This plant must be preserved in the bark-stove. It may be raised from seeds on a hot-bed; the young plants being removed into pots, must be plunged into the bark-bed, and treated in the same manner as the last-mentioned set of plants, with this difference only, that as this has large, fleshy, succulent roots, it must have but little water, especially in winter. The proper soil for the Jalap is a light sandy loam, not too rich; and the plants should always remain in the bark-stove. It may also be increased from slips or cuttings.

30. Convolvulus Sericeus; *Silky Bindweed.* Leaves lanceolate-elliptic, tomentose, silky underneath; peduncles subumbellate; calices hairy. Stem shrubby, smoothish; leaves alternate, petioled underneath, shining, marked with lines, acute.—Native of the East Indies.

31. Convolvulus Tomentosus; *Woolly Bindweed.* Leaves three-lobed, tomentose; stem lanuginose. The stem is round, whitish, climbing twenty feet high; leaves like the older leaves of Ivy; flowers axillary, solitary; peduncles a quarter of an inch in length; corolla of a fine purple colour, with paler streaks.—Native of Jamaica, China, and Cochin-china.

32. Convolvulus Althæoides; *Mallow-leaved Bindweed.* Leaves cordate, sinuate, silky; lobes repand; peduncles two-flowered. Root perennial, sending out many weak twining stalks, about three feet high when supported, and if not, lying on the ground; peduncles very long, two-flowered; corolla pale rose-colour. It flowers from June to August, but rarely ripens seed in England. There is a variety of this

species, with a pale rose-coloured corolla, with five stripes of a deeper red.—Native of the Levant, county of Nice, &c. Neither this, nor the variety of this species, often produces seeds in England, but, creeping at the roots, are propagated by offsets or shoots taken from the old plants. The best time for parting and transplanting this sort is about the beginning of May, when it may be taken out of the green-house, and exposed to the open air; but the young plants should be placed under a frame, and shaded from the sun till they have taken new root; they may then be gradually hardened to the open air during the summer, but in autumn they must be placed in the green-house, and treated in the same manner as the sixth species.

33. Convolvulus Cairicus; *Jagged-leaved Bindweed.* Leaves palmate, smooth, serrulate; stipules leaf-shaped, palmate; axils tomentose; calices panicled, even. The whole plant is smooth, except the axils, which are closely hairy. The corolla is bell-shaped; the stigma capitate.—It flowers in June and July; and is a native of Egypt.

34. Convolvulus Copticus. Leaves pedate, serrate; peduncles ensiform, two-flowered; calices muricate. Stem herbaceous, angular, smooth, and even; corolla white, acute; stigma blood-red.—Native of the Levant.

35. Convolvulus Vitifolius; *Vine-leaved Bindweed.* Leaves palmate, five-lobed, smooth-toothed; stem hairy; peduncles many-flowered; racemes two-parted; calices villose.—Native of the East Indies.

36. Convolvulus Dissectus. Leaves palmate, seven-parted, tooth-sinuate, smooth; stem hairy; peduncles one-flowered; calix smooth.—Native of America.

37. Convolvulus Macrocarpus; *Long-fruited Bindweed.* Leaves palmate-pedate, five-parted; peduncles one-flowered. —Native of South America.

38. Convolvulus Paniculatus; *Panicled Bindweed.* Leaves palmate; lobes seven, ovate, acute, quite entire; peduncles panicled. It varies with three or five leaved lobes.—Found in the sands of Malabar.

39. Convolvulus Macrorhizos. Leaves digitate in sevens, quite entire; stem smooth; peduncles three-flowered.—Native of America.

40. Convolvulus Quinquefolius; *Smooth Five-leaved Bindweed.* Leaves digitate, smooth; toothed; peduncles even. Stem herbaceous, twining, filiform, round, hirsute; corolla bell-shaped, white; tube narrower at the base, swelling in the middle; border five-cornered, plaited, spreading.—Native of Jamaica.

41. Convolvulus Pentaphyllus; *Hairy Five-leaved Bindweed.* Leaves digitate in fives, hairy, quite entire; stem hairy; leaflets quite entire, pedicelled; peduncles long, branching; flower white; two large bractes include the calix; two obtuse stigmas; capsules obtuse; annual.—Native of the West Indies; flowering in August and September.

42. Convolvulus Martinicensis. Leaves elliptic; stem creeping, somewhat twining. Stems round, smooth, prostrate, long, rooting, twining a little; leaves elliptic, blunt with a point, quite entire, smooth, petioled, two inches long; the three outer calycine leaflets ovate, acute, very large and loose, the two inner much smaller, lanceolate, acute; corolla white. —Native of Martinico.

** *Stem not twining.*

43. Convolvulus Spinosus; *Prickly Bindweed.* Shrubby, erect: leaves lanceolate, silky; flower-bearing branchlets thorny. Stem subflexuose, scarcely twining, the whole white, with very short shining hairs; leaves oblong or lanceolate, sessile; stems branching at top, the branches horizontal, rigid, terminated by one erect, small, whitish flower.—Observed by Professor Pallas on the sandy hills near the river Irtis in Siberia.

44. Convolvulus Siculus; *Small-flowered Bindweed.* Leaves cordate-ovate; peduncles one-flowered; bractes lanceolate; flowers sessile. This is an annual plant, rising about two feet, with slender, twining stalks. The flowers are small, of a bluish colour, and have little beauty.—It flowers in June; and is a native of the south of Europe. It will flourish in the open air of England. If it be permitted to scatter its seeds, the plants will rise in the spring, and require no other culture but to keep them clean from weeds; or if the seeds be sown in the spring where the plants are to remain, they will flower in June, and the seeds will ripen in August.

45. Convolvulus Pentapetaloides; *Five-petalled Bindweed.* Leaves lanceolate, obtuse, naked, marked with lines; branches declining; flowers solitary, half five-cleft, axillary, on short peduncles; corolla blue with a yellow throat, the border almost five-parted, with acuminate divisions. In a poor soil it varies with simple filiform stems, a finger's length, and somewhat hairy towards the top. A hardy annual, and a native of Majorca.

46. Convolvulus Lineatus; *Dwarf Bindweed.* Leaves lanceolate, silky, marked with lines, petiolate; peduncles two-flowered; calices silky, somewhat leafy. Stem four to six inches high, prostrate, flexuose; leaves remote, narrower at the base, acute; corollas very hairy on the outside. The flowers are produced on the side and at the top of the stalks, in small clusters, sitting close together; they are of a deep rose-colour. The root is perennial, and creeping.—Native of the coasts of France, Spain, Nice, and Sicily. Although it will bear the open air of our climate, it seldom produces seed in England, but the roots propagate in plenty. It prefers a slight dry soil, and requires no other care but to keep the plants clean from weeds: it may be transplanted either in spring or autumn.

47. Convolvulus Cneorum; *Silvery-leaved Bindweed.* Leaves lanceolate, tomentose; flowers umbelled; calices hirsute; stem erect. Stems shrubby, upright, about three feet high; leaves lanceolate, blunt, silky, placed closely on every side of the stem; they are near two inches long, and a quarter of an inch broad. The flowers are produced in clusters at the top of the stem, sitting very close; they are of a pale rose-colour, and come out in June and July, but do not perfect seeds in England.—Native of Spain, Italy, Sicily, and the Levant. If planted in a light soil and a warm situation, it will live in the open air in mild winters, but in severe winters it is destroyed: some of the plants therefore should be kept in pots, and sheltered under a common frame in winter, where they may enjoy the free air in mild weather, and yet be protected from frost: in summer they may be placed abroad with other hardy exotic plants, where the fine silky leaves will make a pretty appearance. It may also be propagated by laying down the branches and by cuttings: but they rarely put out roots the same year, and many of them will fail; so that the best way is to procure seeds from Italy, as those plants which come from seeds grow much larger than those which are propagated by other means.

48. Convolvulus Cantabrica; *Flax-leaved Bindweed.* Leaves linear-lanceolate, acute, hairy; lower peduncles longer than the leaves, bearing about two flowers; calices oblong-lanceolate, hirsute. Root perennial, of the thickness of a quill, and a dirty brown colour, running deep into the ground; stems several, annual, hirsute, round, half a foot high or more, slender; corolla flesh-coloured, or pale rose-coloured, with five broad red lines which are hairy on the outside. It varies much in size, but may be known by its

straight stem a little inclined, its villose white leaves and calix, and pale purple flowers rolled in a spiral form. It delights in warm rocky situations.—Native of the south of Europe. It is propagated from seeds, which must be obtained from the countries where it naturally grows. They should be sown upon a warm dry border, where they are intended to remain; for as the plants run down with long tap-roots, they will not bear transplanting, for this has often been tried without any success. When the plants come up they should be thinned where they grow too close, and afterwards constantly kept clean from weeds; which is all the culture it will require.—It flowers in July and August, and the stalks decay in autumn; but the roots will last several years, and, if they be in a dry soil and a warm situation, will endure the winter very well without covering.

49. Convolvulus Dorycnium. Leaves sublinear, silky; stem shrubby, panicled; calices almost naked, obtuse. Root perennial; stems a foot and a half high; leaves alternate, sessile, narrow; flowers generally solitary, sessile in the forks of the branches, or at their summit; calices very small; corollas campanulate, open, villose on the outside.—Native of the Levant.

50. Convolvulus Scoparius; *Broom Bindweed.* Leaves linear, somewhat hairy; peduncles bearing about three flowers; calices silky, ovate, acute; stem shrubby; branches wand-like. Root perennial, sending up several erect branching stalks about two feet high; the flowers come out singly on the side of the stalks, sessile, of a pale bluish colour, and spreading open almost to the bottom. It has the appearance of Broom: stem round, very smooth; corolla white, hairy on the outside: the wood is white and hard, with radiating streaks; when scraped it has the smell of roses, together with a slight acrid taste. This, and the 52d species, produce the true *rose-wood* of the shops. Masson found it about Santa Cruz; and Mr. Miller says it grows in Candia, and several islands of the Archipelago.—Native of the Canary Islands. It may be propagated and treated in the same manner as the forty-eighth species; which see. It requires a dry soil and warm situation, to enable it to survive an English winter in the open air: if the surface of the ground about the roots be covered with some old tanner's bark, it will preserve them in the hardest frosts.

51. Convolvulus Oenotheroides. Shrubby, erect: leaves linear, becoming hoary; peduncles axillary, solitary, erect, one-flowered, bracted; calices lanceolate, smooth. Stems woody, round, reddish, somewhat glaucous; leaves narrow, the length of the finger, lax, flat; peduncles at the top of the stem, short, angular; bractes in pairs, recurved, subulate; corolla funnel-shaped, large, tawny-coloured. Found by Sparmann at the Cape of Good Hope.

52. Convolvulus Floridus; *Many-flowered Bindweed.* Leaves oblong-lanceolate, drawn to a point at the base, somewhat hairy; flowering-branches and peduncles panicled. Stems woody, procumbent; branches erect, stiff, hoary; leaves petiolate, linear, entire, waved, veined, smooth; flowers very numerous, small; leaflets of the calix ovate, concave, acute; corollas pale red, or white, hirsute on the outside.—Native of the Canary Islands; it flowers in August and September.

53. Convolvulus Corymbosus; *Tufted Bindweed.* Leaves cordate; peduncles umbellate; stem creeping.—Native of America, and New Caledonia.

54. Convolvulus Spithamæus. Leaves cordate, pubescent; stem straight; peduncles one-flowered.—Native of Virginia.

55. Convolvulus Persicus. Leaves oval, tomentose; peduncles one-flowered; corolla white.—Native of Persia, on the shores of the Caspian Sea.

56. Convolvulus Tricolor; *Trailing Bindweed.* Leaves lanceolate-ovate, smooth; stem declining; flowers solitary. It is an annual plant, with several thick herbaceous stalks about two feet long, not twining, but bending towards the ground, upon which many of the lower branches lie prostrate; leaves sessile. The peduncles come out just above the leaves, at the same joint, and on the same side; they are about two inches long, each sustaining one large open bell-shaped flower, of a fine blue colour, with a white bottom, varying to pure white, and sometimes beautifully variegated with both colours; the white flowers are succeeded by white seeds, but in the blue ones they are dark-coloured.—Native of Barbary, Spain, and Sicily. It has long been considered as an ornamental plant in the borders of our flower-gardens, under the name of *Convolvulus Minor.* It is propagated by seeds, which should be sown on the borders of the flower-garden, where they are intended to remain: the usual method is to put two or three seeds in each place where they are intended to flower, covering them half an inch with earth; and when the plants come up, if the seeds all grow, there should be but two left in each place, which will be sufficient, the others should be drawn out carefully, so as not to disturb the roots of those which are left, after which they will require no care except weeding. If the seeds be sown in autumn, the plants will flower in May; but those which are sown in the spring, will not flower till the middle of June, and will continue flowering until the frosts set in. The seeds ripen in August and September. The plants which bear variegated flowers have frequently plain flowers of both colours intermixed with them, which should be pulled off as soon as they appear, in order to continue the variegated or striped flowers.

57. Convolvulus Repens; *Water Bindweed.* Leaves sagittate, obtuse behind, stem creeping; peduncles one or two flowered. Root perennial; stems strong, smooth, angular, compressed, extending wide, and putting out roots at the joints; flowers large, sulphur-coloured, on long peduncles from the side of the stalks, each supporting one flower, with a large swelling calix; flowers rather large, whitish—Native of the sandy coasts of Jamaica.

58. Convolvulus Reptans; *Creeping Bindweed.* Leaves hastate-lanceolate; ears rounded; stem creeping; peduncles one-flowered; corolla pale purple.—Native of the East Indies, China, and Cochin-china, where it is a common pot-herb.

59. Convolvulus Edulis; *Eatable Bindweed.* Leaves cordate, entire, and three-lobed, smooth; stem creeping angular. This differs from the fifteenth species, in having the leaves heart-shaped, entire, three and five lobed, not narrowed in the middle, so as to become sagittate. The roots are often as big as the fist, tuberclcd, fleshy like the Batatas, esculent, very soft and sapid: it flowers very seldom.—Brought from Japan, where it is not known far from the coast.

60. Convolvulus Hirtus; *Hairy Bindweed.* Leaves cordate and subhastate, villose; stem and petioles hairy; peduncles many-flowered. Annual, rising with slender, stiff, twining stalks, eight or nine feet high; flowers many together, at the end of strong peduncles; corolla purple.—Found by Osbeck in the East Indies.

61. Convolvulus Soldanella; *Sea Bindweed.* Leaves kidney-shaped; peduncles one-flowered. Roots small, white, stringy, sending out several weak trailing branches; leaves the size of the lesser Celandine, alternate, on long petioles. The flowers are produced on the side of the branches at each joint; they are of a reddish purple colour, appear in July, and are succeeded by round capsules, having three cells, with

one black seed in it. Every part of the leaves abounds with a milky juice. Half an ounce of the juice, or a drachm of the powder, is an acrid purge; the leaves, applied externally, are said to diminish dropsical swellings of the feet. According to Hill, the whole plant should be gathered fresh when it is about to flower, and ought to be boiled in ale, with some nutmeg and a clove or two, and this decoction should be administered in proportion to the person's strength: it is a strong purge, and sometimes also operates by urine, without any danger to the patient; it is best adapted for robust constitutions, but it will cure dropsies and rheumatism. Hill declares, that he has known a gonorrhœa cured by it; but the reader is strongly advised to place no reliance upon so precarious a remedy; his best method of proceeding is, to put himself into the hands of a regular surgeon, immediately after he discovers himself to be infected with that infamous disease, for there is no other way whereby he can so safely and easily obtain a radical cure. The juice which oozes from the stalk and roots of the Sea Bindweed may be saved; it hardens into a substance like Scammony, and is an excellent purge.—It is found on the sea-coasts of Frisia, Piedmont, Carniola; frequently upon the coasts of Norfolk, Essex, and Kent; also upon the north coast, and in Scotland, where it is called *Scottish Scurvy-grass*, and improperly *Sea Colewort*. As this plant grows naturally on the sea-beech, it cannot be long preserved in a garden.

62. Convolvulus Pes capræ; *Thick-leaved Bindweed*. Leaves two-lobed; peduncles one-flowered. Stem suffruticose, procumbent, creeping, somewhat villose, red, long; leaves blunt at both ends, often two-lobed, emarginate, thick, tomentose; flowers axillary, corolla purplish.—Native of the East Indies, China, Cochin-china, and the eastern coast of Africa. Annual; flowering in June and July.

63. Convolvulus Brasiliensis. Leaves emarginate, with two glands at the base; peduncles three-flowered; stems perennial, trailing and spreading to a great distance; flowers large, purple, produced by threes on very long peduncles.—Native of the West India islands, and of South America, near the shore. Browne says, that it is common near the sea in Jamaica; that the leaves are beautifully veined; that the whole plant is milky; and that the root is a strong purgative, sometimes used with success in hydropic cases: he calls it *Purging Sea Bindweed*.

64. Convolvulus Sublobatus. Upper leaves tooth-repand at the end; stem procumbent; flowers in a head; involucre six-leaved; corolla large. Annual.—Native of the East Indies.

65. Convolvulus Littoralis. Leaves oblong, lobe-palmate; peduncles one-flowered; stem creeping. Stems very long, much branched, the thickness of a goose-quill; leaves larger than the palm of the hand, in the likeness of a duck's foot, fleshy, and tender; flowers large, and white.—Native of America, and the West Indies.

**** New Species.*

66. Convolvulus Palmatus. Leaves palmate; lobes seven, sinuate-pointed; peduncles one-flowered; calices very large, spreading; stem twining. This rises with a strong winding stalk to the height of twenty feet, dividing into several smaller; the flowers are large, purple, on long peduncles, and are succeeded by roundish seed-vessels, having three cells, in each of which is lodged a single seed.—Native of Vera Cruz in New Spain.

67. Convolvulus Aristolochifolius. Leaves hastate-lanceolate, with rounded ears; peduncles many-flowered; stem twining. This rises with a slender twining stalk ten feet high; the flowers are produced in small clusters on long peduncles, they are yellow, and are succeeded by three-cornered seed-vessels. It is an annual plant.—Native of Carthagena, in New Spain.

68. Convolvulus Glaber. Leaves ovate-oblong, smooth; peduncles one-flowered; calices ten-parted; stem twining. An annual plant, with twining stalks seven or eight feet high; the flowers come out at every joint, on long slender peduncles, each supporting a large purple flower, with the calix cut almost to the bottom in ten parts.—It was imported from the island of Barbuda.

69. Convolvulus Multiflorus. Leaves cordate, smooth; peduncles many-flowered; seed villose, ferruginous; stem twining. Stalks slender, twining, eight or ten feet high; peduncles rather long, with many purple flowers in bunches growing upon each. Annual.—Native of Jamaica.

70. Convolvulus Hederaceus. Leaves triangular, acute; flowers many, sessile, spreading; calices acute, many-cleft; stem twining. The flowers are blue.—It is annual, and native of Jamaica.

71. Convolvulus Roseus. Leaves cordate, acuminate; peduncles two-flowered; stem twining, seven or eight feet high. Leaves on very long petioles, and flowers on long peduncles; seeds large, and covered with a fine down. This plant is annual, and one of the most beautiful of the genus, the flowers being very large, and of fine rose-colour.—Native of Jamaica.

72. Convolvulus Betonicifolius. Leaves cordate-sagittate; peduncles one-flowered; stem twining. Stalk slender, five or six feet high; corollas white, with purple bottoms.—Native of Africa.

73. Convolvulus Tuguriorum. Leaves cordate-sagittate, acute; stem angular, twining; peduncles four-cornered, one-flowered.—Native of New Zealand.

74. Convolvulus Cœlestis. Leaves cordate, extremely acuminate, pubescent; peduncles elongated, umbellate trifid; stem twining.—Native of the island of Tanna, in the South Seas.

75. Convolvulus Mucronatus. Leaves palmate-pedate; lobes ciliate, mucronate; peduncles one-flowered; stem twining.—Native of the island of Tanna, in the South Seas.

76. Convolvulus Tridentatus. Leaves wedge-shaped, three-cusped, dilated at the base, and toothed; peduncles one-flowered; stem twining. Annual; flowering in July and August.—Native of the East Indies.

77. Convolvulus Bufalinus. Stem shrubby, scandent; leaves cordate-sagittate, smooth; peduncles many-flowered; antheræ spiral; corolla bell-shaped.—Native of the woods of Cochin-china.

78. Convolvulus Aggregatus. Leaves palmate, seven-lobed, hairy; flowers aggregate. Stem twining, perennial, round, extremely hairy, branched; flowers white, large, axillary; common peduncle long, solitary; proper none; corolla tubular, five-cleft; segments acute, hairy, closed.—Native of Cochin-china.

79. Convolvulus Hastatus. Leaves lanceolate, hastate; peduncles axillary, in pairs, two-flowered; stem twining, hairy.—Native of Arabia.

80. Convolvulus Lanatus. Leaves lanceolate, linear, tomentose, older branches spiny; flowers in involucred heads. Stem shrubby, erect, branched at bottom; corolla bell-shaped, hairy on the outside, of a pale rose-colour; filamenta unequal; antheræ linear.—Native of the lower Egypt, and Mount Sinai.

81. Convolvulus Hystrix. Shrubby: leaves oblong; flowers sessile, subsolitary; branches spinescent. This is a rigid shrub, very much branched, diffused, and a foot high; the branchlets somewhat silky; calycine leaflets hirsute, the

two outer oblong, rigid, larger than the rest; corolla hirsute, small.—Native of Arabia.

82. Convolvulus Imperati. Leaves panduriform, or entire, emarginate, cordate at the base; peduncles one-flowered; stem creeping; calix smooth, with oblong leaflets.—Native of the sandy shore at Bagnoli, near Naples; flowering in August and September.

83. Convolvulus Arenarius. Leaves oblong, emarginate, lobed at the base, or entire; peduncles one-flowered; corollas tubular; stem twining. The whole plant is smooth; stems decumbent: corollas tubular, not bell-shaped.—Native of the Azores, or Western Islands.

84. Convolvulus Wheleri. Leaves sagittate, roundish, behind, and entire; peduncles round, one-flowered. This species varies with ovate leaves, having straight, shorter, rounded, lanceolate ears, or a little divaricate and lanceolate on the same plant.—Native of Spain, by the lake Albufeda, in the kingdom of Valencia.

85. Convolvulus Lanuginosus. Leaves cordate-oblong, subhastate, silky, tomentose; ears toothed; peduncles three-flowered. Stem hairy, herbaceous, twining, pale; corolla almost like that of Scammony, yellowish, having on the outside a lanceolate purplish line, with a pile of yellow hairs to each lobe of the border; style bifid.—Probably a native of the Levant.

86. Convolvulus Incanus. Silky, tomentose: leaves lanceolate, sagittate, blunt, somewhat toothed at the base; peduncles two-flowered. Stem twining, herbaceous, round; the petioles only one-fourth of the length of the leaf; peduncle the same length with the leaves; corolla villose on the outside.—Native of America.

87. Convolvulus Emarginatus. Leaves lanceolate, the lower ones emarginate, mucronate; peduncles one-flowered, outer calicine leaflets semiovate, large. Stem twining, rooting at the bottom, muricated upwards with little spines, and having minute hairs thinly scattered over it at top, even.—Native of the East Indies.

88. Convolvulus Filicaulis. Leaves linear, lanceolate, obtuse, mucronate, dilated and toothed at the base; calicine leaflets oblong. Stem herbaceous, filiform, twining, branched; stigma simple, bluntish.—Found by Isert in Guinea.

89. Convolvulus Angustifolius. Leaves linear, hastate, obtuse, mucronate, smooth; ears almost quite entire; peduncles one-flowered. Stem filiform, twining, smooth, branched; leaves petioled, an inch or rather more in length; ears lanceolate, acute, sometimes straight; stigma bifid.—Native of the East Indies.

90. Convolvulus Dentatus. Leaves hastate, smooth; ears toothed; peduncles many-flowered, muricate. Stem twining, round, smooth.—Native of the East Indies.

91. Convolvulus Bracteatus. Leaves cordate, almost entire, and three-lobed, hastate, attenuated; peduncles one-flowered, outer calicine leaflets bracte-shaped. Stem herbaceous, twining, with short hairs thinly scattered over it; leaves two inches long, veined; corolla villose on the outer side.—Native of the East Indies.

92. Convolvulus Bicolor. Leaves cordate, villose, angular-sublobate at the base; peduncles one-flowered, outer calicine leaflets bracte-shaped; corolla white, with a violet purple base, hairy on the outside.—Native of the East Indies.

93. Convolvulus Platanifolius. Leaves cordate, three-lobed; side-lobes tooth-angular; peduncles subtriflorous, and calices almost equal, smooth; stem round; stigma capitate.—Native of America.

94. Convolvulus Acuminatus. Leaves cordate, and three-lobed, attenuated; peduncles elongated, many-flowered, and calices smooth. Stem twining, with a few minute hairs scattered over it, pressed close to it, and visible only with a magnifier; flowers about five, alternate; pedicels an inch and half long, a little thicker under the leaf; corolla large, bell-shaped, purple, with a pale base, with five paler, lanceolate, attenuated rays, running to the edge; stigma capitate.—Native of the West Indies.

95. Convolvulus Gemellus. Leaves cordate, somewhat villose underneath; peduncles two-flowered. Stem twining, tender, pubescent at top; peduncles the length of the petiole, thickened at top, two-flowered, seldom one-flowered; pedicels a little shorter than the peduncle; one shorter, thicker, without any bracte, the other more tender, with two bractes in the middle, both turned back when ripe; corolla bell-shaped, six times as large as the calix, smooth.—Native of the island of Java.

96. Convolvulus Striatus. Leaves cordate, attenuated, smooth; peduncles longer than the leaf, having three or four flowers; corollas smooth, striated on the outside. Stem herbaceous, twining, pubescent, round, slender.—Grows in the East Indies.

97. Convolvulus Guianensis. Leaves cordate-ovate underneath, with the calices tomentose; peduncles elongated; flowers corymbed in a sort of head. Stem twining, branched, round, purplish, villose, rugged.—Native of Cayenne.

98. Convolvulus Capitatus. Hispid: leaves cordate-ovate; flowers in a head, five in number; peduncles axillary, solitary, a little shorter than the leaves, without any joint. Stem twining, herbaceous, rugged.—Native of the East Indies.

99. Convolvulus Hispidus. Extremely hirsute; leaves cordate-ovate; flowers umbelled; peduncles very short. It is easily known from the other species by its shagginess; corolla smooth; stigmas capitate.—Native of the East Indies.

100. Convolvulus Parviflorus. Leaves cordate, acuminate, smooth; peduncles many-flowered, and calices acuminate, villose. Stem weak, slightly villose at top; corolla blue, smooth, twice as long as the calix, five-cleft.—Native of Java.

101. Convolvulus Violaceus. Leaves, and the two outer leaflets of the calix, cordate-ovate, acute; peduncles elongated, bifid, many-flowered. Stem, as well as the petioles, peduncles, and calices, villose; corolla bell-shaped, violet-coloured, with five lanceolate paler rays.—Native of Santa Cruz.

102. Convolvulus Triflorus. Leaves cordate-lanceolate, attenuated, smooth, obtuse; peduncles three-flowered. Stem herbaceous, twining, smooth; leaves two inches long, quite entire, simply veined; the veins underneath villose when examined with a magnifier, the under surface is paler; they are rounded at the end, and mucronate; the lobes are rounded behind, and are sometimes, but seldom, obscurely angular.—Native of the East Indies.

103. Convolvulus Bifidus. Leaves cordate-oblong, acuminate, very soft underneath; peduncles bifid, many-flowered. Stem twining, villose; corolla almost funnel-shaped, three times as long as the calix, with five slender villose lines on the outside; lobes acute, bearded at the tip.—Native of the East Indies and the island of Java.

104. Convolvulus Triqueter. Leaves cordate-acute, subvillose; peduncles many-flowered. Stem three-keeled, pubescent, rendered triangular by three subfoliaceous very slender decurrent lines.—Native of the island of Santa Cruz.

105. Convolvulus Quinqueflorus. Leaves sagittate-ovate, attenuated, smooth, crenate, subrepand; peduncles mostly five-flowered. Stem slightly pubescent, round, branched; peduncles the length of the leaves; corolla twice as long as the calix, with the lobes bearded at the tip; stigma bifid.—Supposed to come from the isle of Bourbon.

106. Convolvulus Crenatus. Tomentose, silky: leaves cordate-oblong, extremely blunt, crenulate; peduncles one-flowered. Stem twining; leaves nerved, mucronate; ears straight, oblong, obtuse; stigma slightly bifid.—Native of Brazil.

107. Convolvulus Quinquelobus. Leaves palmate, five-lobed, serrulate, blunt, smooth; axils tomentose; peduncles one-flowered. Stem smooth, round, twining; corolla almost bell-shaped, smooth, purple.—Native of Santa Cruz.

108. Convolvulus Venosus. Very smooth: leaves digitate, quinate; leaflets petioled, acuminate, quite entire; peduncles many-flowered. Stem twining, round, smooth; corolla funnel-shaped.—Native country unknown.

109. Convolvulus Tenuifolius. Leaves digitate, in fives; leaflets linear; peduncles four or five flowered. The whole of this plant is smooth; stem angular, twining; peduncles axillary, short, upper ones sometimes one-flowered; calix smooth, with oblong leaflets; stigma acute.—Native of the West Indies.

110. Convolvulus Saxatilis. Extremely hirsute: leaves linear; flowers in heads; calices acuminate. This differs from the forty-seventh species, which it otherwise resembles, in being wholly covered with a lanuginous shagginess, instead of the silvery-shining, appressed, scarcely distinct hairs, as that is; and in having linear-subulate calicine leaflets, and subsessile flowers.—Native of Spain.

111. Convolvulus Ammanii. Leaves linear; peduncles one-flowered; bractes long; calix acute. The whole plant is covered with a short silky silvery down. Root perennial; stems four to six inches high, slender, cylindrical, branched, rather erect; leaves alternate, sessile; flowers campanulate, pale white, starred with purple lines.—Native of Siberia.

112. Convolvulus Maritimus. Leaves emarginate, two-lobed, wedge-shaped at the base; peduncles many-flowered; stem decumbent, throwing out roots. The whole plant is smooth. Stems cylindrical; leaves alternate, thick, fleshy; flowers purple, large, bell-shaped; peduncles three to six flowered; calix leaves egg-shaped; capsules roundish; seeds four.—Native of the isle of France, and the East Indies.

113. Convolvulus Evolvuloides. Leaves spatule-shaped, obtuse, hairy; upper ones embracing the stem; stem declining; flowers solitary, sessile. Root annual.—Native of Cyprus.

Conyza: a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common, imbricate, roundish, squarrose; scales acute, the outer somewhat spreading. *Corolla:* compound, tubulose; corollets hermaphrodite, numerous, tubular in the disk; females apetalous, roundish in the circuit: proper of the hermaphrodite funnel-form; border five-cleft, patulous; of the females, funnel-form; border three-cleft. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil*, in the hermaphrodites: germen oblong; style filiform, length of the stamina; stigma two-cleft: in the females, germen oblong; style filiform, length of the hermaphrodite, more slender; stigmas two, very slender. *Pericarp:* none; calix converging. *Seeds:* to the hermaphrodites, solitary, oblong; down simple: to the females, solitary, oblong; down simple. *Receptacle:* naked, flat. Essential Character. *Calix:* imbricate, roundish. *Corolla:* of the ray three-cleft. *Down:* simple. *Receptacle:* naked.——The species are,

1. Conyza Squarrosa; *Great Fleabane*, or *Plowman's Spikenard*. Leaves lanceolate, acute; stem herbaceous, corymbed; calices squarrose. Root biennial; stems a foot in height, upright, panicled at the end, purplish, with a white woolliness; branches straight. Numerous flowering heads terminate the stem and branches, on short downy peduncles, with each a small lanceolate bracte; corollas yellow, yellowish, or dusky purple; florets without pistils, in the circumference with pistils; individuals, with only pistils slightly cloven into three, have at first sight the appearance of a funnel-shaped floret, but are really more of the nature of a ligulate floret; seeds small, blackish, longitudinally furrowed, crowned with a sessile feather, with simple rays as long as the calix. The smell is slightly but not ungratefully aromatic. Tragus reports it to be an emmenagogue, but it is scarcely known officinally. It is disputed, says Hill, whether this species of Fleabane, or another which is smaller and has globous flowers, have the greater virtue; but the majority contend for this. The juice of the whole plant cures the itch by external application, and the very smell of the herb is said to destroy fleas. Meyrick informs us, that it is reckoned a good wound-herb, and frequently taken in decoction for bruises, ruptures, inward wounds, pains in the side, and difficulty of breathing.—Native of Denmark, Germany, Holland, France, Switzerland, Carniola, and Piedmont, chiefly upon dry mountainous pastures, by hedge-sides, and in woods. In Great Britain it is generally found upon a calcareous soil, as at Shelford, Whittlesford, Hildersham, and Abington, in Cambridgeshire; it is common in a clayey soil in the woods of Norfolk; also in Charlton wood, and near Dartford and Greenhithe, in Kent; near Harefield in Middlesex, and Finshead in Northamptonshire also; but not commonly in Scotland. It flowers from July to October, and being a native is seldom admitted into gardens.—If the seeds be permitted to scatter, the plants will come up in the following spring, and require no other care but to keep them clean from weeds.

2. Conyza Linifolia; *Flax-leaved Fleabane*. Stems a foot or a foot and half in height, erect, hardish, green; leaves like those of Hyssop, only more obtuse, smooth, and stiff; branches slender, straight at the top of the stems; flowers on short peduncles, terminating; florets white, slender, reflex. It flowers in August and September, and is a hardy perennial.—Native of North America.

3. Conyza Sordida; *Small-flowered Fleabane*. Leaves linear, quite entire; peduncles long, three-flowered; stem undershrubby, like that of Lavender, branched and white; peduncles straight, usually three-flowered at the end; calicine scales brown at the edge.—Native of the south of Europe. It flowers from July to September. It may be kept in a green-house, dry-stove, or glass-case.

4. Conyza Saxatilis; *Rock Fleabane*. Leaves linear, almost entire, tomentose underneath; peduncles very long, one-flowered; calicine leaves subulate. Leaves heaped at bottom; peduncles naked; calicine scales black at the edge; stems first procumbent, then erect; calices cylindric, patulous and membranaceous at the end; very many naked female florets in the circumference.—Native of Spain, Italy, Istria, Carinthia, the Valais, Palestine, and the Cape of Good Hope. Mr. Ray found it in abundance on walls and rocks about Messina in Sicily. It requires the protection of a green-house, dry-stove, or glass-case, in our climate.

5. Conyza Canescens; *Hoary Fleabane*. Leaves linear; panicle fastigiate. The whole plant is hoary; stems almost simple, columnar, striated, with short lateral branches; calix subovate, shorter by half than the flower and down; flower purple, and mixed with the down.—Native of the Cape of Good Hope. It requires the same protection as the preceding species in our climate.

6. Conyza Rupestris; *African Fleabane*. Leaves spatulate, somewhat toothed, tomentose; stem undershrubby; peduncles elongated, one-flowered; corollas yellow, with very numerous florets.—Native of Arabia. This, and the seventh,

tenth, eleventh, twelfth, from the fourteenth to the twenty-fourth, the twenty-seventh, and from the thirty-first to the forty-third species, are too tender to thrive in the open air in England: their seed therefore must be sown upon a hot-bed in the beginning of April, and when the plants are fit to remove, they must be each transplanted into a small pot filled with light sandy earth, and plunged into a hot-bed, observing to screen them from the sun until they have taken new root: they must afterwards have free air admitted to them every day, in proportion to the warmth of the season, and should also be frequently watered in warm weather, but in small quantities at each time. As they advance in strength, their share of air should be increased, and in warm seasons they may be wholly exposed in the open air during a few weeks in the heat of summer, provided they be placed in a warm situation; but if the nights prove cold, or much wet fall, they must be immediately removed under shelter. If these plants be placed in a moderate stove in winter, they will thrive better than under great heat. With the above management they will flower well in July, but in general they do not perfect their seeds in England.

7. Conyza Scabra; *Rough Fleabane.* Leaves oblong, somewhat toothed, sessile, scabrous; peduncles one-flowered, elongated; leaves rugged on both surfaces, with four or five teeth on each side.—Native of the East Indies.

8. Conyza Asteroides; *Starwort Fleabane.* Leaves broad-lanceolate, subserrate; corollas radiate; calices squarrose.—It flowers in August and September; and is a native of North America. It is a hardy perennial.

9. Conyza Bifrons; *Oval-leaved Fleabane.* Leaves ovate-oblong, stem-clasping. From a thick fibrous root spring up many upright stalks; leaves rough; flowers terminating, in round bunches, yellow, appearing in July.—Native of Canada. This is a hardy perennial, and is propagated by seeds sown on a bed of light earth in the spring, taking care to thin and weed the plants when they come up: they should be removed to where they are intended to remain in the next autumn, and they also must be kept free from weeds; the second year they will flower and produce ripe seeds, and will continue two years, if it be not too good, for they often rot when planted in a rich soil.

10. Conyza Bifoliata; *Two-leaved Fleabane.* Leaves oval, toothed; peduncles two-leaved; bractes opposite.—Native of the East Indies.

11. Conyza Pubigera. Leaves oblong, somewhat toothed, subpetiolate; peduncles woolly, sustaining about two flowers; stem somewhat shrubby, eight feet high, cylindrical, climbing, branched; branches with a few scattered hairs on them; leaves alternate, wedge-shaped at the base, green on both sides, with a few scattering hairs, not scabrous; peduncles axillary towards the top, with from two to four flowers.—Native of the East Indies, and China.

12. Conyza Tortuosa; *Crooked Fleabane.* Stem tortuose, shrubby; leaves ovate-oblong, quite entire; racemes reflex. Branches subhirsute, striated, simple; flowers alternate, sessile, turned up, rounded; calicine scales ovate, the inner lanceolate.—Native of Madagascar and Vera Cruz.

13. Conyza Candida; *Woolly Fleabane.* Leaves ovate, tomentose; flowers crowded; peduncles both lateral and terminating; stem suffruticose, six inches high, upright, round, hairy, whitish, branched; leaves very white, quite entire, alternate; flowers purple, peduncled, heaped. It has a pleasant smell: it sometimes varies with a short recurved ray.—Native of Candia, Sicily, and Cochin-china.

14. Conyza Anthelmintica; *Purple Fleabane.* Leaves lanceolate-ovate, scabrous; peduncles one-flowered; calices squarrose. Stem erect, roundish, branched, slightly tomentose, spotted with purple; the branches erect, scattered; leaves alternate, serrate, with acute unequal teeth, narrowed at the base into the petiole, scabrous on the upper surface, smooth, and veined on the lower; flowers in panicles at the ends of the branches, on long peduncles, thickening towards the flower, and having one leaf on each; a solitary peduncle terminates the stalk; corolla uniform, consisting of from twenty-five to forty hermaphrodite red florets; those of the ray reflex. The leaves of this plant have an exceeding bitter taste. It flowers in August and September, is biennial, and a native of the East Indies. It requires the protection of a green-house, dry-stove, or glass-case, in our climate.

15. Conyza Balsamifera; *Balsam Fleabane.* Leaves lanceolate, tomentose underneath, even the petioles toothed; down ferruginous.—Native of the East Indies.

16. Conyza Cinerea; *Ash-coloured Fleabane.* Leaves oblong; flowers panicled; corollas cylindric, twice the length of the calix. Stem erect, panicled pubescent; corollas purple. Annual.—Native of the East Indies.

17. Conyza Odorata; *Sweet-scented Fleabane.* Leaves ovate, serrate, subtomentose, acute; stem arborescent, corymbed; corollas almost globular. This is an odoriferous plant, with an upright shrubby stem, four feet high, the branches rising in form of a corymb; flowers purple, lateral, and terminating, several together; the corollets so short as not to emerge from the calix.—Native of the East Indies and Cochin-china.

18. Conyza Chinensis; *Chinese Fleabane.* Leaves lanceolate-ovate, reflex-serrate, tomentose underneath; flowers terminating, heaped. Stem suffruticose, four feet high, upright, round, smooth, branched at top; leaves hardish, petioled, alternate; flowers yellow, peduncled, terminating.—Native of China, Cochin-china, Java, and Amboyna.

19. Conyza Hirsuta; *Shaggy Fleabane.* Leaves oval, quite entire, scabrous, hirsute underneath. Stem herbaceous, a foot high, upright, simple, round, hairy, having few leaves; these are oblong, sharpish, toothletted, hairy, scattered; flowers in racemes, yellow, crowded, terminating.—Native of Java, China, and Cochin-china.

20. Conyza Arboreseens; *Tree Fleabane.* Leaves ovate, quite entire, acute, tomentose underneath; spikes recurved, one-ranked; bractes reflex. This is a shrub, with a depressed rugged stem; corolla uniform, with twelve hermaphrodite corollets in the circuit, a little higher than the others, giving the flower a radiate appearance.—It commonly rises to the height of three feet and a half or more in the low lands of Jamaica.

21. Conyza Fruticosa; *Shrubby Fleabane.* Leaves ovate, quite entire, obtuse; flowers sessile, alternate; branchlets flexuose.—Native of South America.

22. Conyza Virgata; *Winged-stalked Fleabane.* Leaves decurrent, lanceolate, serrulate; stems wand-like; flowers spiked, in scattered heaps. It is hairy, and rises generally to the height of two feet or more. The leaves are somewhat hoary; the flower-branches are very long and slender, and disposed in the form of spikes at top; the lower flowers are in threes, the upper solitary. It flowers in August and September.—Native of Jamaica and Carolina. It may be kept in a green-house, dry-stove, or glass-case.

23. Conyza Decurrens; *Running Fleabane.* Leaves decurrent, lanceolate, serrulate; flowers axillary, sessile, glomerate. Root annual; glomerules of flowers ash-coloured, from the axils of the leaves, globular. The stem is about a span in height, erect, villose-tomentose; as is the whole plant.—Native of India.

24. Conyza Aurita; *Eared Fleabane.* Leaves dentate-

sinuate; earlets subdecurrent. Root-leaves larger than the rest, stiffer, smoother, obovate, with red veins, widely serrate, and waved between the serratures; stem erect, stiff, a foot high, reddish, hairy, branched; the branches erect, simple; flowers from the top of the stem, peduncled, scattered in various ways; florets minute, white, with minute linear rays; pistils very long, erect. The scent is that of Stachys Fœtida, but more pleasant.—Native of moistish places in the East Indies.

25. Conyza Inuloides; *Cluster-flowered Fleabane.* Leaves cuneiform-linear, obtuse, notch-toothletted, smooth; stem shrubby; antheræ two-bristled. Stem proliferous, dichotomous, smooth; calix purplish; flowers yellow.—Native of the island of Teneriffe. This plant may be kept in a green-house, stove, or under a glass-case.

26. Conyza Sericea; *Snowy Fleabane.* Leaves linear-filiform; they and the stems tomentose silky; flowers panicled. This is easily known by the silky whiteness of the branches, leaves, and peduncles, and by its yellow flowers. The bark and wood have an acrid pungent taste; and the inhabitants of the Canary Islands, where it naturally grows, use it in the tooth-ache. It may be kept in a green-house, dry-stove, or glass-case.

27. Conyza Ægyptiaca; *Egyptian Fleabane.* Leaves oblong-spatulate, toothed, hairy; flowers subpanicled, globular; calicine leaflets subulate, soft. Stem erect, a foot and a half in height, somewhat striated, pubescent, and somewhat viscid; branches from the upper axils; flowers terminating, four or five, roundish, on purple peduncles; corollas yellow, with minute florets, naked in the ray, and very abundant; pistils yellow, quickly vanishing, surrounding the disk with a kind of broad downy ring.—It flowers in July, is annual, and a native of Egypt. This must be propagated from seeds.

28. Conyza Rugosa; *St. Helena Fleabane.* Shrubby: leaves wedge-shaped, serrate, villose, wrinkled, netted; peduncles villose, one-flowered; flowers radiate.—It flowers in November; and is a native of the island of St. Helena. It requires protection in our climate.

29. Conyza Incisa; *Ear-leaved Fleabane.* Leaves ovate, subcordate, hairy-viscid, toothed, eared at the base; disk of the receptacle honey-combed.—It flowers from June till August, and is a native of the Cape of Good Hope. It may be kept in a green-house or dry-stove.

30. Conyza Patula; *Spreading Fleabane.* Leaves elliptic, serrate, villose underneath; calices subglobular; leaflets lanceolate-subulate; branches spreading. Annual: stem taper, herbaceous, a foot and a half in height, covered lightly with a mealy down, and branching out almost the whole length; corollas purple. The flowers appear in July, and there is a continual succession till the cold of autumn puts a stop to them.—Native of the northern parts of China. The seeds of this species should be sown upon a moderate hot-bed in the beginning of April: when the plants are fit to remove, they should be transplanted into a fresh hot-bed, observing to shade them from the sun till they have taken fresh root. In June they may be gradually hardened to the open air, and part of them may be planted in warm borders, where they will flower, and, if the season prove warm, ripen their seeds; but it will be prudent to keep some plants in pots, placed in an airy glass-case, in order to secure good seeds.

31. Conyza Tomentosa; *Rough Fleabane.* Arborescent: leaves oblong-ovate, tomentose, cinerous underneath; flowers terminating, on branching peduncles. It rises with a woody stalk, ten or twelve feet high, dividing into many branches, the bark of which is covered with a brown nap; leaves alternate on short petioles; flowers in loose spikes, ranged on one side; they are white, and are succeeded by long flat seeds.—Native of La Vera Cruz in New Spain.

32. Conyza Salicifolia; *Willow-leaved Fleabane.* Leaves linear, decurrent, serrate; flowers corymbed, terminating, on branching peduncles. This has a perennial root, from which spring several upright stalks, three feet high. The flowers are produced at the end of the stalks in round bunches; they are small, and of a purple colour, and are succeeded by oblong flat seeds.—Native of La Vera Cruz in New Spain.

33. Conyza Corymbosa; *Clustered Fleabane.* Arborescent: leaves lanceolate; flowers corymbed, terminating on branching peduncles. Stem strong, woody, fourteen or sixteen feet high, covered with an ash-coloured bark, and divided at top into many woody branches; leaves alternate, on short petioles. The branches are terminated by roundish bunches of white flowers, on long peduncles, several together.—Sent from La Vera Cruz.

34. Conyza Viscosa; *Clammy Fleabane.* Herbaceous: leaves ovate, serrate, villose; flowers both axillary and terminating. This is an annual plant, growing in low moist places, where the water stands in winter. It has an herbaceous branching stalk, one foot high, with one oval sessile leaf at each joint, covered with a white hairy down. The flowers are produced from the side of the branches, on slender petioles, each for the most part sustaining three flowers, which are white, and succeeded by chaffy seeds.—Native of La Vera Cruz. This plant will sometimes ripen its seeds in England, if the autumn prove favourable, but it has little beauty to recommend it. The seeds of the other natives of South America must be procured from that country; and being long upon their passage, will rarely vegetate in the first year.

35. Conyza Symphytifolia; *Comfrey-leaved Fleabane.* Leaves oblong-ovate, scabrous; flowers racemed, terminating; stem herbaceous. Root perennial; stem three feet high, terminated by branching peduncles, each sustaining several yellow flowers, not much unlike those of the common sort: leaves from four to five inches long, and one and a half broad in the middle, rough like those of Comfrey.—Native of La Vera Cruz.

36. Conyza Scandens; *Climbing Fleabane.* Leaves lanceolate, scabrous, nerved, sessile; racemes recurved; flowers ascending: peduncles lateral; stem shrubby, climbing. This has a climbing shrubby stalk, fourteen or sixteen feet high, dividing into many branches; leaves the size of those of the Bay-tree, and full as thick in their texture, having as many deep transverse nerves, running from the midrib to the sides, and of a pale green colour; flowers large and white, produced in long spikes ranged on the upper side only, from the side of the branches, and pointing upwards.—Sent from La Vera Cruz. This plant makes a fine appearance in the stove while in flower; and, retaining its leaves all the year, makes an agreeable variety among other tender plants.

37. Conyza Trinervia; *Three-leaved Fleabane.* Leaves ovate, smooth, three-nerved, quite entire, sessile; flowers in spikes, terminating. Stem shrubby, six or seven feet high, dividing into several woody branches; flowers white, succeeded by oblong flat seeds.—Native of Carthagena in New Spain.

38. Conyza Uniflora; *One-flowered Fleabane.* Leaves lanceolate, acute, sessile; flowers solitary, lateral; calices coloured; stem shrubby, branching. Stalk shrubby, eight or ten feet high, dividing into many long slender branches; leaves three inches long, and three quarters of an inch broad in the middle; the smaller branches are set with very narrow, oblong, pointed leaves, which grow close to the stalks; and at

each joint is produced one pretty large white flower, with a purple calix; these flowers come out the whole length of the small branches, sitting close to the base of the leaves, so that the plants make a pretty appearance when in flower.—Native of Carthagena in New Spain.

39. Conyza Spicata. Stem somewhat shrubby, simple; leaves ovate-lanceolate, finely serrated, downy underneath; spike terminal, dense, entire. The stem is a foot and a half high, erect, striated with green and white; leaves three to four inches long; flowers sessile; calix clothed with a thick down.—Native of South America.

40. Conyza Pedunculata. Leaves ovate-lanceolate, three-nerved; peduncles very long, terminating; flowers in corymbs. It rises with a shrubby stem to the height of six or seven feet, dividing into several branches, which have a dark brown bark; the flowers are purple, and form a kind of round bunch.—Native of Campeachy.

41. Conyza Baccharis. Leaves ovate-oblong, obtuse, serrate, half stem-clasping; flowers in terminating corymbs. Stem shrubby, ten or twelve feet high, sending out many strong woody branches, covered with a dark-coloured bark. The flowers are purple, and are succeeded by flat seeds.—Native of Campeachy.

42. Conyza Purpurascens. Leaves ovate-lanceolate, serrate, subtomentose; stem subherbaceous, simple at bottom, corymbed at top; flowers ovate. The flowers are purple, and are produced in round bunches at the end of the branches. Browne says it seldom rises above sixteen or twenty inches high, towards the top throwing out many branches: the smell of the flowers is agreeable, and they are kept by some people among their clothes, to preserve them from moths.—Native of the low marshy lands of Jamaica.

43. Conyza Rigida. Leaves petioled, obovate, entire, rugged, veined underneath; spikes flexuose; flowers in pairs, all directed the same way.—Native of Jamaica.

Copaifera; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals four, oblong, acute, concave, very spreading. *Stamina:* filamenta ten, filiform, incurved, a little longer than the corolla; antheræ oblong, incumbent. *Pistil:* germen round, compressed, flat, pedicelled; style filiform, incurvate, length of the stamina; stigma obtuse. *Pericarp:* legume ovate, bivalve, pointed with part of the style. *Seed:* single, ovate, involved by a berried aril. Essential Character. *Calix:* none. *Petals:* four. *Legume:* ovate. *Seed:* one, with a berried aril.——The only known species is,

1. Copaifera Officinalis; *Balsam of Capivi Tree.* This is a lofty elegant tree, with a handsome head; the extreme branches at the axils are flexuose, and have a smoothish bark, of a brownish ash-colour.—It is a native of South America, and common near Tolu, about sixty leagues from Carthagena. This tree yields very considerable quantities of a fluid balsam or resin, which is obtained by perforating the trunk, and thickens by degrees. It is known in medicine by the title of *balsamum capivi,* and has an agreeable smell, with a bitterish taste; on being shaken, easily unites with water, making the liquor turbid and milky, but soon separates, and rises to the surface when suffered to stand. Dropped on sugar, or triturated with thick mucilages, or with whites of eggs, it becomes more permanently miscible with water into a uniform milky fluid, in which form it is generally taken, as well as mixed with powders in a bolus or electuary. It readily combines with distilled oils; and in rectified spirit of wine, dissolves into a transparent fragrant liquor, more agreeable than the balsam itself. It has been employed principally, and in preference to the other balsams, in fluor albus, and in ulcerations of the urinary passages. Fuller, says, he has known dry deep coughs, expectoration of blood and pus, voiding of chyle instead of urine, together with great pain and weakness, cured by it; and that, notwithstanding the warmth and bitterness of its taste, he has found it to agree in hectic cases. He observes, that it gives the urine a bitter taste, but not a violet smell, as the turpentines do, although it is, like them, of a purgative quality, if taken in doses of two or three drachms. The usual dose is from ten to thirty or forty drops. When given in too large doses, or too long continued, it has produced considerable inconveniences, exciting febrile heats, pains in the head, with other unfavourable symptoms. Hill observes, that it has the same virtues with turpentine, but is more powerful; and that it is excellent in the whites, and in all complaints of the urinary passages.

Coppices. See *Planting.*

Coprosma; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite. Calix:* perianth one-leafed, inferior, very short, permanent, with five acute distant toothlets. *Corolla:* one-petalled, funnel-form, five or six cleft; segments acute, erect. *Stamina:* filamenta five, six, or seven, capillary; antheræ oblong, bifid at the base, erect, slightly incurved, acuminate. *Pistil:* germen oblong; styles two, filiform, cohering slightly at the base, longer than the corolla, divaricating; stigmas simple. *Pericarp:* berry ovate-globular, two-seeded. *Seeds:* two, ovate, flat on one side, convex on the other. *Male. Calix, Corolla,* and *Stamina,* as in the hermaphrodite. Essential Character. *Calix:* one-leafed, five-toothed. *Corolla:* five or six cleft. *Stigma:* five, six, or seven. *Hermaphrodite Styles:* two, long. *Berry:* containing two flattish seeds.——The species are,

1. Coprosma Fœtidissima. Flowers solitary. A very fetid shrub.

2. Coprosma Lucida. Peduncles compound. A perfectly smooth shrub, resembling Physalis in its habit. Leaves petioled, ovate, acuminate both ways, quite entire; stipule solitary, sharp, combining the leaves; peduncles axillary, solitary, opposite, two-leaved, divided into other peduncles, terminated by capitate flowers; calix and corolla greenish.—Both these species are natives of New Zealand.

Coral Tree. See *Erythrina.*

Coral-wort. See *Dentaria.*

Corchorus; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets linear-lanceolate, acute, erect, deciduous. *Corolla:* petals five, oblong, obtuse, narrower beneath, erect, length of the calix. *Stamina:* filamenta numerous, capillary, shorter than the corolla; antheræ small. *Pistil:* germen oblong, furrowed; style thick, short; stigma two-cleft. *Pericarp:* capsule oblong, five-celled, five-valved. *Seeds:* very many, cornered, pointed. Essential Character. *Corolla:* five-petalled. *Calix:* five-leaved, deciduous. *Capsule:* many-valved, many-celled.—All the plants of this genus are too tender to thrive in the open air in England; and therefore their seeds must be sown upon a hot-bed in spring; and when the plants are fit to remove, they should be transplanted into a fresh hot-bed to bring the plants forward, otherwise they will not ripen seeds. When they are rooted in this new hot-bed, free air must be every day admitted to them in proportion to the warmth of the season, for they must not be drawn up weakly; and when they have acquired strength, they should be transplanted each into a separate pot, and plunged into a hot-bed, always taking care to exclude the sun-beams until they have struck fresh roots; they should then have daily a large share of fresh air, and be frequently refreshed with water. In June they ought to be gradually

inured to the open air, and part of them may be shaken out of the pots, and planted in a warm border, where, if the season prove warm, they will flower and perfect their seeds; but as these will sometimes fail, it will be proper to put one or two plants of each sort into pots, which should be placed in a glass-case, where they may be screened from bad weather; and from these, good sorts may always be obtained.——The species are,

1. Corchorus Olitorius; *Bristly-leaved Corchorus*, or *Common Jews' Mallow*. Capsules oblong, ventricose; the lower serratures of the leaves setaceous. It is an annual plant, about two feet high, and dividing into several branches; leaves alternate, some spear-shaped, some oval, and others heart-shaped, deep green, slightly indented on their edges; flowers sessile, solitary, yellow.—Native of the East and West Indies, and of Africa. Rauwolf says, it is sown in great plenty about Aleppo, as a pot-herb, the Jews boiling the leaves to eat with their meat. It flowers in July and August, and the seeds ripen in autumn.

2. Corchorus Triloculares. Capsules three-celled, three-valved, three-sided; angles bifid, scabrous; leaves oblong, the lowest serratures setaceous. Root annual; stems smooth and even, erect, a foot in height, round, green; stipules setaceous, small; leaves alternate, petiolate, marked with lines, naked, the under surface scabrous, lanceolate, wave-serrate.—Native of Arabia.

3. Corchorus Tridens. Capsules linear, somewhat columnar, scabrous; the lowest serratures of the leaves scabrous. Stem smooth and even, green; stipules three-parted, setaceous; capsules linear, scabrous.—Native of the East Indies.

4. Corchorus Æstuans. Capsules oblong, three-celled, three-valved, six-furrowed, six-cusped; leaves cordate, the lowest serratures setaceous. Stem strong, two feet high, divided at top into two or three branches; leaves on long petioles, and between them several smaller leaves nearly of the same form, sitting close to the branches. Flowers yellow, small, lateral, two together, on short petioles.—Native of the W. Indies.

5. Corchorus Capsularis. Capsules roundish, depressed, wrinkled; the lower serratures of the leaves setaceous. This rises with a slender stalk, about three feet high, sending out several weak branches; at each joint is one leaf of an oblong heart-shape, ending in a long acute point, serrate, and on a short petiole. The flowers come out singly on the side of the branches, to which they very closely adhere; petals emarginate. A kind of hemp is obtained from the macerated stems, which is much used in China.—Native of the East Indies and China.

6. Corchorus Hirsutus. Capsules roundish, woolly; leaves ovate, obtuse, tomentose, equally serrate. This shrub grows to the height of a man, with many round branches, the young ones villose; leaves alternate, petioled, crenate, thickish, veined, hoary underneath; petals yellow, roundish, spreading very much, scarcely the length of the calix; stamina the length and colour of the corolla, which is orange-coloured.—Native of Japan, and of the West Indies.

7. Corchorus Japonicus. Capsules round, smooth; leaves doubly serrate. Stem shrubby, two feet high or more, smooth; petiole a line in length; flowers terminating, solitary, on short peduncles; corolla dark yellow, or orange-coloured.—Native of Japan, where it is cultivated for the elegance of its flowers, which come forth in February, and the following months.

8. Corchorus Hirtus. Capsules oblong; they and the stem hairy; leaves oblong, equally serrate. Root annual; stem upright, round, branched, especially at top, from two to three feet high; leaves alternate, lanceolate, acute, finely serrate, on short petioles, somewhat hairy, wrinkled on both sides; flowers without scent, axillary, peduncled, solitary or in pairs; calicine leaflets hispid, spreading very much, flat, lanceolate-linear, acuminate, yellowish-green; petals yellow, shorter than the calix, spreading much, very blunt, narrowed a little towards the base; seeds black, angular, small.—Native of the West Indies.

9. Corchorus Siliquosus. Capsules linear, compressed, two-valved; leaves lanceolate, equally serrate. It is an herbaceous plant, but branched like a shrub, with a round smooth stem, and alternate, upright, pubescent branches; leaves petioled, alternate, small, nerved, smooth, with smaller leaves in the axils; stipules subulate, opposite.—Native of the West Indies; where it flowers almost the whole year, though only from June till August in England. It is very common in dry places in all the sugar colonies, seldom rising above two feet and a half high, and is generally used for besoms by the negroes.

10. Corchorus Tetragonus. Leaves ovate-cordate, crenate; capsules four-cornered, reflected at the points. Height about two feet, dividing into small branches; flowers very small, pale yellow, succeeded by swelling, rough, four-cornered seed-vessels, about an inch long, flatted at top, where there are four reflex horns, given them some resemblance to the clove.—Native of both Indies.

11. Corchorus Linearis. Leaves lanceolate, serrate-toothed; capsules linear, compressed, two-valved. Height three feet, with several weak side-branches; leaves about three inches long, and one inch broad in the middle, lessening gradually to both ends, sitting close to the branches. The flowers come out singly opposite to the leaves; they are very small, of a pale yellow, and are succeeded by seed-vessels nearly two inches long, flat, two-celled, with small angular seeds.—Native of Carthagena in New Spain.

12. Corchorus Bifurcatus, Leaves cordate, serrate; capsules linear, compressed, having two horns at the points. It rises with a strong herbaceous stalk between three and four feet high, sending out several side-branches, which grow erect. The flowers come out from the side of the branches, on short peduncles; they are very small, and of a pale yellow colour.—Native of Jamaica.

13. Corchorus Fascicularis. Capsules oblong, subsessile hoary, mucronate, two or three together; leaves lanceolate-oblong, smooth, serratures equal. Branches round and smooth; leaves petioled, narrow, blunt, the lower serratures not bristle-shaped; fruits ash-coloured, with hairs, three-valved.—Native of the East Indies.

14. Corchorus Flexuosus. Leaves doubly serrate, cuspidate; stem flexuose, round, slightly angular by the decurrent leaves, smooth, erect, two feet high; flowers at the ends of the branches, yellow.—Native of Japan.

15. Corchorus Serratus. Leaves oblong, serrate, cuspidate; branches smooth. Stem erect, smooth; branches round, purple, erect; leaves alternate, petioled; serratures large, setaceous at the tip.—Native of Japan.

16. Corchorus Scandens. Leaves ovate, setaceous-serrate, opposite; stem and branches flexuose, scandent; leaves on very short petioles, rounded at the base, acuminate, an inch long. At the ends of the branchlets are solitary yellow flowers.—Native of Japan.

Cordia; a genus of the class Pentandria, order Monandria.—Generic Character. *Calix:* perianth one-leafed, tubular, toothed at the top, permanent. *Corolla:* one-petalled, funnel-form; tube patulous, length of the calix; border erect, spreading, cut into five obtuse divisions. *Stamina:* filamenta five, subulate; antheræ oblong, length of the tube. *Pistil:* germen roundish, acuminate; style simple,

length of the stamina, bifid at top; divisions bifid; stigmas obtuse. *Pericarp:* drupe globose, acuminate, growing to the calix. *Seed:* nut furrowed, four-celled. ESSENTIAL CHARACTER. *Corolla:* funnel-form. *Style:* dichotomous. *Drupe:* with two-celled nuts.—As the plants of this genus are all natives of hot countries, they are too tender to endure an English winter, unless they are preserved in a stove. They are all propagated by seeds, which must be procured from those parts where they naturally grow, and sown in small pots, which should then be plunged into a good hot-bed of tanner's bark in the spring; and if the seeds be good, the plants will begin to appear in six or eight weeks. They must be brought forward in the hot-bed, by being treated like other tender exotics, observing frequently to water them in summer; and in July, if the plants happen to be considerably advanced, they should be gradually hardened in order to prepare them against the winter, which they will not survive, if too tenderly treated. As they acquire strength, they will become hardier; but during the two first winters, it will be proper to keep them in the tan-bed in the stove; but as soon as their stems begin to turn woody, they may be placed on shelves in a dry-stove, where, if they be kept in a moderate degree of heat, they may be preserved very well, especially the third species, which is somewhat hardier than the rest.——The species are,

1. Cordia Mixa; *Smooth-leaved Cordia, Sebesten,* or *Assyrian Plum.* Leaves ovate, smooth on the upper surface; corymbs lateral; calices ten-striated. Leaves like those of the Alder, serrate-angular, scabrous underneath, three inches long, opposite, flat, entire, obtuse, on a round petiole, half an inch in length; petals white, revolute; fruit inferior, red, nearly an inch in diameter. The timber of this tree is tough and solid, and is used for procuring fire by friction; the leaves bruised with those of the Datura Metel, are applied to the forehead in the head-ache; and a glue is prepared from the fruits, which are also eaten by children. Hill informs us, that the fruit is like a plum, with an oblong kernel, and that the pulpy part of it is so tough and clammy, that being beat up with water, it makes good bird-lime: he adds, the fruit is the part used. It is sent over to us dried like a prune, and used to be a constant ingredient in decoctions for coughs, and disorders of the lungs, but is now disregarded.—Native of Arabia and the East Indies.

2. Cordia Spinescens. Leaves ovate, acute, serrate, scabrous; petioles subspinescent. Branches erect, tomentose, ferruginous; leaves alternate, petiolate, tomentose, the size of cherry leaves; fruits scattered, sessile, black, the size of currants; corolla bell-shaped, five-toothed, twice as large as the calix.—Native of the East Indies.

3. Cordia Sebestena; *Rough-leaved Cordia.* Leaves oblong-ovate, repand, scabrous. Stems several, shrubby, eight or nine feet high, having towards the top rough alternate leaves, on short petioles, of a deep green on their upper side; flowers terminating, in large clusters, upon branching peduncles, sustaining one, two, or three flowers; corolla large, with a long tube, spreading open at top, and there divided into five obtuse segments; it is of a beautiful scarlet, and makes a very fine appearance. A small piece of the wood, laid upon a pan of lighted coals, will perfume a whole house with a most agreeable smell. Browne says it is adorned with large bunches of fine scarlet flowers, which come out at the tops of the branches fifteen or twenty together, with fringed edges, and the surfaces sinuous and curled: they are at first of a high vermilion colour, which changes to a scarlet, and afterwards becomes purplish, but they have no scent. The fruit is in the form of an inverted pear. From the juice of the leaves, with that of a species of fig, is prepared the fine red colour with which the natives of Otaheite dye their clothes; but we are informed that there are several other plants which will produce the same colour in conjunction with the fig.—It is a native of both Indies, and of the Society Isles. It being rather hardier than the other species, may be placed abroad in a warm situation in the beginning of July, where the plants may remain until the middle of September, provided the season continue warm, but if not, they must be sooner removed into the stove.

4. Cordia Gerascanthus. Leaves lanceolate-ovate, quite entire; panicles terminating; calices tomentose, ten-striated. Stem and branches unarmed, patulous, round, smooth; leaves petioled, scattered, acuminate, entire, veined (especially behind) smooth; panicles large, composed of patulous, alternate, trichotomous, many-flowered branchlets; the last pedicels three-flowered; flowers rather large, white, veined, permanent, shrivelling. This tree rises to a considerable height, but seldom exceeds twenty or thirty inches in diameter; it is pretty much branched towards the top, and furnished with oblong nervous leaves; the flowers have no scent, are very white, and grow in great numbers at the extremities of the branches; as the germen enlarges, they fade, and turn of a dark or dirty brown colour, continuing upon the tree until the whole fruit, which seldom grows to a perfect state, falls off. The branches are used by the coopers to make hoops; and it is esteemed one of the best timber-trees in Jamaica, where it is a native. The wood is of a dark brown colour, and slightly striped, is tough and elastic, of a fine grain, and easily worked. It is called Spanish Elm, or Prince-wood; in the other islands of the West Indies, the French call it *bois de chypre.*

5 Cordia Macrophylla; *Broad-leaved Cordia.* Leaves ovate, villose, a foot and a half in length. This tree attains to the height of fifty feet, but is seldom above twelve or sixteen inches in diameter, shooting generally by a straight trunk; the leaves are very large and rough; the berries white, of the size of small cherries. The heart of the tree is of a yellowish colour, and tolerably good timber.—It is called the Broad-leaved Cherry-tree in Jamaica; where it naturally grows.

6. Cordia Collococca; *Long-leaved Cordia.* Leaves cordate-ovate, quite entire; flowers corymbed; calices tomentose within. It seldom exceeds fourteen or sixteen feet in height; the leaves are rugged, obliquely veined, and disposed alternately. The berries are red and succulent, the size of our smallest European cherries, and disposed in umbellated groups; the pulp is sweetish and clammy: turkeys and other fowls feed much upon the berries, hence it is called Turkey-Berry Tree, and Clammy Cherry-tree, in Jamaica, where it is a native; it is also found in the other West India islands.

7. Cordia Patagonula; *Spear-leaved Cordia,* or *Patagonula.* Leaves oblong-lanceolate, smooth on both surfaces, upper ones serrate; branchlets hairy. A shrub, with the habit partly of Privet, and partly Alaternus. Stem straight; bark greenish ash-colour, spotted with white, the upper part, and particularly the ends of the branches, covered with long hairs; the flowers come forth among the leaves in small bunches, smelling like Elder-flowers. It flowers during the greatest part of the summer.—Native of Patagonia.

8. Cordia Aspera. Leaves ovate, acuminate, rough; flowers in cymes, wrinkled.—Native of the island of Tongataboo.

9. Cordia Dichotoma. Leaves oblong-ovate, scarcely crenate; corymbs dichotomous.—Native of New Caledonia.

10. Cordia Retusa, Leaves in bundles, wedge-form, retuse, three-toothed. Branches round, smooth, somewhat hairy at the tip; the buds are tomentose tubercles; fruit the size of pepper, the calix not growing to it, four-celled, in each cell

several seeds; there is a transverse furrow in the middle of the partition.—Native place unknown.

11. Cordia Micranthus. Leaves elliptic, lanceolate, quite entire, membranaecous; veined; racemes compound, lax.—Native of Jamaica, and other West India islands.

12. Cordia Elliptica. Leaves elliptic, acuminate, entire, coriaceous; branches compound, diffused; drupes acuminate.—Native of Jamaica.

Coreopsis; a genus of the class Syngenesia, order Polygamia Frustranea.——Generic Character. *Calix:* common either simple, subimbricate, or doubled; the exterior usually with eight leaflets, which are coarse, and placed in a circle; the interior with as many large ones, membranaceous and coloured. *Corolla:* compound rayed; corollets hermaphrodite, numerous in the disk; females eight in the ray; proper of the hermaphrodite tubular, five-toothed; female ligulate, four-toothed, spreading, large. *Stamina:* in the hermaphrodites, filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* in the hermaphrodites, germen compressed; style filiform, length of the stamina; stigma bifid, acute, slender: in the females, germen like the hermaphrodites; style and stigma none. *Pericarp:* none; calix scarcely altered. *Seed:* in the hermaphrodite, solitary, orbiculate, convex on one side, concave on the other with a transverse protuberance at top and bottom, surrounded by a membranaceous edge, with a two-horned tip; in the females, none. *Receptacle:* chaffy. Essential Character. *Calix:* erect, many-leaved, surrounded at the base with spreading rays. *Down:* two-horned. *Receptacle:* chaffy. ——The species are,

1. Coreopsis Verticillata; *Whorl-leaved Coreopsis*, or *Tick-seed Sun-flower*. Leaves decompound-linear. Root perennial; stems many, stiff, angular, upwards of three feet high; ray yellow; disk dark purple. Being a showy plant, growing very tall, and continuing long in flower, it is a great ornament to the shrubbery; the yellow florets, which appear from July till September, are used in North America to dye cloth red.—Native of North America. This species, and also the second, fifth, ninth, twelfth, and thirteenth to the sixteenth, are hardy plants, and may be plentifully propagated by parting the roots, the best time for which is in autumn, when the stalks begin to decay. The first species requires a light loamy earth, and sunny exposure.

2. Coreopsis Coronata. Leaves pinnate, serrate, marked with lines, smooth. Annual.—Native of Virginia.

3. Coreopsis Leucantha. Leaves pinnate, serrate; ray of the flowers of a different colour from the disk. Stem three or four feet high, four-cornered, smoothish, the opposite sides channelled; flowers terminating, alternate, two or three on longish peduncles; ray of the corolla usually with five white florets, which are ovate, three-toothed at the end, the middle one longest, three-nerved underneath.—Annual: and a native of America.

4. Coreopsis Chrysantha. Leaves ternate, ovate-oblong, serrate; ray of the flowers concolor. Stem quadrangular, simple, jointed; leaves on the branch opposite, smooth; on the flowering branches alternate, smaller; flowers terminating, on long peduncles, solitary, with six three-toothed florets in the ray, which are nevertheless often wanting. Root and stem sweet-scented.—Native of South America.

5. Coreopsis Tripteris; *Three-leaved Coreopsis*. Leaves subternate, quite entire; root perennial; stems strong, round, smooth, six or seven feet high; flowers in bunches, on the top of the stem, in long peduncles; ray of the corolla pale yellow; disk dark purple. Native of North America. It requires a light loamy earth, and sunny exposure.

6. Coreopsis Alba; *Climbing Coreopsis*. Leaves subternate, cuneate, serrate. This is a climbing plant; the florets of the margin of which are all neuter, and rise immediately from the bottom of the inward scales; the seeds are bidented.—Native of the hills of Jamaica, and of the island of Santa Cruz.

7. Coreopsis Reptans; *Trailing Coreopsis*. Leaves serrate, ovate, upper ones ternate; stem creeping. Root small, fibrous, annual with us; stem climbing, weak, five feet high, branching, leafy, striated, smooth, square at the base, roundish above; florets all gold-coloured, those of the ray with about four teeth and veined, those of the disk five-cleft.—Native of the woody inland parts of Jamaica.

8. Coreopsis Baccata; *Berried Coreopsis*. Leaves serrate, ovate; seeds berry-form. Stem eight feet in height, herbaceous, erect; leaves opposite, petioled, three-nerved; flowers terminal, often three, peduncled, very small; ray of the corolla neuter, yellow, three-toothed, longer than the disk; fruit the exact form of a blackberry.—Native of Surinam.

9. Coreopsis Auriculata; *Ear-leaved Coreopsis*. Leaves quite entire, ovate, the lower ones ternate. Stem from nine inches to a foot in height, upright, covered with a soft down; flowers golden-coloured, with about eight florets in the ray.—Native of Virginia.

10. Coreopsis Lanceolata; *Spear-leaved Coreopsis*. Leaves lanceolate, quite entire, ciliate. Stems several, decumbent at bottom, and thence rising obliquely a foot and a half or two feet in length; florets in the ray eight or nine, broad, with four deep large teeth at the end; calix double, each consisting of eight or nine leaflets, the outer thick and spreading, the inner larger, upright, and pressed close to the flower, transparent, and of a pale ochre-colour. The seeds, which resemble a small hemispheric beetle or bug, must be sown upon a gentle hot-bed in the spring, and when the plants are fit to remove, they should be set each in a separate small pot, and plunged into a fresh hot-bed to bring them forward. They must be gradually inured to the open air in June, and some of them may be afterwards taken out of the pots, and planted in a warm border, where, if the season be good, they will flower in the middle of July, and ripen their seeds in the beginning of September.

11. Coreopsis Bidens. Leaves lanceolate, serrate, opposite, stem-clasping.—A mere variety of *Bidens Cernua*, to which the reader is referred.

12. Coreopsis Alternifolia; *Alternate-leaved Coreopsis*. Leaves lanceolate, serrate, alternate, petiolate, decurrent. Root woody, perennial; stems several, annual, erect, angular, filled with white pith, winged, from five to ten feet high, simple, having only very short subdivisions at the top, into roundish villose peduncles; florets in the ray from four to eight, yellow; border slightly toothed, very concave, with the sides rolled in; the flowers have but little scent, and coming forth late in October or November, seldom perfect their seeds in England.—Native of Virginia, and Canada. It will thrive in almost every soil and situation.

13. Coreopsis Aurea; *Hemp-leaved Coreopsis*. Leaves serrate; root-leaves three-parted; stem-leaves trifid and entire, lanceolate, linear. Perennial; flowering in August and September.—Native of North America.

14. Coreopsis Crassifolia; *Thick-leaved Coreopsis*. Leaves obovate-oblong, obtuse, quite entire, pubescent. Perennial; flowering from August till October.—Native of Carolina.

15. Coreopsis Angustifolia; *Narrow-leaved Coreopsis*. Leaves alternate, linear-lanceolate, quite entire, even; petals of the ray oblong, trifid, the middle segment largest. A perennial plant; flowering in June.—Native of Carolina and Florida.

16. Coreopsis Procera; *Tall Coreopsis.* Leaves elliptic, acuminate, serrate, petiolate, veined, decurrent, the lower in whorls, the upper alternate. It is perennial; flowering in September and October.—Native of North America.

17. Coreopsis Radiata. Leaves linear-lanceolate, sharply serrate, opposite; ray of the flower large, entire. Root annual; stems upright, four feet high; leaves acuminate, from three to four inches long, three quarters of an inch broad in the middle, deep green on their upper surface, and pale on their lower, on short petioles. It flowers in August, and, if the autumn prove favourable, ripens its seeds in October.—Native of Carolina.—It is propagated by seeds, which should be sown on a warm border in autumn, and the plants will appear in the following spring; but if the seeds be sown in the spring, the plants seldom rise till the year after. When fit to remove, they should be taken up carefully, and either replanted where they are intended to remain, or placed in a nursery-bed, at four inches' distance, to get strength, observing to exclude the beams of the sun until they have taken fresh root, after which, those which are planted out to remain, will only require to be kept clean from weeds, and as they advance in height, should be supported by sticks, otherwise the strong winds of autumn often break them. Those which are placed in the nursery-bed, should be taken up when they have acquired proper strength, and transplanted, with balls of earth adhering to their roots, wherever they are designed to stand for flowering.

18. Corcopsis Leucorhiza. Leaves pinnate, with five leaflets, serrate-gashed; ray six-flowered; down three-horned Stem herbaceous, a foot and a half high, erect, four-cornered, grooved, arising from a simple, perpendicular, fusiform, white, fleshy root; flowers entire, saffron-coloured, few together, on terminating peduncles; calix erect, many-leaved.—Native of Canton in China.

19. Coreopsis Biternata. Leaves biternate, ovate-lanceolate, serrate; panicle diffused; ray six-flowered. Stem herbaceous, two feet high, erect, four-cornered, four-grooved; flowers entirely yellow.—Native of China near Canton.

20. Coreopsis Fœtida. Leaves three-lobed; lobes acuminate, serrate, middle one longer. Root annual; stem round; upright, a fathom in height, branched, covered with a short glutinous nap; flowers corymbed; corolla yellow; florets of the ray eight; border ovate-oblong, three-nerved, shortly emarginate.—Native of Mexico.——As these plants continue to produce flowers till arrested by the frost, they merit a place in every curious garden, especially those of them which do not ramble and spread too much.

Coriandrum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal with few rays; partial with very many; involucre, universal scarce one-leafed; partial three-leaved, halved, linear; perianth proper, five-toothed, standing out. *Corolla:* universal difform, rayed; floscules of the disk abortive. Proper of the disk hermaphrodite; petals five, inflex, emarginate, equal. Proper of the ray hermaphrodite; petals five, inflex-hearted, unequal, of which the exterior is very large, two-parted; but the nearest lateral ones have a very large division. *Stamina:* filamenta, five, simple; antheræ roundish. *Pistil:* germen inferior; styles two, distant; stigmas of the ray headed. *Pericarp:* none; fruit spherical, bipartile. *Seeds:* two, hemispheric, concave. Essential Character. *Corolla:* rayed. *Petals:* inflex, emarginate. *Involucre:* universal, one-leaved; partial halved. *Fruit:* spherical.—These plants are propagated by sowing their seeds in the autumn, in an open situation, on a bed of good fresh earth, hoeing out the plants to about four inches apart every way as soon as they appear, and also clearing them from weeds, which will enable the plants to acquire more strength, and produce a greater quantity of good seeds.——The species are,

1. Coriandrum Sativum; *Common* or *Great Coriander.* Fruits globular. Root annual, strong-scented; stem a foot or a foot and half in height, smooth, branched; leaves compound; root-leaves larger, doubly pinnate; pinnules broad, gashed on every side, serrate, and even half two-lobed; petals white or reddish; fruits obsoletely ribbed, aromatic.—It flowers in June and July, in corn-fields, by road-sides, and on dung-hills; the seeds ripen in August. The leaves have a strong disagreeable scent; the seeds are grateful to the taste, and are sold by the confectioners encrusted with sugar. The Edinburgh College use them as correctors; in the bitter infusion and the preparations of senna, nothing so effectually covering the disagreeable taste of that medicine. When taken in large quantities they have been considered deleterious; but Withering informs us, that he has known six drachms of them to be taken at once, without any remarkable effect. Meyrick states, that the seeds are the only part used in medicine. While green, they have a strong unpleasant smell, which they lose in drying, and become sweet and aromatic: they are of great service in warming and strengthening the stomach, dispersing wind, and assisting the digestive faculties, and also relieve pains of the head, and operate as a check in violent purges.—This plant is found wild in Essex, yet, though it has also been long cultivated about Ipswich, and in a few other places, it is not a native of this country, but the south of Europe, China, and Cochin-china. It was formerly cultivated in the gardens as a salad herb, and is still used in the East Indies for the same purpose, being a principal ingredient in most of the compound dishes of the inhabitants of those regions, and much esteemed as a culinary herb, the seed is also employed in the same way; but in Europe neither of them are now much used. For the field culture of Coriander, see *Carum Carui.* The produce of Coriander is from ten to to fourteen hundred-weight on an acre, and the price varies from 16s. to 42s. per hundred-weight, but is commonly at 24s. Unless great care be taken, the largest and best part of the seed will be lost; to prevent this, women and children are employed to cut it plant by plant, and to put it immediately into cloths, in which it is carried to some convenient part of the field, and there threshed upon a sail-cloth: a few strokes of the flail bring the seeds clean out, and the threshers are ready for a fresh bundle in a few minutes. There is a ready sale for Coriander seed among the distillers, druggists, and confectioners; the former, especially, purchase very large quantities.

2. Coriandrum Testiculatum; *Small* or *Twin-fruited Coriander.* Fruits twin. This has a much stronger scent than that of the common sort. Root annual; stem angular, branched, about sixteen inches high; leaves once or twice pinnated; umbels small, often simple; seeds a little wrinkled, but not striated.—Native of the south of Europe. Both species are raised from seeds sown in autumn, in an open situation, on a bed of good fresh earth. They require no other care than to be hoed to about four inches asunder every way, and kept clear from weeds.

Coriaria: a genus of the class Dicœcia, order Decandria.—Generic Character. *Male. Calix:* perianth five-leaved, very short; leaflets subovate, concave. *Corolla:* petals five, very like the calix, connected. *Stamina;* filamenta ten, length of the corolla; antheræ oblong, two-parted. *Female. Calix:* perianth five-leaved, very short; leaflets subovate, concave. *Corolla:* petals five, cuspidate, caliciform, converging. *Stamina:* filamenta ten, very short;

antheræ barren. *Pistil:* germen five, compressed, inwardly conjoined; styles as many, bristle-form, long; stigmas simple. *Pericarp:* none; five, fleshy, ovate, lanceolate, three-sided petals, with one of the angles looking inwards, covering the seeds. *Seeds:* five, kidney-form. Essential Character. *Calix:* six-leaved. *Corolla:* five-petalled, very like the calix. *Male. Antheræ:* two-parted. *Female. Styles:* five. *Seeds.* five, covered with succulent-berried petals.——The species are,

1. Coriaria Myrtifolia; *Myrtle-leaved Sumach.* Leaves ovate-oblong; flowers in racemes. It seldom exceeds three or four feet high, creeping at the root, and sending forth many stems. The plant with male flowers only was common in England, until that which bears hermaphrodite flowers was raised in the Chelsea garden, from seeds sent from Italy. This plant possesses considerable astringency, and is used not only in tanning leather, but in dyeing black. It sends up so many stems as to form a thicket; it is useful to fill up vacancies in plantations of shrubs, but is only proper for large gardens. —Native of the south of France, and Africa, about Mount Atlas. It may be propagated in abundance from the suckers which are plentifully produced from the creeping roots. They should be taken off in March, and planted into a nursery to form good roots, where they may continue one or two years, and must then be removed to the places where they are to remain. This plant delights in a loamy soil, which is not too stiff, and should be sheltered from the north and east winds, where it will endure the cold of our ordinary winters, and flower better than if preserved in pots under cover during the winter.

2. Coriaria Ruscifolia. Leaves cordate-ovate, sessile; flowers hermaphrodite. A tree, 20 to 25 feet high, with a trunk the thickness of a man.—Native of Chili.

3. Coriaria Sarmentosa. Procumbent, diffused: leaves cordate-ovate, acuminate, quite entire, five-nerved, subpetiolate; racemes axillary, nodding.—Native of New Zealand.

Coris; a genus of the class Pentandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, bellied, converging, five-toothed, externally crowned with spines, of which the five superior ones are simple, the inferior ones toothed. *Corolla:* one-petalled, irregular; tube the length of the calix, cylindrical; border flat, five-parted; divisions oblong, emarginate, obtuse, the two inferior ones shorter and more distant. *Stamina:* filamenta five, bristle-form, length of the corolla, declining; antheræ simple. *Pistil:* germen roundish, superior; style filiform, length of the stamina, declining; stigma thickish. *Pericarp:* capsule globose, placed in the bottom of the calix, one-celled, five-valved. *Seed:* very many, nearly ovate, small. Essential Character. *Calix:* spinous. *Corolla:* one-petalled, irregular. *Capsule:* five-valved, superior.—The only known species is,

1. Coris Monspeliensis; *Montpellier Coris.* This plant seldom grows above six inches high, and spreads near the surface of the ground like Heath; the stem is red; the leaves are alternate, linear, thickish, spreading; the flowers in spikes, red or white, coming out in June, and making a beautiful appearance.—It is a native of sandy shores in the south of France. It may be propagated by sowing the seeds upon a bed of fresh earth in the spring. When the plants are about an inch high, they should be transplanted, some of them into pots filled with fresh light earth, that they may be sheltered in winter; and the others into a warm border, where they will bear the common cold of winter very well. These plants will sometimes produce ripe seeds in England; but as that is seldom the case, it will be proper to increase them from slips and cuttings, which will strike root if planted about the end of August on a very gentle hot-bed, shaded from the sun, and duly watered.

Corispermum; a genus of the class Monandria, order Digynia.—Generic Character. *Calix:* none. *Corolla:* petals two, compressed, incurved, acuminate, opposite, equal. *Stamina:* filamenta one, but in the lowest flowers often from two to five, filiform, shorter than the petals; antheræ simple. *Pistil:* germen acute, compressed; styles two, capillary; stigmas acute. *Pericarp:* none. *Seed:* single, oval, compressed, gibbous on one side, with the margin acute. Essential Character. *Calix:* none. *Pistils:* two. *Seed:* one, oval, naked.——The species are,

1. Corispermum Hyssopifolium; *Hyssop-leaved Tickseed.* Spikes terminating; leaves linear, nerveless, awnless. Root annual; stem scarcely a foot high, pubescent towards the top, reddish beneath, striated, branched.—It is common all over the Russian empire, in sandy soils, especially on the banks of lakes and rivers, and in low moist places; where it affords pasture for the camels. It is also found in the south of France. It will stock the ground plentifully, if it be only permitted to scatter its seeds.

2. Corispermum Squarrosum; *Rough-spiked Tickseed.* Spikes axiliary, squarrose; leaves lanceolate, acuminate, pungent, nerved. Root annual.—Native of Russia. It will only grow in marshy places, and will soon cover the surface of standing water, when once established.

Cork Tree. See *Quercus.*

Cornel; Cornelian Cherry. See *Cornus.*

Corn Flag. See *Gladiolus.*

Corn Salad. See *Valeriana.*

Cornucopiæ: a genus of the class Triandria, order Digynia. —Generic Character. *Calix:* perianth common one-leafed, funnel-form, very large; mouth crenated, obtuse, from spreading upright, many-flowered; glume one-flowered, two-valved; valves oblong, obtusely acuminate, equal. *Corolla:* one-valved, in figure, size, and situation, very much resembling the valves of the glume of the calix. *Stamina:* filamenta three, capillary; antheræ oblong. *Pistil:* germen turbinate; styles two, capillary; stigmas cirrhose. *Pericarp:* none. *Corolla:* including the seed. *Seed:* simple, turbinate, on one side convex, on the other flat. Essential Character. *Involucre:* one-leafed, funnel-form, crenate, many-flowered. *Calix:* two-valved. *Corolla:* one-valved.——The species are,

1. Cornucopiæ Cucullatum; *Hooded Cornucopiæ.* Spike beardless, with a crenate hood, or involucre. Root annual, fibrous, branched; culms numerous, ascending, jointed, round, smooth, striated, branched, leafy, dark purple at the joints; leaves narrow, striated, smooth; sheaths inflated, spreading, pointed; flowers in a little head or spike, projecting somewhat beyond the involucres, green, often tipped with purple; seed small Of all grasses, this is perhaps the most singular, as well as the most uncommon.—Native of the vales about Smyrna.

2. Cornucopiæ Alopecuroides. Spike bearded, within a hemispheric hood, or involucre. It very much resembles Alopecurus Pratensis. Culms ascending, even; leaves even. The singular mark of this species is, a hood in the form of a pitcher, quite entire, of the same consistence with the leaf, surrounding the base of the spike like a common calix.—Grows in Italy.

Cornus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* involucre generally four-leaved, many-flowered; leaflets ovate, the opposite ones smaller, coloured, deciduous; perianth very small, four-toothed, superior, deciduous. *Corolla:* petals four, oblong, acute, flat, smaller than the involucre. *Stamina:* filamenta four, subulate, erect, longer than the corolla; antheræ

roundish, incumbent. *Pistil:* germen roundish, inferior; style filiform, length of the corolla; stigma obtuse. *Pericarp:* drupe roundish, umbilicated. *Seed:* nut heart-shaped, or oblong, two-celled. ESSENTIAL CHARACTER. *Involucre* generally four-leaved. *Petals:* four, superior. *Drupe:* with a two-celled nut.——The species are,

1. Cornus Florida; *Great flowered Dogwood.* Arboreous: involucre very large; leaflets obcordate. It seldom rises above seven or eight feet high, but is generally well furnished with large leaves. Although it be very hardy, it neither flowers freely, nor produces berries in England. There is a variety of this species, with a rose-coloured involucre, which was found wild in Virginia. They are great ornaments to the woods of America, by their early flowering in the spring, before the leaves appear, and by their berries hanging all the winter on the trees. The wood is white, has a close grain, and is very hard, like that of Box.—It flowers in April and May, and is common in our nurseries, where it is known by the name of Virginian Dogwood. All the sorts of Dogwood may be propagated by their seeds, which, if sown soon after they ripen in autumn, will generally appear in the following spring; but if not sown in autumn, they will lie a year in the ground before the plants will come up, and in dry seasons have been known to be two years in making their appearance; for which reason, the ground where they have been planted ought not to be disturbed. When they spring up, let them be watered in dry weather, and weeded, and in the following autumn removed into beds in the nursery, where they may stay two years, and at the end of that time will be fit to transplant where they are designed to remain: the best season for transplanting them is in autumn. They are also propagated by suckers, and laying down the branches. Most of the Dogwoods produce plenty of suckers, especially when planted on a moist light soil. These suckers may be taken off from the old plants in autumn, and planted into a nursery for a year or two, and may then be finally transplanted into those places where they are destined to remain. But the gardener ought to be informed, that the plants produced from suckers seldom have so good roots as those which are propagated by layers, and are not so valuable as the latter plants, because they are also so very liable to put out suckers themselves. Some of the scarcer species, from America, are often engrafted into the fourth or fifth species.

2. Cornus Mascula; *Cornelian Cherry.* Arboreous: umbels equalling the involucre; leaves serrate; shoots ash-coloured, and pubescent; leaves in pairs, ovate-lanceolate, subhirsute. The flowers come out very early in the spring before the leaves; corolla yellow, spreading, and at length reflected, longer than the stamina; fruit oblong, the size of an olive, bright scarlet, sometimes yellow. It is a shrub in its wild state, and about four or five feet hight, but advances, when cultivated, into a tree twenty feet in height and is very common in our plantations of shrubs. If the season be mild, the flowers will come out in the beginning of February; and though there be no great beauty in them, yet they come forth in great numbers at a time when few other flowers appear. It was formerly cultivated for the fruit, which was used to make tarts, and a *rob de cornis* was kept in the shops. Meyrick says, that the dried fruit, or the juice of it, boiled up with sugar, is an excellent cooling astringent medicine, and of great utility in fevers attended with purging. Cornel, says Evelyn, grows with us of good bulk and stature, and is exceedingly recommended for its durableness in wheel-work, pias, and wedges, in which it wears like the hardest iron.—Native of Russia, Germany, Switzerland, Austria, Carniola, France, Piedmont, and the Milanese.

3. Cornus Japonica. Arboreous: umbels exceeding the involucre; leaves serrate; stem erect, six feet in height; branches opposite, striated, ash-coloured, smooth; flowers terminating, umbelled, white.—Native of Japan.

4. Cornus Sanguinea; *Common Dogwood.* Arboreous: cymes depressed; branches straight; leaves ovate, concolor. Height from four or five to eight or ten feet; leaves opposite, quite entire, but sometimes with the edge waving. The fruit is globular, dark purple, very bitter, oily, and styptic.—Native of Europe, found in hedges, especially in a calcareous soil. It flowers in June, and the berries ripen in August. It has a variety of names in different parts of England, as *female cornel, dog-berry tree, hound's-tree, hound's-berry tree, prickwood,* from its use in making skewers, *gaten* or *gatten-tree, gater* or *gatter-tree.* Mr. Miller informs us, that the fruit of this tree is often brought into our markets, and sold for Buckthorn berries; from which, however, it may be easily distinguished, there being only one stone in this, whereas the Buckthorn has four stones; the latter also stains paper green, but the juice of the former is purple. Dogwood is called *virga sanguinea,* or bloody-rod, by old authors, from the fine red colour of its young shoots. The wood, according to Evelyn's account, is like the Cornel for compactness, and is used for cart-timber and rustic instruments, for mill-cogs, spokes, bobbins for bone-lace, for the best tooth-picks, and for butcher's skewers. Being hard and even, it is also fit for the turner. In foreign countries, a lamp-oil is extracted from the berries, by boiling them in water, and afterwards pressing them. Baron Haller observes, that these berries are very bitter and styptic, but not employed in medicine.

5. Cornus Alba; *White-berried Dogwood.* Arboreous: cymes depressed; branches recurved; leaves broad-ovate, hoary underneath. Stem woody, putting out many lateral branches near the ground, so that unless it be trained while young, it generally spreads low. During summer the branches are brownish, but change in winter to a fine red. The flowers are produced in large cymes, at the extremity of every shoot, towards the end of May, and are white.—Native of Siberia, and of North America.

6. Cornus Sericea; *Blue-berried Dogwood.* Arboreous: cymes naked, depressed; branches patulous; leaves ovate, ferruginous, silky underneath. This shrub grows two fathoms in height, with an upright, round, branched, gray stem; branches round, opposite, spreading, dusky purple; flowers pedicelled, horizontal, white, with the disk at first white, but afterwards brown or dark purple. The leaves are narrower and deeper veined than in the fifth species; the flowers grow in smaller cymes, and the fruit is smaller, and of a deep blue colour when ripe. The shoots are of a beautiful red colour in winter; and in summer, the leaves being large, of a whitish colour on their under side, and the bunches of white flowers growing at the extremity of every branch, render this a valuable shrub; and in autumn, when the large bunches of blue berries are ripe, it makes a very beautiful appearance.—Native of North America.

7. Cornus Alternifolia; *Alternate-leaved Dogwood.* Arboreous: leaves alternate; branches subdeterminate, round, glossy, dark purple, with whitish vague dots or lines; leaves petioled, ovate, acute, quite entire, glossy, marked with lines, pale underneath. The branches are sometimes red, and sometimes green.—Native of North America.

8. Cornus Suecica; *Herbaceous Dogwood.* Herbaceous, with branches in pairs. This elegant plant is about six inches high; stem four cornered, thinly branched, forked at top; leaves oval, opposite, smooth, sessile, ribbed, with five nerves, the lower ones rounder. The involucre consists of

four or five white leaves resembling petals, in the centre of which are twenty or more small blackish flowers, on short peduncles; the flowers are very small, in a simple umbel; they are succeeded by a cluster of berries, which are red when ripe, and each contain a heart-shaped stone. The berries have a sweetish watery taste, and are acceptable to children. The Highlanders suppose, that they create an appetite, and hence the plant is called by the Erse language, *lus a chrasis*, or plant of gluttony. It flowers in June, and in England is commonly known under the name of *Dwarf Honeysuckle*. It is found on the Cheviot Hills, and other parts of the northern counties; and in moorish places near rivulets, on the sides of the Highland mountains in Scotland.—Native also of the north of Europe, and of the whole northern tract of the Russian empire, from the Baltic to the Eastern Ocean. It is very difficult to preserve this plant in gardens: the only method is, to remove it from its natural place of growth with good balls of earth adhering to the roots, and replant it in a moist shady situation, where it will not be annoyed by the roots of other plants. It may be preserved two or three years in such a situation, but will seldom continue longer.

9. Cornus Canadensis; *Canadian Dogwood.* Herbaceous, with no branches. It is only a hand in height; stems several, herbaceous, upright, four-cornered, purplish, having some opposite slightly clasping leaves at bottom, which wither and fall off; flowers pedicelled, upright, white, with a violet-coloured bottom.—It flowers in August, and is a native of Canada, Labrador, and Newfoundland.

10. Cornus Circinata. Branches warted; leaves orbiculate, tomentose, and hoary underneath; cymes depressed. Stem upright, branched, gray, about six feet high; flowers pedicelled, upright, white, five lines wide. It is distinguished by its orbicular, wrinkled, very green leaves, the cymes bracted at bottom, and its very thick tubercled branches.—It is a native of Pennsylvania, where it has long been cultivated; and may be met with, but not commonly, in France.

11. Cornus Stricta; *Upright Dogwood.* Branches strict; leaves ovate, concolor, almost naked; cymes panicled. Stem several, upright, brownish, six feet high; branches opposite, round, in younger plants strict, in older patulous. The twigs, and especially the suckers, stiffish, having rings at the joints, purple, warted closely at the base; flowers pedicelled, white, with the disk only red, four lines in diameter. The fruit appears too late to ripen in our climate, and the leaves continue green till the frost comes on.—Native of North America.

12. Cornus Paniculata; *New Holland Dogwood.* Branches erect; leaves ovate, hoary underneath; cymes panicled. Stems very many, upright, much branched, round, gray; leaves acuminate, almost entire; flowers pedicelled, upright, white, three lines in diameter; fruits white, retaining the style. It is distinct from every other species, in having the cymes elongated into a thyrse, or panicle. It is handsome, and very full of flowers, which come out in the spring, or early in the summer, and is loaded with fruit during several months in autumn.—Native of North America.

Cornutia: a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, roundish, very small, tubular, five-toothed, permanent. *Corolla:* one-petalled, ringent; tube cylindric, much longer than the calix; border four-cleft, upper division erect, roundish, lateral ones distant, lower roundish, entire. *Stamina:* filamenta four, of which two project beyond the tube of the corolla; antheræ simple, inclining. *Pistil:* germen roundish; style very long, two-parted; stigmas thickish. *Pericarp:* berry globose, at the base comprehended by the calix. *Seed:* single, kidney-form. Essential Character. *Calix:* five-toothed. *Stamina:* two of them longer than the corolla. *Style:* very long. *Berry:* globular, one-seeded.——The species are,

1. Cornutia Pyramidata; *Hoary-leaved Cornutia.* Leaves opposite, ovate; flowers in terminating corymbs. It grows to the height of ten or twelve feet. The branches are four-cornered, and grow straggling; flowers in corymbs at the ends of the branches, of a fine blue colour; they appear usually in autumn, and sometimes remain in beauty for two months or more.—It abounds in several of the West India islands, and also at Campeachy and La Vera Cruz. Cornutia is propagated by seeds, which should be sown early in the spring, on a hot-bed. The plants should be each transplanted into a small pot of light fresh earth, as soon as they appear, and immediately plunged into a hot-bed of tanner's bark, observing to shade them from the sun until they have taken root; after which, fresh air must be admitted in proportion to the warmth of the season; and it should be frequently watered, as it naturally grows on swampy soils. When the plants have filled the pots with their roots, they ought to be removed into others of a larger size, and again plunged into a hot-bed, where they should remain till October, and should then be plunged into the tan or the bark-stove; for unless this be done, it will be very difficult to preserve them through the winter. In the third year they will flower in the stove, and make a fine appearance: but they never perfect their seeds in England. They may also be propagated by cuttings, which if planted into pots filled with earth, and plunged into a bark-bed, observing to shade and water them, will take root, and must be afterwards treated as the seedling plants.

2. Cornutus Quinata. Leaves quinate, lanceolate-ovate; flowers in racemes. This is a middle-sized tree, with spreading round branches; leaves acuminate, quite entire, smooth, on a long common petiole; flowers greenish yellow; corolla somewhat funnel-shaped, the upper lip trifid, the lower bifid, and shorter.—Native of China, in the woods near Canton.

Coronilla; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* umbellule simple; perianth one-leafed, very short, compressed, bifid, erect, the three inferior teeth smaller; the two superior conjoined, permanent. *Corolla:* papilionaceous; standard heart-shaped, reflected on all sides, scarce longer than the wings; wings ovate, converging at top, gaping at bottom, obtuse; keel compressed, acuminate, ascending, usually shorter than the wings. *Stamina:* filamenta diadelphous, single, and nine-cleft, ascending at almost a right angle, the tips widish; antheræ simple, small. *Pistil:* germen columnar, oblong; style bristled, ascending; stigma small, obtuse. *Pericarp:* legume very long, columnar, straight, contracted, with an isthmus between each seed, two-valved, one-celled, parting by joints. *Seeds:* many. Essential Character. *Calix:* two-thirds two-lipped, the upper teeth connate. *Standard:* scarcely longer than the wings. *Legume:* contracted between the seeds.——The species are,

1. Coronilla Emerus; *Scorpion Senna.* Shrubby: peduncles with about three flowers, claw of the corolla three times the length of the calix; stem angular, not very straight, branched, and brachiate; leaves alternate; leaflets seven or nine, inclining to inversely heart-shaped. Height, when wild, from two to six feet, and in gardens, from eight to nine; corolla yellow; standard very remote from the other petals.—Native of Germany, Austria, Carniola, Switzerland, France, and Savoy. It is easily propagated by sowing the seed, which it commonly

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 358.

CONYZA — *Great Fleabane.*

P. 369.

CORONILLA VARIA —
Purple Coronilla.

P. 380.

CRATÆGUS — *Cockspur Hawthorn*

P. 382.

CRATÆGUS — *Maple-leaved Hawthorn.*

produces in great abundance in March, upon a bed of light sandy earth. It should be kept clean from weeds, and refreshed with water in dry weather, which, especially after it comes up, will promote its growth. At Michaelmas, if the plants have thriven well, let the largest be drawn out, and transplanted into a nursery, where they should continue two years, and will then be fit to plant out where they are to remain. This species may also be propagated by laying down the tender branches, which will take root in about a year's time, and may then be transplanted into a nursery, and managed like the seedling plants.

2. Coronilla Juncea; *Linear-leaved Coronilla.* Shrubby: leaflets quinate and ternate, linear-lanceolate, somewhat fleshy, obtuse. This rises from two to four feet high, with many slender woody branches, which resemble broom; flowers yellow, six or seven together in small peduncled terminal umbels.—Native of the south of France. This, together with the fourth and seventh species, are propagated by sowing the seeds in the spring, either upon a gentle hot-bed, or on a warm border of light fresh earth; and when the plants are come up about two inches high, they should be transplanted either into pots, or a bed of good rich earth, at about four or five inches' distance every way, where they are to remain until they have acquired strength enough to be wholly planted out: if the winter he not very severe, they will abide very well, provided they are in a dry soil. Some of the plants of the second species should be sheltered under a common frame in winter, because they are often destroyed in hard frosts; but in mild weather, they ought to be freely exposed to the air, to prevent their drawing up weak.

3. Coronilla Valentina; *Small Shrubby Coronilla.* Shrubby: leaflets about nine; stipules suborbiculate. It attains to three or four feet high. The flowers appear in close bunches, on long axillary peduncles; they are small and of a deep yellow colour, at all times diffusing a very powerful odour. The stipules are large, almost round, and strikingly conspicuous in the young plant. Linneus remarks, that early in the spring the leaves have the colour of Rue: hence Mr. Curtis gives it the name of Rue-leaved Coronilla. Native of Spain and Italy.—This, with the fifth and sixth species, are propagated by seeds sown in April, upon a bed of light earth. When they are fit to remove, some of them should be transplanted into a border close to a warm wall or pale, to which the branches ought to be trained, observing carefully to shade them from the sun till they have taken fresh root, and also to supply them with water when they require it; after they are well rooted, they will require no further culture, but weeding, and keeping their branches trained to the pale or wall. They flower in the second year, and will continue many years upon a dry soil, and a warm situation.

4. Coronilla Glauca; *Great Shrubby Coronilla.* Shrubby: leaflets seven, very obtuse; stipules lanceolate. This seldom exceeds three or four feet high, with a woody branching stem; flowers bright yellow, in a roundish bunch; wings gaping widely at bottom, so as to discover the whole keel. This, according to Linneus, has little or no smell in the night, but is remarkably fragrant during the day. It flowers from September till May; indeed, almost the whole year.—Native of the south of France. See the second species.

5. Coronilla Coronata; *Crowned Coronilla.* Shrubby: leaflets nine, obovate, the inmost approximating to the stem; stipule opposite to the leaf, two-parted. Stems erect, little branched, round, smooth, about eighteen inches in height, woody at bottom only; calix a line long, yellowish; corolla yellow. The end of the keel is apt to be green, and this, with the glaucous hue of the leaves, indicates that a blue colour may be produced from these flowers by putrescence.—It flowers in July, and is a native of the southern countries of Europe. See the third species.

6. Coronilla Minima; *Least Coronilla.* Undershrubby, procumbent: leaflets nine, ovate; stipule opposite to the leaf, emarginate; legumes angular, knotty. Root perennial; stems several, woody, branched, two or three inches long, and prostrate; hence spring annual herbaceous, round branches, pale green, also prostrate; leaflets at the top, and ending in a little bunch of flowers; flowers about six, yellow, sweet-smelling; calix small, green; seeds oblong, brown. The whole plant very smooth.—Native of the southern countries of Europe. See the third species.

7. Coronilla Argentea; *Silvery-leaved Coronilla.* Shrubby: leaflets eleven, silky, the outmost larger than the rest. A very humble shrub, rarely exceeding two feet in height in a good soil. The stem is hard and woody; from which the branches are produced on every side near the ground. The flowers are on long, slender, axillary peduncles, they are yellowish, and have a strong sweet scent; and as the plants always produce an abundance of them, they make a fine appearance during the month of May, in which they flower. The seeds ripen in August and September. The silvery colour of this plant is occasioned by its growing on a poor dry soil, which it will change for a glaucous colour if removed into better ground.—Native of Crete. See the second species.

8. Coronilla Securidaca; *Hatchet Vetch.* Herbaceous: legumes sickle-sword-shaped; leaflets very many. Root annual, composed of a few slender fibres, which run pretty deep in the ground; stems herbaceous, trailing, a foot and a half long, dividing into several branches. It sleeps with the leaflets converging above the petiole, and bent towards the base of it. It flowers in July.—Native of Spain. The seeds should be sown where the plants are destined to remain, on borders of light fresh earth in the spring, allowing them at least to be two feet distance every way apart.

9. Coronilla Varia; *Purple Coronilla.* Herbaceous: legumes erect, cylindric, swelling, numerous; leaflets very many, smooth. Root perennial, creeping widely; stems from four to six feet in height when supported, otherwise trailing. The flowers come out many together in roundish bunches, on peduncles which are about the same length with the leaves; the corolla varies from a deep to a light purple, to whitish, and even wholly white, and sometimes there is a mixture of all. This plant was formerly proposed to be cultivated as a proper food for cattle; and being found to grow very readily, promised to be very beneficial to the farmer. Mr. Miller informs us, that he remembers to have seen a large spot of ground at Deepden, near Dorking, in Surry, at the seat of the Honourable Mr. Howard, planted with it; where, although it had been neglected for many years, it was grown so rank, as to get the better of all the weeds, brambles, &c. He found some of the branches upwards of five feet long, and very tender in every part of that length, so that a small spot of ground will supply a considerable quantity of fodder, especially in dry seasons. Horses and cows, he adds, seemed to eat it greedily; though Mr. Curtis thinks that its bitterness will be an objection to its being cultivated for cattle. But notwithstanding this, a gentleman, who had sown it upon Professor Martyn's recommendation, assured him, that cows eat it very readily.—The roots creep very far under ground, by which it increases greatly, and when permitted to remain unremoved two or three years, it will overbear the plants growing near it; on which account the roots should be confined, and it should be planted at a distance from any other

plants. It will grow in almost any soil and situation, but thrives best in a warm sunny exposure, in which the flowers appear in great quantities, and are also more beautiful.

10. Coronilla Cretica; *Cretan Coronilla.* Herbaceous: legumes five together, erect, columnar, jointed; leaflets even. Stems ascending, angular, even, two or three feet long; corollas blood-red; the standard marked with purple veins; the wings conflex on the outside; the keels dark purple at the end.—Native of Candia. Sow the seeds on a bed of light earth in the spring, where the plants are intended to remain, and take care to thin them when too close, and keep them clean from weeds.

11. Coronilla Scandens; *Climbing Coronilla.* Stem climbing, flaccid. This has a slender, hairy, twining stalk, of a brown colour, twisting round any of the shrubs that stand near it, whereby it rises eight or ten feet high; for the most part composed of five oval leaflets, one inch long, and half an inch broad, of a deep green. Flowers pale yellow.—Native of South America. The seeds should be sown early in the spring, on a moderate hot bed; and when the plants are come up, they should be each transplanted into a halfpenny pot filled with fresh rich earth, and plunged into a hot bed of tanner's bark, observing to shade them until they have taken root, after which time they should have air and water in proportion to the warmth of the season; and when they have filled these pots with their roots, they should be shifted into pots of a larger size, and plunged into the hot-bed again, where they must remain until autumn, when they should be removed into the stove, and plunged into the tan. These plants must be kept constantly in the bark stove, and placed among such as require a moderate heat, where they will thrive and flower. They require to be supported by tall sticks, round which they will twine as Hops do; for if they have not this support, they will twist round other plants, and spoil them. They are very proper plants to place against an espalier, on the back part of the stove, amongst other climbing plants, where they will make an agreeable variety, and if carefully managed in the winter, may be preserved two or three years, and will flower annually in July, and sometimes produce ripe seeds in England.

12. Coronilla Cochin-chinensis. Suffruticose: leaflets about fifteen pairs; peduncles subtriflorous; legumes erect, torulose; stems four feet high, upright, branched; leaflets oblong, blunt, with a slender point; flowers yellow, axillary.—Native of Cochin-china.

13. Coronilla Hispanica; *Spanish Coronilla.* Shrubby: leaflets nine, emarginate; stipules large, roundish. Supposed to be the same as the third species.

14. Coronilla Orientalis. Herbaceous: legumes numerous, radiate, thick, jointed; leaflets glaucous underneath. Root perennial; stem annual, erect, upwards of two feet high; leaflets five or six pairs, oblong; peduncles strong, upwards of six inches in length, supporting large bunches of yellow flowers, succeeded by short thick pods, about an inch long. It flowers in June and July, and in warm seasons will ripen its seeds in autumn. There is a variety with large white flowers.—Native of Cappadocia. It is propagated by seeds sown on a warm border of light earth in the spring, carefully weeding the plants when they appear, and transplanting them, as soon as they are fit to remove, into a warm border, where they are to remain, and will only require to be shaded from the sun, and kept free from weeds. In autumn, when the stalks are decayed, if the surface of the ground be covered with some old tan to keep out the frost, it will be the surest method of preserving the roots, which will continue some years with proper care. The plants will flower in the second year.

Corrigiola; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, concave, spreading, size of the corolla, membranaceous on the margin, permanent. *Corolla:* petals five, ovate, spreading, scarcely larger than the calix. *Stamina:* filamenta five, subulate, small; antheræ simple. *Pistil:* germen ovate, three-cornered; style none; stigmas three, obtuse. *Pericarp:* none. *Calix:* converging. *Seed:* single, ovate, three-sided. Essential Character. *Calix:* five-leaved. *Petals:* five. *Seed:* one, three-sided.—The species are,

1. Corrigiola Littoralis; *Bastard Knot Grass.* Stems many, slender, round, with a few branches at the end, two or three inches long, covered with leaves; flowers in glomerate racemes, sessile, terminating; calix of a whitish bay-colour, converging; corolla white. It flowers in June and July, and is annual.—Native of France, Germany, Denmark, Switzerland, and Piedmont, in sandy soils, generally on the banks of rivers, or near the sea. It has been found on Slapham sands near Dartmouth, and near the Start point.

2. Corrigiola Capensis. Flowers sessile; calices green.—Native of the Cape.

Cortusa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-cleft spreading, very small, permanent: divisions lanceolate, three-toothed. *Corolla:* one-petalled, wheel shaped; tube scarcely any; border flat, five-parted, ample; divisions ovate, acute; throat with an elevated ring. *Stamina:* filamenta five, obtuse; antheræ two plaited, oblong, erect, affixed to the outward part. *Pistil:* germen ovate; style filiform, longer than the corolla; stigma almost headed. *Pericarp:* capsule oval, acuminate, half five-valved. *Seeds:* numerous, compressed, cornered. *Receptacle:* columnar, free. Essential Character. *Corolla:* wheel-shaped, the throat having an elevated ring. *Capsule:* one-celled, oval, five-valved at the end. These plants are difficult to keep in a garden: the only method by which they have been preserved, was by planting them in pots, and placing them in a shady situation, where they were regularly watered in dry weather: cold will not destroy them, but rich soils or dung is very injurious, and they should therefore be planted in a very light soil. The only method by which we can propagate them, as they never produce any seeds in England, is by parting the roots in the same manner as is practised for Auriculas; the best time for this is about Michaelmas, soon after which the leaves decay.——The species are,

1. Cotusa Matthioli. Calices shorter than the corolla. This plant sends out many oblong smooth leaves, a little indented on the edges. The peduncles come out in the centre of the leaves, rise about four inches high, and support an umbel of flowers, each on a slender short pedicle. The flowers are of a flesh colour, and spread open like those of the Auricula; they appear in April and May.—Native of the Alps, Austria, Silesia, and Siberia.

2. Cortusa Gmelina. Calices longer than the corolla. Very like the first, but the flowers much smaller, and the calices larger. The umbel has about three flowers; the corolla is white; and the leaflets of the involucre ovate.—Native of Siberia.

Corylus: a genus of the class Monœcia, order Polyandria.—Generic Character. *Male Flowers,* disposed in a long ament. *Calix:* ament common, imbricated on every side, cylindric, permanent; scales one-flowered, narrower at the base, wider at the top, and more obtuse, inflex, three-cleft; middle division equal in length to the others, but as wide again, and covering the others. *Corolla:* none. *Stamina:*

filamenta eight, very short, growing to the interior side of the calicine scale; antheræ ovate-oblong, shorter than the calix, erect. *Female Flowers,* remote from the males, on a very small subglobular ament, in the same plant, sessile, included within the bud. *Calix:* perianth two-leaved, leathery, lacerated on the margin, erect, length of the fruit, scarcely visible during the time of inflorescence, on account of its smallness. *Corolla:* none. *Pistil:* germen roundish, very small; styles two, setaceous, much longer than the calix, coloured; stigmas simple. *Pericarp:* none. *Seed:* nut ovate, scalped as it were at the base, but little compressed at the tip, slightly pointed. Essential Character. *Male. Calix:* one-leafed, three-cleft, scale-form, one-flowered. *Corolla:* none. *Stamina:* eight. *Female. Calix:* two-leaved, lacerated. *Styles:* two. *Nut:* ovate.—All the species of this well-known genus, may be propagated by sowing their nuts in February; which, in order to preserve them good, should be kept in sand in a moist cellar, where the vermin cannot come at them to destroy them; nor should the external air be excluded from them, which would make them grow mouldy. The method of sowing their seeds is well known; but not one in four of the plants so produced prove so good as those raised from the nuts. Mr. Miller, however, recommends the method of propagating them by layers, as being not only the surest, but also the most expeditious plan, for those especially who cultivate the trees for the sake of their fruits. To sow the nuts, let the ground be well ploughed and harrowed; and let drills be drawn one yard asunder, into which drop the nuts, at about ten inches' distance, and let them be covered with two inches of earth. They must be carefully weeded and thinned, as soon as they appear, until the plants be left half a yard asunder each way. Or they may be thus raised in a nursery, and removed thence when they are from a foot to two feet high, and planted finally at the distance before-mentioned. In twelve years they may be cut down for poles, but may afterwards be cut every seventh or eighth year.——The species are,

1. Corylus Avellana: *Hazel-nut Tree.* Stipules egg-shaped, obtuse; leaves roundish, heart-shaped, acuminate; branchlets hairy. The varieties are Corylus Sylvestris, Common Hazel-nut Tree; Corylus Alba, White Filbert-nut Tree; Corylus Rubra, Red Filbert-nut Tree; Corylus Grandis, Cob-nut Tree; and Corylus Glomerata, Cluster-nut Tree. The common Hazel-nut tree is properly a shrub: the trunk is covered with a whitish cloven bark, which is smooth on the branches, frequently of a bay colour, and spotted with white; leaves alternately gash-serrate, wrinkled. The male catkins appear in Autumn, and wait for the expansion of the female germina in the spring; the styles are of a bright red colour, long and setaceous; the flowering branches, especially those which bear the fertile flowers, are set with short fine hairs, terminating in globules. The varieties grow more erect than the common Hazel: the Cob-nut has a very large round fruit; and the Cluster-nut is so called from the fruit growing in great clusters at the ends of the branches. The Hazel, says Swinburn, has the name *Avellana,* from Avellino, a city in the kingdom of Naples, near which it is cultivated; it covers the whole face of the neighbouring valleys, and in fruitful years produces an enormous profit. The nuts are mostly of the large round filbert kind, which we call Spanish, and were originally imported into Italy from Pontus, and therefore known to the Romans by the appellation of *nux Pontica,* which in process of time was changed into that of *nux Avellana,* from the place where they had been cultivated with the greatest success.—The common Hazel-nut is found wild in many woods and coppices in England, where the country people gather the fruit, and send it in abundance to the London markets. As a shrub it is well adapted for thickening woods; and when allowed to grow, will make poles of twenty feet; but it is generally cut down sooner for walking-sticks, fishing rods, withes for fagoting, and other purposes for which it may be profitably employed. Where yeast is scarce, they twist the twigs, and steep them in ale during its fermentation, then hang them up to dry, and, when they brew, put them into the wort.—The Filbert can only be kept from changing by propagating it from suckers or layers, the last of which make the best trees. Plantations of Filbert-trees are much attended to in some parts of Kent; they are never suffered to rise above six feet in height, and are regularly pruned like Gooseberry bushes. They are planted twelve feet asunder, and when full spread, the cup formed by the branches is six feet in diameter; the intermediate space is generally filled up with hoeing crops, the vigour of the trees greatly depending on the stirring of the ground: it is therefore the usual mode to raise them in hop-grounds, where Cherry and sometimes Apple-trees are also planted. The Kentish men seem to know nothing of raising them from layers, but propagate them by suckers, which ought to be previously trained in a nursery. The best soil for them is what is called coomey in Kent, consisting of a strong loam, with a clayey or marley bottom. In this kind of ground they bear fruit in such great abundance, that an acre has been sometimes sold for fifty pounds.

2. Corylus Rostrata; *American Cuckold-nut Tree.* Stipules lanceolate; leaves oblong-cordate, acute; branchlets smooth; calices of the fruit beaked. This is remarkable for the length of the calix, which continues to cover the nut entirely even after it is ripe.—Native of North America.

3. Corylus Colurna; *Constantinople,* or *Byzantine Hazel-nut Tree.* Stipules linear, acute. The leaves in this are a little laciniated at top; the raceme of nuts very large; the nuts themselves roundish, and in shape like those of the common Hazel, but more than twice their size.—Native of the country about Constantinople.

Corymbium; a genus of the class Syngenesia, order Monogamia. Generic Character. *Calix:* perianth two-leaved, one-flowered, inferior, long, prismatic, six-cornered; leaflets erect, converging longitudinally, triangular on the back, truncated, obscurely three-toothed, permanent, having two very small leaflets at the base. *Corolla:* one-petalled, equal; tube very short; border five-parted, spreading; divisions lanceolate. *Stamina:* filamenta five, simple, erect, seated on the tube; antheræ oblong, erect, shorter than the corolla, growing together into a cylinder. *Pistil:* germen within the calix, inferior to the corolla, hirsute; style simple, erect, length of the corolla; stigma oblong, two-parted, spreading. *Pericarp:* none. *Calix:* unchanged. *Seed:* single, oblong, almost the length of the calix, covered with a wool resembling down, in the manner of a pappus. *Receptacle:* naked. Essential Character. *Calix:* two-leaved, one-flowered, prismatic. *Corolla:* one-petalled, regular. *Seed:* one, below the corolla, woolly.——The species are,

1. Corymbium Scabrum. Leaves lanceolate, channelled, nerved, recurved, smooth, shorter than the stem. It rises with an erect rough stalk about a foot high, with a single leaf at each joint, which half embraces the stalk; the upper part of which divides into several peduncles, which are terminated by purple flowers.—Native of the Cape. Corymbium should be propagated by seeds, sown in a small pot filled with light earth as soon as ever they arrive from abroad; the pots should be plunged into a bed of tanner's bark, where the heat is nearly spent, and covered with a common frame in winter.

In the spring, the plants will soon appear if the pots be removed into a moderate hot-bed. They should be transplanted when about an inch high, each into a separate small pot, shading them until they acquire new roots, and gradually inuring them soon after to the open air. In June they should be placed abroad in a sheltered situation, where they may remain till October, and should then be placed in a common frame to protect them from the frost.

2. Corymbium Glabrum. Very smooth: leaves ensiform, plane-nerved; panicle lax, diffuse; flowers distinct.—Native of the Cape.

3. Corymbium Filiforme. Leaves filiform, very smooth, erect, shorter than the stem.—Native of the Cape.

4. Corymbium Villosum, Villose, woolly: stem-leaves clasping, subulate, straight, plain.—Native of the Cape.

Corynocarpus; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix*: perianth inferior, five-leaved; leaflets oblong, concave. *Corolla*: petals five, roundish, narrowed at the base, erect. *Nectary*: leaflets five, erect, shaped like the petals, but narrower, scarcely shorter, having a globular gland at the base, alternate with the petals. *Stamina*: filamenta five, subulate, from the base of the petals; antheræ oblong. *Pistil*: germen superior, globular; style short, filiform; stigma obtuse. *Pericarp*: nut turbinate-club-shaped, one-seeded. *Seed*: an oblong kernel. Essential Character. *Nectaries*: five, petal-shaped, alternate with the petals, glandulous at the base. ——The only known species is,

1. Corynocarpus Lævigata. Leaves alternate, petioled, obovate or wedge-shaped, subemarginate, entire, veined, very smooth; panicle terminating, sessile, large, wrinkled; flowers white.—Native of New Zealand.

Corypha; a genus of the class Palmæ, order Flabellifoliæ.—Generic Character. *Calix*: spathe universal none; spathes partial numerous, alternate, on a common peduncle or spadix, one-leafed, embracing the peduncle, producing panicles of hermaphrodite flowers; perianth proper, short, with three divisions. *Corolla*: petals three, egg-shaped, concave, half open, longer than the calix. *Stamina*: filamenta six, about the length of the petals; antheræ almost arrow-shaped, short, versatile. *Pistil*: germen superior, conical; style short; stigma obtuse, pubescent. *Pericarp*: berry (or drupe) spherical, smooth. *Seeds*: solitary, bony, with a white, rather firm kernel. Essential Character. *Flowers*, hermaphrodite. *Spathe universal*, none. *Spathes partial*, numerous. *Berry*, or *Drupe*, globular. *Seed*, bony.—— The species are,

1. Corypha Umbraculifera; *Great Fan Palm.* Fronds pinnate-palmate, plaited, and having a thread between them; stipes ciliate-spiny. Linneus says, that this tree seldom flowers before it is thirty or forty years old. Knox gives us the following description of it, under the name of *tallipot*. "It is as big and tall as a ship's mast, and very straight; the leaves, which all grow on the top of the tree, are of great use, one being so broad and large that it will cover twenty men. Being dried, it is very strong and limber, and, though it be very broad when open, will fold close like a fan, and is then no bigger than a man's arm; the whole leaf when spread out is round, but is cut into triangular pieces for use, which the Malays and Ceylonese lay upon their heads as they travel, with the narrow end foremost, to make their way through thickets. Soldiers always carry them, not only to shade them from the sun, and to screen them from rain, on their march, but also to make their tents to lie under. The tree bears no fruit until the year before it dies, and then the most beautiful strong-smelling yellow blossoms come out on the top, and spread out in great branches, terminating in a very hard round fruit, about the size of our largest cherries, which are produced in such plenty, that one tree will yield seed enough for a whole country, but unfortunately they are not fit to eat; and the flowers smell so strong that the tree is generally cut down when it grows near to any houses. The trunk consists of nothing but pith, which the natives beat in a mortar to flour, and bake into cakes, which have the taste of white bread; the leaves, besides the uses above-named, also serve for thatching houses, and for writing on with an iron style; and most of the books shown in Europe for the Egyptian papyrus are made from the leaves of this palm." Native of Malabar, the island of Ceylon, and other parts of the East Indies, and of the Marquesas and Friendly Islands.

2. Corypha Minor. Fronds palmate, fan-shaped, plaited, subbifid, having a few threads interposed; stipes unarmed. Leaves springing from the crown of the root, smooth, rigid, striated, plaited below, and spreading upwards into sword-shaped, acute segments; spadix erect, two or three feet high, rising among the leaves from the crown of the root, clothed with membranaceous sheathing spathes; flowers in panicled racemes, white, sessile, small, without scent, all hermaphrodite, numerous; fruit the size of a pea, and of a sweet taste, smooth, black, not very succulent.

Costmary. See *Tanacetum.*

Costus; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix*: perianth three-toothed, very small, superior. *Corolla*: petals three, lanceolate, somewhat erect, concave, equal; nectary one-leafed, large, oblong, tubular, inflated, two-lipped, lower lip broader, longer than the corolla; border spreading, three-cleft, middle division three parted: upper lip lanceolate, shorter, doing the office of a filamentum. *Stamina*: the office of a filamentum is performed by the upper lip of the nectary: to which grows a two-parted anthera. *Pistil*: germen inferior, roundish; style filiform, length of the filamentum, stigma headed, compressed, emarginate. *Pericarp*: capsule roundish, crowned, three-celled, three valved. *Seeds*: many, three-cornered. Essential Character. *Corolla*: inner inflated, ringent; the lower lip trifid.—These plants are propagated by parting their roots in the spring, before the roots put out new stalks: they should be planted in pots filled with light kitchen garden earth, and plunged into a tan bed in the stove, where they ought constantly to remain, and may be treated in the same manner as Ginger; see *Amomum.*——The species are,

1 Costus Arabicus; *Arabian Costus.* Leaves silky underneath. Root perennial, irregular, two inches thick, knotty: stems annual, simple, round, three or four feet high, near an inch in diameter at bottom, fleshy, with a strong bark, sheathed all over; spike very handsome, terminating, subsessile, solitary, erect, close, as big as the hand closed.—Native of the East Indies; whence the roots were formerly imported, being much used in medicine, but of late years they have not been regarded, the roots of Ginger being used in their stead.

2. Costus Glabratus. Leaves smooth on both sides; spike few-flowered; scales leafy at the tip, the upper ones fastigiate. Spike or head of flowers imbricate, with ovate, blunt, concave scales, each one flowered, permanent, green, not coloured.—Native of the West Indies.

3. Costus Spicatus. Leaves smooth on both sides; spike many-flowered, subovate, closely imbricate; scales ovate, simple. Root perennial, fleshy, irregular, white; stems somewhat jointed, almost upright, round, smooth, one or two feet high; flowers yellow, scentless, and quickly withering.—Native of the Caribbee islands, where it is found by the side of torrents. It is called *canna de riviere*, in Martinique, where

a decoction of the roots and stalks is often given in the gonorrhœa, &c. as a cooling drink.

4. Costus Malacensis. Leaves very finely tomentose underneath; raceme terminating; bunches six flowered. Stems several, approximating, upright, simple, a little compressed, smooth, clothed with the sheaths of the leaves, half as high as a man; all the flowers are on very short club-shaped pedicels, somewhat compressed.—Native of thick woods near Tsing, in the neighbourhood of Malacca.

Cotton. See *Gossypium.*

Cotton Grass. See *Eriophorum.*

Cotton Silk. See *Bombax.*

Cotton Thistle. See *Onopordum.*

Cotton Weed. See *Athanasia* and *Filago.*

Cotula; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common, convex, divided into about sixteen ovate parts, of which eight are exterior, of these the inferior ones are rather bigger than the interior ones. *Corolla:* compound the length of the calix, a little convex; corollules hermaphrodite, numerous in the disk; females in the circumference more than twenty: proper of the hermaphrodites tubular, four-cleft, unequal, the outer division larger; of the females, scarcely any. *Stamina:* in the hermaphrodites, filamenta four, very small, antheræ tubular, the length of the corollule. *Pistil:* in the hermaphrodites, germen obovate; style filiform; stigmas two, obtuse: in the females; germen obovate, compressed, two-edged, larger; style filiform, length of the hermaphrodite; stigmas two, simple. *Pericarp:* none. *Calix:* unchanged, permanent. *Seeds:* of the hermaphrodites, solitary, smaller, ovate, three-sided, the interior angle obscure; down marginated: of the females, solitary, larger, cordate on one side, flat on the other, gibbous, surrounded by an obtuse border; down bordered. *Receptacle:* almost naked. flat. Essential Character. *Receptacle;* almost naked. *Down:* margined. *Corollules:* of the disk, four-cleft, in the ray, scarcely any.—The species are,

1. Cotula Anthemoides; *Dwarf Cotula.* Leaves pinnate, multifid, dilated; flowers floscular. Root annual; stem about six feet high, at first erect, then procumbent; flowers drooping, much compressed before they open, the size of a lentil; florets yellow.—Native of Spain, and the island of St. Helena. If the seeds of this and of the second species be permitted to scatter, the plants will come up in the spring and require no other care but to keep them clean from weeds and thin them.

2. Cotula Aurea; *Golden Cotula.* Leaves pinnate-setaceous, multifid; flowers floscular, drooping. The flowers have no chaffs, and the florets are four-cleft.—Annual: and a native of Spain

3. Cotula Stricta; *Silvery Cotula.* Leaves pinnatifid, plane, naked, dotted; stem erect, strict; flowers radiate. Stem herbaceous, five feet high, erect, somewhat angular, even, covered with a bluish dew; corollets of the disk four-cleft.—Native of the Cape. This, as well as all the other natives of the Cape, must be raised on a moderate hot-bed in the spring, and when the plants have obtained strength, they may be transplanted into a warm border, where they will ripen their seeds very well. All the Cotulas flourish best, however, under the protection of the dry-stove, and several of them may be increased, not only from seeds, but freely from cuttings.

4. Cotula Coronopifolia; *Buck's-horn Cotula.* Leaves lanceolate-linear, stem-clasping, toothed; flowers floscular. It is an annual, and sends out trailing stalks about six inches long, with succulent leaves, shaped like those of Buck's-horn Plantain: the flowers grow from the divisions of the stalks, upon short weak footstalks, being destitute of rays; they are of a sulphur-colour, appearing in July, and, like those of the eighth species, stand erect when they first appear, but as soon as the florets become impregnated, their colour changes, the footstalks become very flaccid towards the top, and the flowers hang downwards; but when the seeds are ripe, the footstalks become stiff, and their heads stand erect for the winds to disperse the seeds.—Native of the Cape.

5. Cotula Umbellata. Leaves lanceolate, hirsute; flowers umbelled; stem erect, round, hirsute, a foot and a half in length; receptacle naked.—Native of the Cape.

6. Cotula Quinqueloba. Leaves five-lobed, subtomentose; stems erect, simple, pubescent; leaves petioled.—Native of the Cape.

7. Cotula Viscosa. Leaves alternate, lyrate, pinnate; flowers radiate; stem a span high; receptacle conical, naked. —Found in the island of La Vera Cruz.

8. Cotula Turbinata. Receptacles underneath, inflated, turbinate; flowers radiate. It sends out many branching stalks, which spread on the ground: leaves very finely divided, covered with a cottony substance. Flowers solitary, on long peduncles, from the side of the branches they have a narrow border of white rays, with a pale yellow disk. Annual: flowering in July and August.—Native of the Cape.

9. Cotula Tanacetifolia. Leaves tripinnate, the small segments acute; stem erect; flowers floscular, corymbed. Stem scarcely suffruticose, but rather entirely herbaceous, firm, slightly angular, pubescent, much branched; leaves glaucous, petioled; corymb of flowers compound, fastigiate, large, terminating, consisting of several corymbiferous branches; scarcely any female florets; those of the disk four-cleft.—Annual: Native of the Cape.

10. Cotula Capensis; *Cape May-weed.* Leaves pinnate, somewhat fleshy and columnar, the lowest subbipinnate; flowers radiate. Stems many, very much branched, diffused a span in height, round, somewhat glossy.—Annual: native of the Cape. This plant has the appearance of Chamomile.

11. Cotula Pilulifera; *Rounded May-weed.* Leaves bipinnate; heads globular; stems erect, subfastigiate, with a panicle.—Native of the Cape.

12. Cotula Sericea. Leaves superdecompound, tomentose, linear. Root perennial; corolla floscular, shorter than the calix, yellow; stems herbaceous, short, tomentose, simple, procumbent, white.—Native of the Cape.

13. Cotula Pyrethraria. Leaves opposite, ovate, crenate, petioled; peduncles one-flowered. Stem herbaceous, dichotomous; flower ovate, white, with four-cleft corollets.—Native country unknown.

14. Cotula Minuta. Leaves alternate, almost stem-clasping, oblong, toothed; flowers solitary, sessile, opposite to the leaf.—Native of New Caledonia.

15. Cotula Bicolor. (Specific character not given.)—Native of the isle of Tanna in the South Seas.

Cotyledon; a genus of the class Decandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, acute, very small. *Corolla:* petal bell-shaped, five-cleft; nectary consisting of a concave scale, seated at the exterior base of each germen. *Stamina:* filamenta ten, subulate, straight, the length of the corolla; antheræ erect, four-furrowed. *Pistil:* germina five, oblong, thickish, ending in subulate styles, which are longer than the stamina; stigmas simple. *Pericarp:* capsules five, oblong, bellied, acuminate, one-valved, gaping longitudinally inwards. *Seeds:* very many, small. Essential Character.

Calix: five-cleft. *Corolla*: one-petalled, with five nectareous scales at the base of the germen. *Capsule*: five.——The species are,

1. Cotyledon Orbiculata; *Round-leaved Navelwort.* Leaves ovate-spatulate, obtuse, with a point, even; flowers panicled. This species varies much in the form of the leaves, &c. Mr. Miller describes several of the varieties as distinct species; one of these, the Branching Navelwort, has a short thick succulent stalk, which rarely rises more than a foot high, branching out on every side, so as to spread over the pots in which it is planted. Another variety, called also the Round-leaved Navelwort, has likewise a thick succulent stalk, which becomes woody by age, and rises three or four feet high, sending out crooked branches which grow irregular, with thick fleshy succulent leaves about two inches long, and near as wide toward the top; flowers on thick succulent peduncles, from the ends of the branches, near a foot long, supporting eight or ten flowers hanging down; tube long, brims turning back; stamina and styles longer than the tube, and hanging down. They flower from July till September. There are two other varieties, viz. Oval-leaved Navelwort, with the stem erect, and leaves ovate-spatulate; and Oblong-leaved Navelwort with an erect stem, and oblong-spatulate leaves.—Native of the Cape. This species, together with the second, fourth, eighth, ninth, tenth, eleventh, twelfth, thirteenth, and sixteenth, are all propagated by planting cuttings in any of the summer months, which ought to be laid in a dry place a fortnight or three weeks after they are taken from the plant before they are planted, that the wounded part may heal over, and the great redundancy of sap evaporate. They thrive best in a soil which is formed of one-third fresh light earth from a pasture, one-third sand, and the other third part lime rubbish and rotten tan, in equal quantities, which should be well mixed, and laid in a heap six or eight months before it be used, turning it over five or six times, that the parts may be the better incorporated. It will also be proper to pass it through a screen, to separate the large stones, clods, &c. from it, before it be used. Having prepared this earth, and the cuttings being also in fit order for planting, you must fill as many halfpenny pots with earth as you have cuttings to plant, then put one cutting in the middle of each pot about two or three inches deep, or more, according to their strength, then give them a little water to settle the earth close about them, and set them in a warm shady place for about a week, to prepare the cuttings for putting forth roots, after which they should be plunged into a moderate hot-bed of tanner's bark, which will greatly facilitate their rooting, but observe to give them air by raising the glasses at all times when the weather will permit, as also to shade the glasses in the heat of the day. In about six weeks they will be rooted, when they must be exposed to the air by degrees. The best method to treat most of these plants, is to place them in an open airy dry glass-case, where they may enjoy as much of the sunshine as possible, and have a free open air; for if they be placed in a common greenhouse among shrubby plants which perspire freely, these succulent plants imbibe too much of the damp air, and thereby becoming too replete with moisture, often cast their leaves, and sometimes even their branches decay, and then the whole plant perishes.

2, Cotyledon Spuria; *Narrow-leaved Navelwort.* Leaves spatulate, obtuse with a point, naked. This has a short, greenish, succulent stalk, seldom more than a span high; flowers on short pedicels, yellow; tubes long; brims reflex, tipped with purple; stamina longer than the tube.

3. Cotyledon Spinosa; *Prickly Navelwort.* Leaves oblong, spiny-mucronate; stem spiked. A perennial plant, a long span in height.—Native of Siberia. This sort requires a very shady situation, for if it be exposed to the sun in summer, the plants will soon decay. It is propagated by offsets, like Houseleek, and requires a strong soil.

4. Cotyledon Hemisphærica; *Thick-leaved Navelwort.* Leaves suborbiculate, dotted with scurf, convex underneath; flowers subsessile. It has a thick succulent stalk, rarely more than a span high, dividing into many branches; leaves short, thick, succulent, greyish, with green spots; flowers greenish, with purple tips, in a terminal spike.

5. Cotyledon Serrata; *Notch-leaved Navelwort.* Leaves oval, crenate; stem spiked. Stalk upright, succulent; flowers purplish, in a loose spike. Biennial.—Native of Candia and Siberia. If this, and the sixth and seventh species, be sown upon a wall, they will thrive better than in the ground, and be less liable to suffer by frost; so that where the seeds scatter themselves on walls or rock-work, the plants thrive better than when they are cultivated.

6. Cotyledon Umbilicus; *Common Navelwort, Kidneywort,* or *Wall Pennywort.* Leaves peltate, crenate; stem almost simple; flowers erect; bractes entire. Of this there are two varieties: Cotyledon Repens, leaves peltate-crenate; stem almost simple; flowers erect; bractes toothed: and Cotyleaon Tuberosa, root tuberous, roundish; the whole plant succulent, having a shining frosted appearance. The first variety is called Yellow Navelwort, and the second, Common Navelwort. Mr. Hudson has distinguished the Yellow from the Common Navelwort, by the circumstances of the flowers being upright, and the bractes toothed in the first; whereas in the second the flowers hang down, and the bractes are entire. Morison remarks, also, that the root of the Yellow Navelwort is not round like a turnip, but oblong and creeping. The Yellow is found in Somersetshire, and the West-Riding of Yorkshire.—Meyrick informs us, that a decoction of the leaves of Navelwort is cooling and diuretic; and that the bruised leaves are a good application for slight burns or scalds. Hill says, that the leaves are cooling, and good against pains, when externally applied: that they are used by outward application in the piles with great success; and that the juice of them taken inwardly operates by urine, and is excellent for stranguries, the gravel, and in inflammations of the liver and spleen.—This plant is a native of Judea, Spain, Portugal, Italy, and Britain, on moist rocks and walls; it is found in an old gravel-pit close to Highberry Barn, near London; at Peterborough, Northampton; and Thorpe, between Peterborough and Wandesford; in the slate-pit rocks at Smithland, in Leicestershire; Church Brampton in Northamptonshire; about Troutbeck, in Westmoreland; at Godstow Bridge, in Oxfordshire; about Malvern, in Worcestershire; Shepton Mallet, in Somersetshire; Carnarvonshire, and Merionethshire, in Wales; in Cornwall, and other western counties; and in some of the Scotch islands. It flowers from June till August.

7. Cotyledon Hispanica; *Spanish Navelwort.* Leaves, oblong, almost columnar; flowers fascicled. Root fibrose; stem simple, columnar, almost erect, a finger's length in height; flowers in a terminating corymb; corollas funnel-shaped, dusky red on the outside, somewhat hairy.—Biennial: native of Africa, the Levant, and Spain.

8. Cotyledon Papillaris. Leaves opposite, columnar, ovate; flowers corymbed.—Native of the Cape.

8. Cotyledon Mamillaris. Leaves alternate, columnar, ovate; flowers alternate, subsessile.—Native of the Cape.

10. Cotyledon Triflora. Leaves ovate, entire; flowers subpeduncled, in threes.—Native of the Cape.

11. Cotyledon Cacalioides. Leaves columnar; flowers corymbed; stem shrubby.—Native of the Cape.

12. Cotyledon Reticulata. Leaves columnar; flowers net-corymbed; stem shrubby.—Native of the Cape.

13. Cotyledon Paniculata. Leaves oblong-ovate, sessile; panicle divaricated, racemed; stem shrubby.—Native of the Cape.

14. Cotyledon Laciniata; *Cut-leaved Navelwort.* Leaves pinnatifid; flowers four-cleft in a panicle. Stem leafy to the very top; the inflorescence panicled; stamina eight short, two long; peduncles terminating, about six inches long, sustaining seven or eight small flowers of a deep yellow colour. It flowers in July and August.—Native of Egypt, and the East Indies. This, and the next species, require a warm stove to preserve them through the winter in England; nor should they be exposed abroad in summer; for if they receive much wet, the stalks are very subject to rot, so that they should constantly remain either in the stove, or in summer should be placed in an airy glass case. They are propagated by cuttings, which should be taken off in summer and planted into small pots, and plunged into a moderate hot-bed, and when they have taken root they should be removed into the stove, and must have but little water, especially in winter

15. Cotyledon Nudicaulis. Leaves spatulate, ovate; flowers four-cleft, in a cyme; stem almost naked at the end.

16. Cotyledon Fascicularis; *Cluster-leaved Navelwort.* Leaves wedge-shaped, fascicled, terminating; trunk thickened branches fleshy, subconic. It flowers from July till September. Root perennial; leaves green; flowers drooping, reflexed.—Native of the Cape.

17. Cotyledon Viscosa. Leaves columnar; racemes terminating, villose, viscid; stem branched. Root annual; corolla bell-shaped, pale yellow, with purple streaks.—Native of the mountains of Spain, near Toledo, and elsewhere.

18. Cotyledon Lanceolata. Leaves lanceolate, serrated towards the tip; panicle villose; flowers quadrifid.—Native of Arabia.

19. Cotyledon Alternans. Lsaves orbiculate-spatulate, quite entire; flowers panicled, smooth, quadrifid. The whole plant smooth.—Native of Arabia.

Coventry Bells. See *Campanula.*

Cow Itch. See *Dolichos.*

Cow Parsley; Cow Weed. See *Chærophyllum.*

Cow Quakes. See *Briza.*

Cowslip. See *Primula.*

Cowslip, Virginian. See *Dodecatheon.*

Crab Tree. See *Malus.*

Crake Berry. See *Empetrum.*

Crambe; a genus of the class Tetradynamia, order Siliquosa. —Generic Character. *Calix:* perianth four-leaved; leaflets ovate, channelled, somewhat spreading, deciduous. *Corolla:* four-petalled, cruciform; petals large, obtuse, broad, spreading; claws erect-spreading, length of the calix. *Stamina:* filamenta six, two the length of the calix, four longer, with a two-cleft tip; antheræ simple, on the exterior branch of the filamenta; a melliferous gland between the corolla and the longer stamina on each side. *Pistil:* germen oblong; style none; stigma thickish. *Pericarp:* berry dry, globose, one-celled, deciduous. *Seed:* single, roundish. Essential Character. *Filamenta:* the four longer two-cleft at the end, one only of the tips bearing an anthera. *Berry:* dry, globose, deciduous.——The species are,

1. Crambe Maritima; *Sea Colewort.* Leaves and stem smooth. The roots are perennial, creep under ground, and propagate it very fast; stems several, proceeding from the crown of the roots, spreading, a foot and half or two feet high; leaves alternate, petioled, elliptic-oblong, or roundish, variously lobed and toothed. The whole plant is smooth; the flowers white, and on long peduncles. There are two varieties, one with jagged leaves, and another with yellowish blossoms. The young leaves, covered up with sand, and blanched, are boiled and eaten as a great delicacy; but when full grown they are said to produce giddiness, although all sorts of cattle eat them.—It is found on the sandy shores and beaches of Denmark, Sweden, and Britain; as, at Rosebeck in Low Furness, Lancashire; near Megavissey, in Cornwall; between Whitstable and the isle of Thanet, near Colchester; about Lyde in Kent, and elsewhere on the Essex and Kentish shores; and in great plenty on the coast of Sussex and Dorsetshire. It flowers in May and June.—In order to cultivate the Sea Colewort, or Sea-cole, prepare the bed intended to receive the seeds as for Asparagus. Sow them in March. Before putting them in the ground, bruise the outer coat without wounding the seeds, which will accelerate their growth. Set three seeds in a triangular form, six inches apart, leaving a space of two feet between the triangles, and bury the seeds about three inches deep. They will make their appearance in four or five months, but should not be cut until the third spring. About the end of November, when the leaves are become rotten, let them be cleared away, and the bed covered with a coat of half-rotten dung. In the second year, about March, when the plants are beginning to perforate the surface, take or rake off lightly the coat of dung, and give the plants full liberty to grow. And in November, or sooner if the leaves be rotten, clear them off, and cover with rotten dung, as in the preceding year. In the third year, immediately after removing the dung in the spring, cover the plants with a thick coat of sand, or coal ashes, or small pebbles. As they grow, continue to keep them from the air until they be cut for use, and in cutting them remove the sand, ashes, or pebbles, and then cover the roots again. Some of them will bear cutting twice or thrice in a season. After the last cutting is finished, remove the cover, and let the plants grow until the leaves are decayed; afterwards clear and cover them for the winter. Some prefer to cover their plants with earthern pans, or large garden pots, putting a tilesherd over the hole, for all air must be excluded in order to have them white.

2. Crambe Orientalis; *Eastern Colewort.* Leaves scabrous; stem smooth; root biennial.—Native of the Levant. This and the next species may be propagated in the same manner as the preceding.

3. Crambe Hispanica; *Spanish Colewort.* Leaves and stem scabrous; root whitish, annual, fusiform; flowers in corymbs; calices yellowish; petals white. It flowers in June, and the seeds ripen in autumn.—Native of Spain and Italy.

4. Crambe Tatarica; *Black Colewort.* Leaves decompound-multifid. Root perennial, fusiform, as thick as the human arm, from two to four feet long, round, brown or blackish on the outside when fresh, within fleshy, white, with a tinge of dirty yellow, of a sweet taste; flowers very numerous, in terminating branched corymbs, smelling strong of honey. It flowers about the middle of April, and the fruits ripen in June, but few of them come to maturity. The roots are eaten, in a scarcity of bread, by the Tartars and Hungarians, and the hares also are very fond of them.—Native of Hungary, Tartary, Moravia, and Bohemia.

5. Crambe Fruticosa; *Shrubby Colewort.* Shrubby: leaves ovate, pinnatifid, serrate, hoary; racemes in a dish-velled dichotomous panicle. It is a stiff shrub, with leafy branches and flowers during most part of the year. Found by Masson in the highest rocks of the island of Madeira.

This and the sixth species are inhabitants of the green-house, and grow freely from cuttings.

6. Crambe Strigosa; *Rough-leaved Shrubby Colewort.* Frutescent: leaves at the base unequal, two-eared, strigose. It is a rugged shrub; stem erect, round, loosely branched, ash-coloured, the height of a man; flowers pedicelled, erect, white.—It flowers in May and June, and was found in the Canary Islands by Masson.

Cranberry. See *Vaccinium.*

Crane's-bill. See *Erodium, Geranium,* and *Pelargonium.*

Cranichis; a genus of the class Gynandria, order Diandria.—Generic Character. *Calix:* spathes wandering; perianth none. *Corolla:* petals five, oblong, subhorizontal; the three outer, (or two upper lateral, and one anterior,) ovate, lanceolate, equal, spreading, the two inner anterior scarcely smaller, more slender, ovate-lanceolate, erect; nectary or upper petal (between the outer superior petals) galeate or vaulted erect, ovate, gibbous, slightly keeled, entire at the tip, often bifid at the base, dotted within, covering and embracing the genitals behind. *Stamina:* antheræ two or four, pedicelled, placed on the apex of the style, turned towards the helmet, with an upright two-celled lid, fastened to the column of the style in front, they are covered at the back. *Pistil:* germen obvate, oblique, inferior; style an erect column, shorter than the helmet, dilated at the tip, obtuse, bearing the stamina at the back; stigma funnel-form between the column of the style and the lid of the stamina. *Pericarp:* capsule oblong or obovate, attenuated at the base, three-cornered, three-keeled, one-celled, opening under the ribs, cohering at the tip and base. *Seeds:* numerous, very small, like sand or saw dust, affixed to a columnar receptacle. Essential Character. *Nectary:* galeated. ——The species, which are all natives of Jamaica, are,

1. Cranichis Aphylla. Bulbs in bundles, columnar, acute; scape almost naked; petals converging.

2. Cranichis Oligantha. Bulbs in bundles, club-shaped; leaves petioled, oblong, acuminate, shining: scape almost naked; spike filiform; petals converging.

3. Cranichis Diphylla. Bulbs in bundles, filiform, naked; leaves petioled, cordate, acuminate, twin; scape almost naked.

4. Granichis Stachyodes. Bulbs in bundles, columnar, obtuse; leaves petioled, ovate, acuminate; scape sheathed; spike columnar; petals revolute.

5. Cranichus Muscosa. Bulbs filiform, in bundles, tomentose; root-leaves petioled, ovate; stem-leaves sheathed; nectary dotted within,

Craniolaria; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth inferior, four-leaved; leaflets linear, short, spreading, permanent; perianth superior, ovate, inflated, large, cut lengthways on one side. *Corolla:* one-petalled, unequal; tube very long, very narrow, border flat, two-lipped, upper lip entire, roundish, like the other divisions, but larger; lower lip three-cleft, divisions roundish, the middle one wider. *Stamina:* filamenta four, length of the tube of the corolla, of which two are somewhat shorter; antheræ simple. *Pistil:* germen ovate; style thread-form, length of the tube of the corolla; stigma thickish, obtuse. *Pericarp:* coriaceous, ovate, sharp on both sides, two-valved, *Seed:* nut woody, depressed, sharpened on both sides, with a bent two parted point, marked on each side with three-toothed furrows, (of the figure of a quadruped's skull,) two-cleft on the sides. Essential Character. *Calix:* double of the flower. *Perianth:* four-leaved. *Spathe:* one-leaved. *Corolla:* tube very long. *Capsule:* the same as in *Martynia.*——The only known species is,

1. Craniolaria Annua. Leaves cordate angled; outer calix two-leaved. This is an annual plant, two feet high; the whole of it villose, and extremely viscid. Branches dichotomous, round, thick; flowers handsome, but without scent, hirsute; calix green; corolla white, with three large dark purple spots at the bottom of the throat; nut black, abiding some days after the pericarp has fallen, not opening, or even separable with considerable force, though it appears to be four-valved. The throat of the corolla, which is clammier than any part of the plant, generally contains great numbers of small flies, which are attracted by the honey juice, and killed by being entangled in it. The root, which is brown without but white within, round, fleshy, thick, has a sweet taste, and is eaten fresh with milk, or preserved with sugar. It is used in the Spanish West Indies for the same purpose as that of Scorzonera is in Europe, and is called by the same name.—Native of New Spain, near Carthagena.

Cranzia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, small, permanent; parts ovate, acute, concave, spreading. *Corolla:* petals five, oblong, sessile, erect, bluntish, channelled, vaulted at top, keeled behind the tip, shrivelling. *Stamina:* filamenta five, broader at the base, three-sided, subulate at the tip, erect, opposite to, and longer than the petals; antheræ roundish, incumbent. *Pistil:* germen subglobular five-lobed, each lobe scored with a longitudinal groove; style cylindric, thicker in the middle, grooved longitudinally, scarcely longer than the germen; stigma three-lobed, obtuse, truncate, capitate. *Pericarp:* berry angular-globose, acuminate, dotted on the outside, one-celled. *Seeds.* three to nine, kidney-form, oblong, full of pits. Essential Character. *Calix:* five parted. *Petals:* five. *Nectary:* none. *Berry:* a berried capsule.——The only species known is,

1. Cranzia Aculeata. A prickly shrub; leaves ternate, with pellucid dots; flowers panicled, axillary; fruit dotted like the Orange.—Native of the East Indies. See *Scopolia.*

Craspedia: a genus of the class Syngenesia, order Polygamia Segregata.—Generic Character. *Calix:* common imbricate; florets in a few depressed bundles; perianth partial none. *Corolla:* compound tubular; corollets hermaphrodite. *Stamina:* filamenta five; antheræ cylindric. *Pericarp:* none. *Seeds:* with a feathered down. *Receptacle:* chaffy. Essential Character. *Calicle;* none. *Calix:* imbricate. *Florets:* in depressed bundles, all hermaphrodite, tubular. *Down:* feathered. *Receptacle:* chaffy.——The only known species is,

1. Craspedia Uniflora.—Native of New Zealand.

Crassula; a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft; divisions lanceolate, channelled, concave, erect, acute, converging into a tube, permanent. *Corolla:* petals five; claws long, linear, straight, converging, connected at the base with the ovate bractes at the border, reflex-expanding; nectaries five, each with a very small emarginate scale, annexed outwardly to the base of the germen. *Stamina:* filamenta five, subulate, length of the tube, inserted into the claws of the corolla; antheræ simple. *Pistil:* germen five, oblong, acuminate, ending in subulate styles the length of the stamina, stigmas obtuse. *Pericarp:* capsules five, oblong, acuminate, straight, compressed, gaping inwards lengthwise. *Seeds:* many, small. Essential Character. *Calix:* one-leafed, five-cleft. *Petals:* five; nectareous scales, five at the base of the germen. *Capsule:* five, many-seeded. ——The species are,

*Shrubby.

1. Crassula Coccinea; *Scarlet-flowered Crassula.* Leaves ovate, plane, cartilaginous-ciliate, connate-sheathing at the base. Stem reddish, jointed, about three feet high, dividing at top into many irregular branches; flowers at the ends of the branches in close umbels; corolla funnel-shaped, erect, with a pretty long tube cut at the top into five parts, of a fine scarlet colour; leaves so closely opposite as to appear to be in two rows. It flowers in July or August.—Native country unknown.——All the hardy species of this genus, are propagated by cuttings, during any of the summer months. These cuttings should be taken off about a fortnight before planting, and laid in a dry place, that the wounded part may heal over; they should then be each planted in a small pot of light sandy earth, and plunged in a moderate hot-bed, allowing them but little water. In about six weeks they will put out roots, and begin to grow, and should have a large share of air admitted to them, that they may be gradually inured to bear the open air, into which they should be taken, and placed in a sheltered situation until autumn, when they must be removed into a dry airy glass case, where they may enjoy as much sun as possible, and be defended from the wet and cold. While they are abroad in dry warm weather, during the summer months, they should be gently watered twice or thrice a week, but should have very little water in winter, lest it rot their stems. They require no artificial heat, but merely to be secured from the frost and wet.

2. Crassula Cymosa; *Cyme-bearing Crassula.* Leaves linear, cartilaginous-ciliate, connate-sheathing; stem shrubby, cyme terminating. Stems a span high, erect, smooth, annual; roots perennial; leaves opposite, smooth, cartilaginous-scaly about the edge.

3. Crassula Flava; *Yellow-flowered Crassula.* Leaves plane, connate-perfoliate, even; flower corymb-panicled, fascicled, but each pedicelled; petals yellow, erect.

4. Crassula Pruinosa; *Frosted-leaved Crassula.* Leaves subulate, frosted scabrous; flowers corymbed; stem shrubby, a foot high, dichomotous; the small branches round, blood-red, covered, as is the whole plant, with the resemblance of a crystalline hoar-frost.

5 Crassula Scabra; *Rugged Crassula.* Leaves opposite, spreading, connate, scabrous, ciliate; stem scabrous backward. Stem weak, succulent, about a foot and a half high, divided at top into small branches; flowers in small clusters at the end of the branches, small and herbaceous: the corolla is so deeply divided, as to make it doubtful whether it be monopetalous or pentapetalous; leaves green, thick, succulent. It flowers in June and July. The stem and leaves are every where rough with whitish bubbles.

6. Crassula Perfoliata; *Perfoliate Crassula.* Leaves lanceolate, sessile, connate, channelled. The stem is upright, rising ten or twelve feet high, if not broken or injured; but it requires support, being slender, and the leaves very weighty: the flowers terminate in large clusters, of a white herbaceous colour, with short tubes, and the brim is cut into five parts; they appear in July. The flower-stalk is thick and succulent, generally turning first downwards, then upwards again, almost in form of a syphon.

7. Crassula Fruticulosa. Leaves opposite, subulate, acute, spreading, somewhat recurved; stem shrubby.

8. Crassula Tetragona; *Square-leaved Crassula.* Leaves subulate, somewhat incurved, obscurely four-cornered, spreading; stem erect, arborescent, rooting. Stem arborescent, two or three feet high, erect, even-surfaced, reddish, branched; leaves longer than the internodes, about the thickness of a goose-quill, acute, green, smooth, opposite in cross pairs so as to form two regular rows; flowers very small, white; in a terminal trifid much-branched cyme; antheræ purplish.

9. Crassula Ramosa; *Branching Crassula.* Leaves subulate, plane above, connate-perfoliate, even-surfaced, spreading very much; peduncles elongated; flowers cymbed. Stem a foot high, filiform, smooth, leafy, branched at bottom; branches alternate, smooth, rufescent; leaves longer than the internodes, entire.

10. Crassula Obvalla. Leaves opposite, sublanceolate, sharp-edged, approximating. Stem three or four inches high, closely branched from the base.

11. Crassula Cultrata; *Sharp-leaved Crassula.* Leaves opposite, obovate, subcultrate, oblique, connate, quite entire. It rises about two feet high, with a weak succulent stalk, which sends out many irregular branches. The stalk which supports the flowers rises from the top of the branches, and is from four to six inches long, putting out several side-branches, which grow erect, and are terminated by large clusters of small greenish flowers, which never expand, but appear in June and July.—If the cuttings of this species be planted in a border of light earth, they will put out roots, and may afterwards be taken up and potted, to be sheltered in the winter.

12. Crassula Cotyledon; *Tree Crassula.* Leaves roundish, fleshy, dotted on the upper surface; stem arboreous. The whole plant is smooth. Stem two feet high, very thick, erect, branched near the top; branches grayish or reddish, cylindrical, fleshy, leafy; flowers numerous, inodorous, at first white, but afterwards rose-coloured.

13. Crassula Pinnata; *Wing-leaved Crassula.* Leaves pinnate; stem arboreous; panicle axillary, shorter than the leaves; flowers red.—Native of China.

**Herbaceous.

14. Crassula Centauroides; *Centaury-flowered Crassula.* Stem dichotomous; leaves sessile, oblong-ovate, cordate, plane; peduncles axillary, one-flowered. Root annual or biennial; stem roundish, brachiate, somewhat pubescent, three or four inches high; flowers yellowish-red. It flowers in May and June.

15. Crassula Dichotoma; *Forked Crassula.* Stem dichotomous; leaves sessile, ovate-oblong, channelled, recurved; peduncles axillary, one-flowered; flowers purple on the outside, golden-coloured within, with a blood-red heart-shaped spot at the bottom of each petal; stem simple, round, pale green, dichotomous at top, scarcely a palm in height, flowering in June and July.

16. Crassula Glomerata; *Clustered Crassula.* Stem dichotomous: leaves lanceolate; the last flowers fascicled. Annual. Stem a palm in height, very slender, round, purplish; leaves opposite, fleshy, sessile, spreading very much, sharpish; flowers sessile; some almost sessile in the forks of the stem; others clustered, two or three together at the ends of the branches; petals white. It flowers in June and July.

17. Crassula Strigosa. Stem dichotomous, erect; leaves obovate, strigose; peduncles one-flowered. Root annual; stem six inches high; leaves opposite, obtuse, marked with lines, quite entire, the lower often on petioles; flowers several together, terminal.

18. Crassula Muscosa. Stem prostrate; leaves opposite, ovate, gibbose, imbricate; flowers sessile, solitary. Root annual; stems filiform, seldom branched, covered with leaves; flowers very small, axillary.

19. Crassula Ciliata. Leaves opposite, oval, flattish, distinct, ciliate; corymbs terminating. Stems short, ending in a few leafy branches, which are elongated into round shoots, a long span in length; leaves obtuse, green, and smooth on

both sides thickly fringed with white hairs; flowers small, yellow, collected into small terminal corymbs. Perennial.

20. Crassula Punctata; *Dotted Crassula.* Leaves opposite, ovate, dotted, ciliate, the lower oblong. Stems divided, eight or nine inches long, terminated by clusters of small white flowers, sitting very close to the top: these appear in spring, and again at the end of summer.

21. Crassula Subulata; *Awl-leaved Crassula.* Leaves subulate, columnar, spreading. Stem annual, covered with truncate ciliate sheaths of leaves; spikes headed, terminating, subsessile, with an imbricate involucre.

22. Crassula Alternifolia; *Alternate-leaved Crassula.* Leaves serrate-toothed, plane, alternate; stem very simple; flowers pendulous, on short peduncles, yellow, solitary; branches two feet long, lax, purple, hairy.

23. Crassula Rubens; *Hardy Annual Crassula.* Leaves scattered, semicylindric, smooth; flowers lateral, solitary, subsessile; branches villose. Stem round, pubescent, decumbent; branches ascending, a finger's length; flowers in the branches among the leaves, scattered, remote, on very short peduncles; nectaries white, very small.—Native of Switzerland and Italy.

24. Crassula Verticillaris; *Whorl-flowered Crassula.* Leaves spreading; flowers verticilled, awned. Root annual; stem the length of a finger, much branched, diffuse; branches opposite; leaves oblong-egg-shaped, sprinkled with minute pimples; flowers axillary, sessile, very minute.—Native of the south of Europe.

25. Crassula Nudicaulis; *Naked-stalked Crassula.* Leaves subulate, radical; stem naked. This species never rises with a stalk, but the leaves come out close to the ground, forming a sort of head; they are succulent, taper, ending in points, and frequently put out roots, out of the centre of which arises the flower-stalk, which is round, and from four inches to a foot in height. The flowers do not open. This species has been long known in the gardens of the curious. It flowers in May, and sometimes again in the latter part of the summer.—Both this and the twenty-sixth species are propagated by the heads or offsets, laid to dry three or four days before they are planted, during any of the summer months.

26. Crassula Orbicularis; *Starry Crassula.* Runners proliferous, determinately leafy; leaves very much spreading; imbricate. This is a very low perennial plant, with open spreading heads, very like those of some sorts of Houseleek, growing on the ends of very slender trailing stalks, produced in plenty on every side of the parent plant, in the same manner as the Childing Marigold. Scape four or five inches long, rising from the centre of the tufts of leaves; flowers small, whitish-red, in several small clusters, disposed in a short branched spike, sweet-scented.

27. Crassula Pellucida. Stem flaccid, creeping; leaves opposite. Stems trailing, slender, succulent, of a reddish colour, and putting out roots at the joints. The flowers appear in small clusters at the end of the branches, and are white, with a blush of purple at the brim: they appear at different times in summer, and are often followed by seeds.

28. Crassula Columnaris. Stem erect; leaves connate, orbiculate, ciliate, hemispherically imbricate; flowers terminating, very copious, white; head hemispherical.—All the foregoing are natives of the Cape, except the 13th, 23d, and 24th species.

****Additional Species.*

29. Crassula Barbata; *Bearded-leaved Crassula.* Leaves connate, orbiculate, bearded, hemispherically imbricate; stem almost naked; flowers in whorls; root biennial.

30. Crassula Argentea; *Silver-leaved Crassula.* Leaves connate, ovate, entire, silvery; stem covered; corymb superdecompound, Root perennial; stem shrubby, branched, a foot or more in height; branches round, smooth; flowers terminating in an ovate corymb,

31. Crassula Vestita. Leaves connate, deltoid, obtuse; stem covered; flowers terminating in a head; root fusiform, creeping, perennial; flowers sessile, yellow.

32. Crassula Corallina. Leaves connate, deltoid, obtuse; stem covered; flowers in an umbel; root fusiform, perennial; flowers from the ends of the branchlets, very many, terminating, upright, peduncled. This and the foregoing resemble Sea Corallines in the structure of the leaves, but are larger.

33. Crassula Retroflexa; *Orange-flowered Crassula.* Leaves connate, oblong, remote; stem simple; cyme compound; pedicels bent back at an angle. Root annual; stem filiform, flexuose-erect, a finger's length, smooth, purple; stem-leaves two or four, ovate-lanceolate, blunt, spreading, entire; flowers erect, in a decompound subdichotomous cyme. There are three varieties: 1. with orange-coloured flowers: 2. with middle-sized yellow flowers: 3. with smaller and more tender white flowers.

34. Crassula Deltoidea; *Deltoid-leaved Crassula.* Leaves connate, deltoid; stem covered; flowers corymbed. Stem herbaceous, fleshy, round, upright, naked at bottom; leafy above, branched.

35. Crassula Cordata. Leaves petioled, cordate; flowers solitary. Root annual; stems herbaceous, weak, gradually more slender, leafy at bottom, branched at top, fleshy, round, flesh-coloured, almost upright, a palm in height; branches opposite, capillary, from spreading upright, smooth; flowers terminating, on capillary peduncles, appearing from May till August.

36. Crassula Montana. Leaves connate, ovate, acute, ciliate; stem almost naked; flowers headed, aggregate. Root-leaves concave, very frequent, patulous, smooth, green, tinged with purple; stem-leaves about three pairs, similar, but smaller and remote; stem filiform, upright, a finger's length, purple.

37. Crassula Mollis; *Fig-marigold-leaved Crassula.* Leaves connate, cylindric-triquetrous, smooth, soft, remote; stem erect, simple; corymb trichotomous, superdecompound. Root perennial; stem frutescent; leaves acute, smooth on every line, subtomentose, patulous; flowers in a subfastigiate corymb. It flowers with us in August, and at the Cape in January.

38. Crassula Crenulata; *Notch-leaved Crassula.* Leaves connate, lanceolate, dotted, and crenulate, remote; corymb decompound. Stem herbaceous, upright, cylindric, leafy, jointed, smooth, green, variegated with white lines, the thickness of a quill, a foot high; flowers white, in a trichotomous fastigiate corymb.

39. Crassula Alpestris; *Large Mountain Crassula.* Leaves connate, ovate, acute, entire, imbricate in four rows; heads peduncled. Stem round, smooth, upright, branched at bottom, before flowering time wholly covered with leaves, a palm high, purple; flowers in several terminating heads, which are larger than peas; peduncles purple.

40. Crassula Pyramidalis. Leaves connate, ovate, obtuse, entire, imbricate in four rows; heads sessile; root perennial; flowers at the ends of the branches, in solitary globular heads, larger than a pea.

41. Crassula Spicata. Leaves connate, linear-subulate; scape almost naked; flowers in whorls. Root-leaves fastigiately opposite, erect, concave above, convex below, smooth,

a finger's length, very much crowded; stem leaves opposite, smaller; stem round, herbaceous, erect, smooth, a span high.

42. Crassula Turrita. Leaves connate, imbricate in four rows, ovate-oblong, acute, ciliate. Root annual; stem herbaceous, weak, erect, round, jointed, covered with leaves, smooth, a palm high; branches, if any, axillary, very short; leaves alternately opposite, thick, smooth, red; lower ones oblong, concave above, convex underneath, upper ones egg-shaped, flat above.

43. Crassula Rupestris; *Rock Crassula.* Leaves connate, ovate, entire, smooth; stem covered; corymb superdecompound. Root perennial, branched; stem round, branched, a palm high; leaves green, with a refuscent margin.

44. Crassula Thyrsiflora. Leaves perfoliate, ovate, ciliate, patulous; corymb compound, spiked. Stem round, herbaceous, upright, a span high, smooth; flowers white, in a thyrse, gradually attenuated, decompound, a palm in length.

45. Crassula Capitella; *Square-spiked Crassula.* Leaves oblong, connate, cartilaginous-ciliate, patulous; flowers in headed whorls; stem round, smooth, erect, a span high, the thickness of a quill, sometimes branched at top; flowers white, in sessile, many-flowered, approximating whorls.

46. Crassula Pubescens. Leaves connate, ovate-subulate, villose; stem branching; flowers corymbed; root perennial; stem filiform, frutescent, erect, red, smooth, a span high; corymb compound, trichotomous.

47. Crassula Cephalophora. Leaves connate, linear, oblong, obtuse, entire; heads lateral, peduncled. Stem round, erect, subtomentose, a span high; heads of flowers opposite, the size of a pea.

48. Crassula Tomentosa. Leaves connate, lanceolate, villose, ciliate; stem almost naked; flowers in whorls: root-leaves bluntish, hirsute, imbricate; stem-leaves three pairs, smaller; stem angular, erect, villose, a foot high.

49. Crassula Cotyledonis; *White-flowered Crassula.* Leaves connate, oblong, tomentose, ciliate; stem almost naked; flowers corymbed, aggregate. Stem herbaceous, slightly four-cornered, leafless, tomentose, the thickness of a quill, a foot high; flowers white, pedicelled; peduncles dichotomous; corymb decompound.

50. Crassula Tecta. Leaves connate-ovate, obtuse, ash-coloured, lamellose; scape naked; flowers sessile. Stem scarcely any; flowers several, minute, collected into a head; leaves subradical, very abundant, imbricate, convex beneath, concave above, thick, covered with an ash-coloured meal, like the scales of a butterfly's wing.

51. Crassula Perforata. Leaves connate-perfoliate, ovate, ciliate, remote; stem erect, thyrse-bearing, round, jointed, gradually attenuated, leafy, smooth, a foot high: peduncles and pedicels filiform.

52. Crassula Expansa; *Awl-leaved Crassula.* Leaves semicylindric, subulate, channelled above, spreading; peduncles axillary, solitary, one-flowered; stems dichotomous. Annual: flowering in June and July.

53. Crassula Lineolata; *Channelled Crassula.* Stem herbaceous; leaves cordate, sessile; peduncles almost terminating, axillary, approximating, umbel-shaped. Biennial: flowering from June to August.

54. Crassula Pulchella; *Reflex-leaved Crassula.* Stem herbaceous, dichotomous; leaves ovate-oblong, fleshy, reflex; flowers in the forks peduncled; peduncles turbinate.—Annual; flowering in July.

55. Crassula Imbricata; *Imbricate Crassula.* Leaves ovate, acute, imbricate in four rows, glossy; flowers axillary, sessile. Shrubby. It flowers in June.

56. Crassula Obliqua; *Oblique-leaved Crassula.* Leaves opposite, ovate, oblique, quite entire, acute, distinct, somewhat cartilaginous at the edge. Stem near three feet high, erect, dividing into many branches; leaves of a lively green, half stem-clasping, Shrubby; flowering in April and May.

57. Crassula Alöoides; *Spike-flowered Crassula.* Leaves ovate, distinct, acute, ciliate; stem simple, somewhat hairy; raceme compound; branches panicle-shaped. Biennial; stem scarcely a span in height; leaves fleshy, smooth, with minute red impressed dots scattered over them, and an inch in length; nectaries yellow; filamenta white. It flowers from June till August.

58. Crassula Sparsa; *Alternate-leaved Crassula.* Leaves alternate, subspatulate, acute, quite entire; raceme compound.—Biennial; flowering in July.

59. Crassula Diffusa. Leaves oblong, attenuated at the base, remotely crenate; peduncles opposite to the leaves, and axillary, solitary.—Annual; flowering in July.

60. Crassula Spathulata; *Crenated Crassula.* Leaves petioled cordate-roundish, acutish, crenate; corymbs panicle-shaped. Shrubby: it flowers in July and August.

61. Crassula Marginalis. Stem shrubby; leaves cordate, perfoliate, acuminate, plane, spreading, dotted within the margin. Shrubby: flowering in July and August.

62. Crassula Lactea; *Snowy Crassula.* Stem shrubby: leaves ovate, attenuated at the base, connate, quite entire, dotted within the margin; cymes panicle-shaped. Shrubby: flowering in September and October.

63. Crassula Cespitosa; *Turfy Crassula.* Leaves globose-ovate, imbricate four ways; cyme three-flowered; flowers sessile. This is a thick annual plant, scarcely three lines in height; stem red; leaves sessile, green with a red dot at the end, becoming red by age. Stamina four or five.—Common near Madrid; flowering in March.

64. Crassula Umbella. Leaves roundish, perfoliate; racemes axillary and terminating; upper peduncles in whorls. Root perennial; the whole plant smooth; stem one or two, annual, round, fleshy, the size of a quill, a span high, upright, subpellucid.—This, and all the foregoing species from 29 inclusive, except the 63d, are natives of the Cape.

Cratægus; a genus of the class Icosandria, order Digynia. —Generic Character. *Calix:* perianth one-leafed, concave, spreading, five-cleft, permanent. *Corolla:* petals five, roundish, concave, sessile, inserted into the calix. *Stamina:* filamenta twenty, subulate, inserted into the calix; antheræ roundish. *Pistil:* germen inferior; styles two, filiform, erect; stigmas headed. *Pericarp:* berry fleshy, roundish, umbilicated. *Seeds:* two, somewhat oblong, distinct, cartilaginous. Essential Character. *Calix:* five-cleft. *Petals:* five. *Berry:* inferior, two-seeded.—The species are,

1. Cratægus Aria; *White Beam Tree.* Unarmed: leaves ovate, gashed, serrate, tomentose underneath. It rises to the height of thirty or forty feet, with a large trunk, dividing into many branches: the young shoots have a brown bark covered with a mealy down; the leaves are two or three inches long, and an inch and a half broad in the middle, of a light green on their upper side, but very white underneath; the flowers are produced at the ends of the branches, in bunches or corymbs, two inches or more in diameter, and very much branched. There is a Swedish variety, which has the leaves deeply sinuated, pinnatifid, and even pinnate; which is never the case with the British species. The wood being very white, hard, tough, and smooth, is used for axle-trees, walking sticks, and the handles of tools; the fruit is eatable when mellowed by the autumnal frosts, and yields an ardent spirit when distilled.—It flowers in May, and is a native of most parts of Europe, being chiefly found on dry hills and open

exposures, in gravel, clay, or chalk, and from the fissures of limestone rock; it is found in all parts of Great Britain, but principally in Derbyshire, where it is called the *wild pear tree*; and at Norwood, near London: it was formerly found upon Hampstead Heath, and, according to Mr. Ray, in Worcestershire and Staffordshire; it is called *red chess-apples*, and *sea-owlers*, in Lancashire and Westmoreland; and *mehlbeerbaum* or *mehlbaum*, by the Germans; *axelbær*, by the Danes; *oxel*, *oxeltræd*, or *oxelbær*, by the Swedes; *alizier*, by the French; *aria* or *sorbo peloso*, by the Italians; and *mostaco*, by the Spaniards.—The White Beam Tree may be propagated by seeds, which should be sown soon after they are ripe, for if they be kept out of the ground till spring, they must remain at least one year in the earth before they can appear. On this account the fruit should be buried in the ground, in the same way as the Haws, Holly-berries, and those other hard seeds which do not come forth in the same year that they are sown; they should also be treated in the same manner as the Haws when they appear, but ought by no means to be headed or cut down. It may also be propagated by layers in the same manner as the Lime and Elm, but these should be laid in the young wood; two years will elapse before they produce sufficient roots to transplant. It may also be raised from cuttings planted in a shady border in autumn, although scarcely an eighth part will ever succeed; so that the trees raised from seeds are greatly to be preferred, because they are more productive, and grow much larger and straighter, than those raised from layers or cuttings. It will take very well by grafting or budding upon Pear-stocks, as the Pear-tree will also take, when engrafted upon it; and though both will sometimes succeed upon the Mespilus, yet in that case they never thrive so well, nor last so long as when they are grafted or budded upon each other. The straight and handsome growth of the tree, the smoothness of the bark, the extreme whiteness on the under surface of the leaves, the handsome bunches of white flowers on thin mealy peduncles, which are succeeded by red berries, all conspire to render this desirable for mixing among other ornamental plants, especially as it bears lopping, and permits the grass to grow under it.

2. Cratægus Torminalis; *Wild Service* or *Sorb*; or *Maple-leaved Service*. Unarmed: leaves smooth, seven-angled, the lowest lobes divaricate; calices villose. It rises to the height of forty or fifty feet, with a large trunk, spreading at the top into many branches, so as to form a large head: the young branches are covered with a purplish bark, marked with white spots; leaves alternate, on longish footstalks, cut into many acute angles, like those of the Maple-tree, near four inches long, bright green above, woolly underneath; the flowers are produced in large bunches towards the end of the branches; they are white, and shaped like those of the Pear-tree, but smaller and on longer peduncles; they appear in May, and are succeeded by roundish compressed fruit, shaped like common Haws, but larger, ripening in autumn, when they are of a brown colour, and when kept till soft, in the same manner as Medlars, have a very agreeable acid flavour in their taste. The fruit is sold in the London markets in autumn; and the wood being very hard and white, is very serviceable in mill-work.—It is a native of Denmark, Germany, Austria, Switzerland, Burgundy, and Piedmont. It is found in many parts of England, and principally upon strong soils, especially in Caen Wood, and Bishop's Wood, near Hampstead; in Hertfordshire, &c. There is an Alpine variety, about twenty feet high, with ovate-oblong leaves, slightly serrated; the flowers in small bunches; and the fruit dark-brown, about the size of the common Haw; it is a native of Monte Baldo, and other mountains of Italy. The Wild Service tree may be propagated in the same way as the first species, (which see) but requires a strong soil.

3. Cratægus Coccinea; *Great American Hawthorn*. Thorny: leaves cordate-ovate, gash-angled, smooth; petioles and calices glandular; flowers five-styled. It rises to the height of twenty feet in England, with a large upright trunk, dividing many strong, irregular, smooth branches; with large leaves, bending backwards; the flowers come out from the sides of the branches in large clusters, and as they are large, make a noble show in the month of May: they are also succeeded by large pear-shaped fruit of a bright scarlet colour, which ripens in September.—Native of Virginia and Canada. All the sorts of American Hawthorn may be raised from seeds sown in autumn, in the same manner as the first sort, or as the common Hawthorn; but as these seeds can only be procured from America, and frequently do not arrive here till spring, the fruit may be buried in the ground till the autumn following, when they may be taken up and sown in drills, taking care to cover them, so that birds cannot destroy them. The plants will come up in the following spring, and should be moderately watered twice or thrice a week in dry weather; and if not often weeded, will soon be destroyed. In the second spring they should be planted out, before they begin to shoot, into a nursery-bed, where they may grow two years to get strength, and afterwards be transplanted wherever they are to remain. In a light moist soil their roots will extend to a considerable distance, and put up many shoots, which may be taken off in the spring, and thereby may be increased; these will also take, if grafted on the Pear; and the young branches also will take root if laid down.—The several kinds of Hawthorn are generally planted among flowering shrubs of the same growth, where they add to the variety. Although the largest and most beautiful plants can only be raised from seed, the varieties of the Hawthorn are continued by budding upon stocks of the common sort; which is also the method that is commonly adopted for several of the species. See *Inoculating*.

4. Cratægus Viridis; *Green-leaved Virginian Hawthorn*. Unarmed: leaves lanceolate-ovate, subtrilobate, serrate, smooth.—Native of North America. Probably a variety of the foregoing.

5. Cratægus Punctata; *Great-fruited Hawthorn*. Thorny, or unarmed: leaves obovate, wedge-form, smooth, serrate; calices subvillose; leaflets subulate, entire; fruit orange-red dotted with brown, whitish within; stones very hard.—Native of America. There is a variety with red fruit, and another with yellow.

6. Cratægus Crus Galli; *Cockspur Hawthorn*. Thorny: leaves subsessile, glittering, coriaceous; calicine leaflets lanceolate, subserrate; flowers two-styled. Stem strong, ten or twelve feet high; bark of the stem rough, and of the branches smooth and reddish; flowers axillary, in roundish clusters, generally two together; petals white, with a blush of red, they appear in June; the fruit is globular, and of a fine red colour.—Native of North America. There are three varieties of this species, differing in the shape of their leaves.

7. Cratægus Tomentosa; *Woolly-leaved Hawthorn*. Branches thorny; leaves wedge-form, ovate, serrate, somewhat angular, villose underneath. It has a slender shrubby stem, about six or seven feet high, sending out many irregular branches armed with long slender thorns. It flowers at the beginning of June, and ripens fruit very late in the autumn.—Native of North America. There is a variety of this species, which has longer and whiter leaves, larger flowers and fruit, but no thorns; which is called *Carolina Hawthorn*.

8. Cratægus Indica; *Indian Hawthorn.* Unarmed: leaves lanceolate, serrate; corymbs scaly. This is a large thornless tree; the wood is heavy, reddish, and so tough that it is well adapted for oars, and other purposes where elasticity is required.—Native of the East Indies and Cochin-china,

9. Cratægus Oxycantha; *Common Hawthorn,* or *White Thorn.* Leaves obtuse, trifid, serrate; styles two, sometimes three or four; seeds usually two, but sometimes one, three, or four. The varieties are, Cratægus Vulgaris, or Common; Cratægus Major, or Great-fruited; Cratægus Præcox, or Glastonbury; Cratægus Plena, or Double-flowered: Cratægus Flava, or Yellow-berried; Cratægus Alba, or white berried; and Cratægus Incisa, or Fine-leaved. The common Hawthorn and its varieties usually flower in May; but the Glastonbury variety usually flowers in January or February, so that it *may happen* to be in flower on *Christmas-day.* The great-fruited variety has an exceedingly large, oblong, smooth, and bright scarlet-coloured fruit. The buds of the yellow variety, are of a fine yellow colour, and are succeeded by a golden-coloured fruit, which it continues to bear throughout the winter, and was originally imported from Virginia. The white variety, is but a paltry tree. The double-flowered is one of the greatest ornaments of which our shrubberies can boast, and may be kept down to any size; its beautiful flowers come out in large bunches in May, they are of a pure white, and often appear entirely to cover the shrub; they change at length to a faint red, and are frequently succeeded by a small imperfect fruit. Few trees can surpass the Hawthorn in beauty, during the season when it is in bloom; it is therefore well adapted for ornamental plantations, and particularly proper for standing single in lawns or parks, where it will grow to the height of twenty or even thirty feet, and sometimes measure from five to nine feet in the circumference of its trunk. The wood is tough, and may be employed for axle-trees, and the handles of tools. The root of an old thorn, says Evelyn, is excellent both for boxes and combs; when planted singly, it rises with a stem big enough for the use of the turner, and the wood is scarcely inferior to Box. The common Hawthorn flowers and dried fruit are said, by Hill, to be used in medicine as diuretics, and serviceable in all gravelly complaints; but are not much esteemed. A decoction of the bark affords a yellow die, which, with the addition of copperas, is used for dying black. The berries are the winter food of the thrush, and of many other birds; and hogs and deer are also very partial to them. The peasants of many countries are known to eat them, and the Kamtschadales even make a wine from them. In addition to the name of *white thorn,* the English call it *May-bush,* and *quick,* when used for hedges, for which purpose it surpasses all other live fences; (see *Hedge* and *Quick.*) The Germans call it *hagedorn;* the Danes *hagetorn;* and the Swedes *hagtorn;* whence the English also derive the name *hawthorn,* and apply the contraction *haws* to the fruit; in France it is known by the appellation of *aubepine,* or *epine blanche;* in Italy by the term *bianco spino;* and in Spain, *espino blanco:* all of which signify *white thorn.*——In order to raise the White Thorn, the most usual practice is, to sow the berries either in October or November, or else very early in the spring, either broadcast or in drills, in beds of about four feet wide, with alleys of eighteen inches in width between them, and covering the berries an inch deep with fresh light mould. Thus, though most of them should not come up until the second spring, yet they will have the continual benefit of the sun, air, and rain, all of which, it may be presumed, will make them come up better, and shoot stronger, than when they lie buried in a heap during more than a year. The following plan of Mr. Boutcher's is subjoined, as containing some useful directions on this subject. The haws should remain on the bushes till the end of October, when they become blackish; if you do not sow them immediately as soon as they are gathered, spread them on an airy floor for five or six weeks, till the seeds are dry and firm, then plunge them into water, and rub off all the pulp between your hands with the assistance of a little sand: spread them again on the loft for three or four days till quite dry, mix them with a fine loose sandy mould, in quantity not less than the bulk of the seeds, and lay them in a heap against a south wall, covering them over three or four inches deep with soil, of the same quality as that with which they are mixed. If you do not sow them in the first, let them remain in this situation till the second spring, as the seeds, when sown, will not appear in the first year. That the berries may be as equally mixed with the soil as possible, turn over the heaps once in two months, blending the covering with the seeds, and at every turning give them a fresh covering in the winter months. They must be sown in the first dry weather in February or the beginning of March: let them be separated from the loose soil in which they were mixed with a wire sieve: choose good fresh dry well-prepared land; divide it into beds of three feet and a half broad, with alleys of eighteen inches; push over a little of the surface of the beds into the alleys; sow them with great care, so that they may not rise in clusters, and that the plants may in general be at least an inch asunder; clap them into the earth with the back of a spade, draw the soil back from the alleys, and cover the seeds only half an inch deep, In the succeeding spring, draw out all the largest plants, wherever they rise too close together; shorten their roots, and lay them in lines a foot asunder, and four inches distant in the rows, having cut off so much of their tops as to leave them about two inches above ground; and there let them remain for two years. Those who are not straitened for ground may drop the seeds in drills that are eight inches asunder, and double that distance between each pair of drills; they also may be drawn off, wherever too thickly set, in the following spring, and the rest cut with a spade five or six inches below ground, to remain another year.—Thorns also may be propagated to much advantage, and two years' time be saved, by cuttings from their roots; for this purpose, at removing a nursery of these plants, cut off all unnecessary roots that are straight and clean, and only of one or two years' growth; let them not exceed four or five inches, and either early in October or February lay them in drills cut out by the spade, with their tops a quarter of an inch below the surface; let these drills be a foot asunder, and lay the roots three or four inches separate: in the next spring cut them within three or four inches of the surface, for they will be in general about eighteen inches high, and well rooted, at two years old, In whatever way thorns are propagated, in October they should be planted out in rows, at least eight inches asunder, and six inches in the row, their roots having been shortened, and their tops cut off so as to stand four or five inches above ground: in this nursery they should remain no more than two years, the ground being dug in spring and autumn, and the plants cut in the first season, an inch or two above the former cutting: when again removed, they should be placed in rows four feet asunder, and two feet distant in the row; they should also be cut to the height of a foot or fourteen inches; and about the end of June clipped straight in the sides, and then in the tops. Having stood a year longer, they should be again cut to the height of thirty inches, and clipped as before. At Midsummer in the third season they may be cut at about three feet and a half high, and may be planted in the

succeeding autumn for handsome hedges at four feet high. If plants of a larger size be desired, they must be removed once more, and will be six feet high in three years. Quick thus removed, and planted out at large, will make an almost immediate fence, and be a great saving, wherever fencing is expensive.

10. Cratægus Monogynia; *Single-styled Cratægus.* Leaves subtrifid, acute; lobes spreading, quite entire below; flowers one-styled. Trunk ascending, round, very much branched; bark smooth. This is supposed by some to be our English White-thorn described above: but as Linneus thought otherwise, and Mr. Lyons observes, that the style, though simple at first, is afterwards divided into two; and Dr. Withering also observed two styles in one plant; their opinion has been preferred before that of their opponents.

11. Cratægus Azarolus; *Parsley-leaved Hawthorn*, or *Azarole.* Leaves obtuse, subtrifid, somewhat toothed. It has a strong stem twenty feet high, having many strong irregular branches, covered with a light coloured bark. The flowers come out in small clusters from the side of the branches, and are like those of the common Hawthorn, but much larger; as is also the fruit, which, when fully ripe, has an agreeable acid taste, and is much esteemed.—Native of the south of Europe, and of the Levant.

12. Cratægus Maura. Leaves oblong, toothed at the end; bark ash-coloured, no spines; flowers in branched corymbs, resembling those of the common Hawthorn.—Native of Barbary.

13. Cratægus Villosa. Leaves oblong, acuminate, smooth, serrate; flowers in a compound umbel; styles two; fruit villose.—Native of Japan.

14. Cratægus Lævis. Leaves ovate, acuminate, smooth, serrate; flowers in an almost simple umbel. Stem smooth; flowers terminating, spreading very much; peduncles capillary, callous, an inch long; perianth only half the length of corolla.—Native of Japan.

15. Cratægus Glabra. Leaves oblong, acute, smooth, serrate; flowers in a compound panicle; branches and branchlets subverticilled, striated, smooth, spreading.—Native of Japan.

16. Cratægus Cordata; *Maple-leaved Hawthorn.* Thorny: leaves cordate-ovate, gash-angled, smooth; petioles and calices without glands; flowers five-styled. It rises with a strong woody stem about four feet high, sending out many spreading branches, which incline to a horizontal position; flowers smaller than those of the Common Hawthorn; fruit an oblate spheroid, scarlet, the size of a red currant. It flowers the latest of the genus.—Native of North America.

17. Cratægus Pyrifolia. Thorny, or unarmed: leaves ovate, elliptic, gash-serrate, somewhat plaited and hirt; calices a little villose; leaflets linear-lanceolate, serrate; flowers three-styled.—Native of North America.

18. Cratægus Elliptica, Thorny: leaves elliptic, unequally serrate, smooth; petioles and calices glandular; berries globular, five-seeded.—Native of North America.

19. Cratægus Glandulosa; *Hollow-leaved Hawthorn.* Thorny: leaves obovate-wedge-form, angular, smooth, glittering; petioles, stipules, and calices glandular; berries oval, five-seeded. It has very stout thorns: it flowers in May and June.—Native of North America.

20. Cratægus Flava; *Yellow Pear-berried Hawthorn.* Thorny: leaves obovate-wedge-form, angular, smooth, glittering; petioles, stipules, and calices glandular; berries turbinate, four-seeded. There are often small leaves on the thorns, which are slender, and a little bent in at the end.—It flowers in May; and is a native of North America.

21. Cratægus Parviflora; *Gooseberry-leaved Hawthorn.* Thorny: leaves, wedge-form-ovate, gashed serrate; calicine leaflets gashed, the length of the fruit; flowers five-styled. It is a humble shrub, seldom rising more than six or seven feet high, sending out a great number of slender branches, interwoven and armed with very long, slender, sharp thorns; the flowers are produced at the end of the branches; the fruit is smaller than that of the common Hawthorn, and is of an herbaceous yellow colour when ripe. It flowers in May and June; and is generally known by the name of Lord Islay's Hawthorn.—Native of America.

22. Cratægus Sanguinea. Thorny: leaves seven-angled, serrate, produced at the base; petioles submarginate. Height often extending to two or three fathoms; trunk the thickness of the human arm or thigh, very much branched from the bottom, and spreading; flowers in corymbs at the ends of all the branchlets, and so abundant that the tree is very handsome when in flower and fruit. It flowers at the end of May. The fruit is large, very red, subglobular, two-celled, two or four-seeded, and ripens at the end of August, and after the first frosts becomes very eatable.—Native of Siberia, probably the same as that of Kamtschatka.

23. Cratægus Bibas. Unarmed: leaves lanceolate, serrate, tomentose; racemes terminating, hispid. It is a middle-sized tree, with spreading branches; leaves unequally serrate, scattered, on short petioles; flowers white, in large bunches; styles two; fruit middle-sized, pear-shaped, yellow, lanuginose, of a sweet acid flavour, juicy, eatable; the skin thin; the pulp white, one celled, containing two or three seeds.—Cultivated in abundance about Macao and Canton, in China.

Crateva; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-cleft, deciduous, flat at the base; divisions spreading, ovate unequal. *Corolla:* petals four, oblong, bent down to the same side; claws slender, length of the calix, inserted into the divisions. *Stamina:* filamenta sixteen, or more, bristle-form, declining to the side opposite the petals, shorter than the corolla; antheræ erect, oblong. *Pistil:* germen on a very long filiform pedicel, ovate; style none; stigma sessile, headed. *Pericarp:* fleshy, globose, very large, pedicelled, one-celled, two-valved. *Seeds:* many, roundish, emarginate, nestling. Essential Character. *Calix:* four-cleft. *Corolla:* three-petalled. *Berry:* one-celled, many-seeded.—All the plants of this genus are propagated by seeds, which must be procured from the places where they naturally grow, and must be sown upon a good hot-bed in the spring. When the plants are fit to remove, let them be transplanted each into a small pot of light kitchen-garden earth, and plunged into a hot-bed of tanner's bark, shading them every day from the sun, until they have taken fresh root, and watering them sparingly in winter. For further particulars, see the directions under the genus *Annona*, which equally relate to these plants.——The species are,

1. Crateva Gynandra; *Thin-leaved Crateva.* Unarmed: leaflets ovate, quite entire; flowers gynandrous; trunk more than twelve feet high; branches spreading, round, unequal; leaves alternate; flowers rather large, purple. It has a burning taste, and nauseous smell.—It flowers in May and June; and is a native of Jamaica, in dry coppices near the sea.

2. Crateva Tapia; *Smooth Crateva*, or *Garlic Pear.* Unarmed: leaflets ovate, acuminate; petals ovate-roundish, blunt germina globular. Trunk very large, rising to more than thirty feet high; leaves all smooth, of a light green on the upper side, but pale underneath, and their edges entire. The fruit is about the size of an orange, having a hard brown shell or

cover, inclosing a mealy pulp, filled with kidney-shaped seeds: it has a strong smell of garlic, which is communicated to the animals that feed upon it, and to which the tree owes its name.—Native of the West Indies.

3. Crateva Marmelos; *Prickly Crateva.* Thorny: leaves serrate. This species grow to a great height, with a large trunk, sending out many long branches, garnished with trifoliate leaves; the leaflets are oblong, entire, and end in acute points, between which the branches are armed with long sharp thorns, which come out by pairs, and spread asunder; the flowers are produced in small clusters from the side of the branches, five or seven standing upon a common branching peduncle; they have each five acute petals, which are reflex, and are sweet-scented, green on the outside, and whitish within; after the flower is past, the germen swells to a large fruit the size of an orange, having a hard shell, which incloses a fleshy viscous pulp, of a yellowish colour, having many oblong flat seeds situated within it. The pulp of this fruit has an agreeable flavour when ripe, and is frequently eaten in India; where the fruit is served up, mixed with sugar and orange, and accounted one of their greatest delicacies.—Native of the East Indies.

4. Cratega Religiosa. leaflets and petals lanceolate-elliptic, acute at both ends. Trunk of a middling height, upright; branches spreading, round, ascending, covered with an olive bark dotted with white; common petioles spreading, semicylindric, smooth and even, a hand in length; partial petioles very short; cyme terminating, subcorymbed, and sometimes solitary flowers from the axils of the upper leaves; flowers an inch and half in diameter, greenish-white, with red stamina; fruit globular, the size of a small plum.—Native of the East Indies, and the Society Isles. In the latter it is planted at the burial places of the natives, and supposed to be sacred to their idols. In Otaheite it is called *pura-au,* or *purataruru*; and the fruit of it is eaten by the natives.

5. Crateva Obovata. Leaflets and petals obovate; germen oblong; leaves and leaflets petioled; peduncle heaped at the top; style longer than the filamenta. In other respects it has the habits of the rest.—Native of Madagascar.

Crepis; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common double; exterior very short, spreading, deciduous; interior ovate, simple, furrowed, permanent; scales linear, converging. *Corolla:* compound, imbricate, uniform; corollets hermaphrodite, very many, equal; proper, one-petalled, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta, five capillary, very short; antheræ cylindric, tubular. *Pistil:* germen somewhat ovate; style filiform, length of the stamina: stigmas two, reflex. *Pericarp:* none; calix roundish. *Seed:* solitary, oblong, fusiform, sometimes columnar; down hairy, generally stipitate. *Receptacle:* naked, with cells or pits. Essential Character. *Calix:* calicled with deciduous scales. *Down:* hairy, stipitate. *Receptacle:* naked.—Some of these plants are weeds in gardens and pastures, and but few of them are cultivated. They may all easily be propagated by sowing their seeds in the spring, where they are designed to remain, so that if six or eight seeds be sown in each patch, and when the plants come up they may be reduced to three or four, and if these be kept clean from weeds, they will require no other culture, except putting down small sticks, to which the stalks are to be fastened in order to prevent their being broken by winds or rains. If the seeds be sown in autumn, or permitted to scatter, the plants will come up, and live through the winter without any shelter, and will flower early in the spring.——The species are,

1. Crepis Pygmæa. Leaves ovate, entire, villose, petioled; stem procumbent. Height not more than six inches; flowers yellow.—Native of the mountains of Italy.

2. Crepis Bursifolia. Leaves pinnatifid, crenate; scape naked, few-flowered. Stems a span in height, having on them a few short laciniate leaves.—Perennial: found in the county of Nice; and near Palermo; and in other parts of Sicily.

3. Crepis Barbata; *Spanish* or *Bearded Crepis,* or *Purple-eyed Succory Hawk-weed.* Involucres longer than the calix; scales setaceous, scattered. This is an annual, putting out leaves next the root, nine inches in length, and almost two broad in the middle, of a light green colour; stems a foot and a half high, dividing into many branches, and having leaves with the same form as the others, but smaller and sessile. The flowers are produced at the ends of the branches; they are yellow, and purplish at the base, but the florets in the disk are almost entirely of a dark purple. There are two varieties of this species, one in which the flowers are of a deep yellow, and the other in which they are of a sulphur colour, inclining to white, but both have a very dark purple bottom or middle, and make a pretty appearance in the flower garden, where they come forth in June and July, and ripen seeds in autumn.—Native of the South of Europe.

4. Crepis Vesicaria. Involucres scariose, the length of the calix; flowers corymbed; bractes ovate. Root thick; stem short; flowers yellow.—Native of Apulia.

5. Crepis Alpina. Involucres scariose, the length of the calix; flowers solitary. Annual: stems strong, upright, two feet high, dividing into three or four erect branches, terminated by pale-coloured flowers, inclosed in a strong hairy calix, which contracts close towards the top.—It flowers in June, ripens seed in autumn; and is a native of the Alps.

6. Crepis Rubra; *Purple Crepis.* Leaves stem-clasping, lyrate-runcinate. Root annual; root-leaves many, lanceolate deeply jagged; from these arise the stalks, which are a foot and a half high, dividing into many slender branches, each terminated by one large red-coloured flower. The calix nods before the flower opens.—Native of Italy.

7. Crepis Fœtida; *Stinking Crepis,* or *Succory-Hawk-weed.* Leaves runcinate-pinnate, rough with hairs; petioles toothed. Stems a foot or eighteen inches in height, the central one erect, the others diffuse, branched, leafy; flowers yellow, purple on the outside, and nodding before they open. Villars remarks, that this plant varies in size, form, colour, and smell; but that in all the varieties the root is fusiform; the stem rough, channelled, and branched; the leaves ash-coloured, and more or less indented at the base; that it has generally the smell of bitter almonds, especially the bruised calix; in which Linneus and Tournefort coincide: while Haller more justly attributes a bituminous scent to it; and Ray informs us, that both it and the preceding species smell strongly of castor; and Martyn, to complete this discord of opinion, declares, that to him the flowers always seemed to have the smell of opium. It is biennial, (although Linneus calls it annual,) and flowers from June to August. Petiver distinguishes it by the name of *Castor Hawkweed.*—Native of Germany, Switzerland, Austria, France, Piedmont; and of England, near Cambridge, on Banstead Downs in Surry, near Charlton, Northfleet, and Greenhithe, in Kent, and near Swaffham in Norfolk.

8. Crepis Aspera. Leaves toothed, lower ovate-eared, upper sagittate; stiff bristles scattered over the stem.—Native of Sicily, the Levant, and Palestine.

9. Crepis Rhagadioloides. Leaves entire, stem clasping, oblong; interior calices torulose-jointed, hispid; leaflets boat-form. Annual: stem half a foot high, erect, striated, scabrous, branched; corolla yellow, purplish on the outside.

10. Crepis Sibirica. Leaves stem-clasping, oblong, wrinkled, toothed at bottom; stem rough with hairs; calices ciliate on the keel. Perennial: stem stiff, two feet high, straited hispid. It flowers in July and August.—Native of Siberia and Switzerland.

11. Crepis Tectorum; *Smooth Crepis.* Leaves lanceolate-runcinate, sessile, even, the lower toothed. This is a very common plant, of an ash-coloured green; stem angular, furrowed, with branches as long as the stem; root annual; leaves very variable, smooth, or slightly hirsute; flowers yellow, in a kind of loose corymb. The flowers, heads, and seeds of this plant, are smaller than most English Hawkweeds. The flowers expand about four in the morning, and close about noon. Our old writers call it *Yellow Succory, Succory-dandelion,* and *Succory-hawkweed.* Petiver calls it *Hawk-beard*; and Dr. Withering applies that name to the whole genus.—It flowers from June till September; and is a native of Europe, in pastures, by way-sides, on banks, and on walls.

12. Crepis Biennis; *Rough Succory-Hawkweed.* Leaves runcinate-pinnatifid, scabrous, toothed at the base above; calices muricate. Stem angular, scabrous, from four to six feet high, brittle; flowering branches divaricate, bearing several flowers on separate peduncles. The flowers close between three and four in the afternoon.—Native of Scania, Switzerland, Italy, Germany, and of England, where it is found in calcareous soils, near Northfleet, and between Sittingbourne and Rochester, in Kent, and about Linton in Cambridgeshire. It is biennial; flowering in July and August.

13. Crepis Virens. Leaves runcinate, smooth, stem-clasping; calices subtomentose; root-leaves lanceolate, obtuse, smooth, somewhat toothed; flowers small; and yellow.—Native of France, Switzerland, Silesia, and Italy.

14. Crepis Dioscorides. Root-leaves runcinate; stem-leaves hastate; calices subtomentose. Annual; stem a foot high, somewhat angular, smooth, and even; branches but few, round, and spreading; corolla yellow, purple beneath before it expands.—It flowers in June; and is a native of France, the Palatinate, Silesia, Italy, and Siberia.

15. Crepis Pulchra; *Small-flowered Crepis.* Leaves sagittate, toothletted; stem panicled; flowers pyramidal, smooth. It is an annual; flowering from July till August.—Native of France and Italy.

16. Crepis Neglecta. Leaves stem-clasping, runcinate, toothed, somewhat hairy; stem panicled; calices with one or two spines on each leaflet. Stem a foot high, branched, somewhat hairy, erect; flowers small, yellow.—Native of Italy.

17. Crepis Albida; *Pale-flowered Crepis.* Leaves runcinate-toothed, somewhat hoary; peduncles naked, one flowered; calicine scales whitish at the edge. Perennial: stems, several, twice or thrice dichotomous, with a sessile leaf at each division of the branches; root-leaves elliptic, gradually lessening into a leafy petiole, thickish, toothed, seldom quite entire; stem-leaves half embracing, rougher, sharper, with a more evident prickle; flowers large, pale yellow, or whitish, composed of a great number of florets.—Native of the south of France and Italy.

18. Crepis Rigens; *Bristly-leaved Crepis.* Leaves oblong, doubly serrate, bristly; stem naked, branched; flowers panicled; calices cylindric, smooth; down sessile.—It flowers in July and August; is perennial; and a native of the Azores, or Western Isles. This, and the two following, require the shelter of a green-house.

19. Crepis Filiformis; *Fine-leaved Crepis.* Leaves linear, filiform, very entire, smooth; down sessile; biennial, flowering in June, and Native of Madeira.

20. Crepis Succulenta; *Fleshy-leaved Crepis.* Leaves pinnatifid, or toothed, somewhat fleshy, even, calices somewhat tomentose; down sessile.—It is annual, flowering in August and September; and native of Madeira.

Crescentia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, two-parted, short, deciduous; divisions roundish, concave, obtuse, equal. *Corolla:* one-petalled, unequal; tube gibbous, crooked, torulose; border erect, five-cleft, divisions unequal, tooth-sinuated. *Stamina:* filamenta four, subulate, length of the corolla, spreading, of which two are a little shorter; antheræ incumbent, obtuse, twin. *Pistil:* germen pedicelled, ovate; style filiform, length of the corolla; stigma headed. *Pericarp:* berry oval, hard, one-celled. *Seeds:* very many, subcordate, nestling, two-celled. Essential Character. *Calix:* two-parted, equal. *Corolla:* gibbous. *Berry:* pedicelled, one-celled, many-seeded. *Seeds,* two-celled.—These trees require a warm stove, to preserve them in England. They are easily propagated by seed, which must be procured from the countries where they naturally grow; the best way of doing which, is to import the entire fruit when fully ripe. They must be sown on a good bot-bed in the spring, and when fit to remove should be each transplanted into a small pot filled with light sandy earth, and plunged into a hot bed of tanner's bark, where they must be shaded from the sun until they have taken fresh root, and be afterwards treated in the same manner as other plants which are natives of the same countries. They should be gently watered two or three times a week in summer, according to the warmth of the season, and must have a large share of air in hot weather. In winter they should be placed in the tan-bed of the bark-stove, and should have but little water during that season. With this management the plants will make great progress; and, their leaves being of a fine green, they make a pretty variety in the stove. The two first species have been long cultivated in England, but have not yet flowered. ——The species are,

1. Crescentia Cujete; *Narrow-leaved Calabash Tree.* Leaves wedge-lanceolate, crowded. This tree grows to the height of about twenty feet, and is easily distinguished from all others by its peculiar appearance. It divides at top into very long, thick, scarcely subdivided branches, stretching out almost horizontally, adorned with leaves disposed in bundles or tufts, scatteringly, at irregular distances. The wood is light and pliant; the bark unequal, ash-coloured, or whitish; the leaves are four or five inches long, bright green, and veined; flower large, sometimes entirely green, but often differently variegated, with purple, red, and yellow; it does not wither, but becomes putrid, and in that state exhales a cadaverous, very nauseous, and intolerable stench. The form of the fruit varies on different trees, being spherical, spheroidal, or shaped like a bottle; and differing in size, from two inches to a foot in diameter: but it must be confessed, that if these be only varieties, they are very constant. The fruit is covered with a thin skin, of a greenish yellow colour when ripe; and under this is a hard, thin, woody shell, inclosing a pale yellowish soft pulp, of a tart unsavoury flavour, surrounding a great number of flat seeds. The shells, when cleansed of their pulp, deprived of the outer skin, and dried, are used in the West Indies for drinking-cups, tipped with silver, and with handles fastened to the neck. The long small fruit is formed into spoons and ladles; that which is round is cut through the middle, and used as chocolate cups, and other domestic utensils. They are frequently large enough to hold a gallon, and are so thin and close, that they serve to boil water as well as an earthern pot, and will bear the fire equally well. The thicker parts are manufactured

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 385.

CRINUM ___ *Small American Crinum.*

P. 386.

F. Billiard sculp.

CROCUS OFFICINALIS ___ *Saffron.*

into button-moulds throughout the colonies. The Caribs engrave the outside of these shells with a variety of grotesque figures, which they sometimes colour black or red. They also eat the pulp occasionally, but it is not esteemed to be either agreeable or wholesome, although much used as a poultice, and yielding a syrup, which is greatly esteemed by the natives in inward bruises, contusions, and disorders of the breast. The wood being very tough and flexile, is well adapted for the coach-maker, and is frequently used for making saddles, stools, and other furniture. In times of scarcity, the leaves and branches are eaten by cattle, as well as the pulp of the fruit.—Native of the low lands of Jamaica, the Leeward Islands, and the neighbouring continent.

2. Crescentia Cucurbitina; *Broad leaved Calabash Tree.* Leaves egg-shaped, petioled, alternate; fruit egg-shaped, acuminate; seeds orbicular, compressed. A middle-sized tree, with a large umbrageous head, nearly upright branches, and a trunk thicker than the human body. Leaves six inches long and three broad, shining, ending in a sharp point, on short petioles; flowers whiter than those of the preceding; fruit nearly the shape of a citron, but larger, with a thin brittle shell and whitish pulp.—Native of St. Domingo.

3. Crescentia Jasminoides. Leaves wedge-shaped, obtuse, emarginate; flowers funnel-shaped; border equal, five-cleft. A shrub, six or seven feet high, with stem the thickness of a finger; flowers resembling the common Jasmine, white, with a mixture of red; fruit yellowish-green, oval, obtuse, about the consistence of a soft pear, and containing a pulp not unlike Cassia in taste and colour.—Native of the Bahamas.

Cress. See *Cardamine.*

Cress, Bastard. See *Thlaspi.*

Cress, Garden. See *Lepidium.*

Cress, Indian. See *Tropœolum.*

Cress, Rock. See *Iberis.*

Cress, Rocket. See *Vella.*

Cress, Swine's. See *Cochlearia.*

Cress, Water: Cress Winter. See *Sisymbrium.*

Cressa; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, obtuse, incumbent, permanent. *Corolla:* one-petalled, salver-form; tube length of the calix, bellied below; border five-parted; divisions ovate, acute, spreading. *Stamina:* filamenta five, capillary, long, sitting on the tube of the corolla; antheræ roundish. *Pistil:* germen ovate, styles two, filiform, length of the stamina; stigmas simple. *Pericarp:* capsule ovate, one-celled, two-valved, a little longer than the calix. *Seeds:* single, ovate-oblong. Essential Character. *Calix:* five-leaved. *Corolla:* salver-form. *Filamenta:* sitting on the tube. *Capsule:* two-valved, one-seeded.——The species are,

1. Cressa Cretica. Corollas beardless; capsules one-seeded. This is a small and very shrubby plant; root long, slender, jointed, white; stems several, long, slender, round, whitish; leaves the size and form of a lentil; flowers small at the ends of the twigs; fruit resembling a grain of wheat. The whole plant is white, and has a salt taste.—Native of the sea-shores of Crete, and of Ostia near Rome.

2. Cressa Indica. Corollas bearded at the tip; capsules four-seeded; corolla snowy white, hairy on the outside.—Native of salt marshes in the East Indies.

Crimson-grass Vetch. See *Lathyrus Nissolia.*

Crinodendrum; a genus of the class Monadelphia, order Decandria.—Generic Character. *Calix:* none. *Corolla:* bell-shaped; petals six, oblong, erect, spreading at the tip. *Stamina:* filamenta ten, erect, united at the bottom; antheræ ovate, erect. *Pistil:* germen superior, ovate; style subulate, a little longer than the stamina. *Pericarp:* capsule coriaceous, obtusely three-cornered, one-celled, gaping elastically at top. *Seeds:* three, roundish. Essential Character. *Calix:* none. *Corolla:* bell-shaped, six-petalled. *Capsule:* one-celled, gaping elastically at top.——The only known species is,

1. Crinodendrum Patagua; *Lily-tree.* This is a superb evergreen branchy tree, with a body of seven feet in diameter. The leaves are opposite, much longer than the petioles, of a bright green, lanceolate, and serrated. There are no stipules: the flowers are scattered and axillary; the peduncles one-flowered, the flowers having the odour of lilies. The seeds are the size of a lentil.—It is a native of Chili.

Crinum; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* involucre spatheform, two-leaved, oblong, umbelluliferous, after gaping, reflected. *Corolla:* one-petalled, funnel-form; tube oblong, cylindric, inflected; border six parted; divisions lanceolate-linear, obtuse, concave, reflected, of which the three alternate ones are distinguished by a hooked appendicle. *Stamina:* filamenta six, subulate, from the base of the border, of the length of the border, converging; antheræ oblong, linear, rising upwards, incumbent. *Pistil:* germen inferior. *Style:* filiform, length of the flower; stigma three-cleft, very small. *Pericarp:* capsule subovate, three-celled. *Seeds:* several. Essential Character. *Corolla:* funnel-form, half six-cleft; tube filiform; border patulous, recurved; segments subulate, channelled; filamenta inserted into the throat of the tube, distinct.—These bulbs are very ornamental plants for the stove, and are easily propagated by offsets, which the roots put out in plenty; or by the bulbs which succeed the flowers, and ripen perfectly in England. They must both be planted in pots of rich earth, and if plunged into the tan-bed in the stove, will make greater progress, and flower oftner, than when placed on shelves, even when kept in a good temperature of heat. The roots should be transplanted in the spring, and all the offsets taken off, otherwise they will fill the pots, and starve the old plants: they must be frequently refreshed with water, but it must not be given them too plentifully, especially in winter. They flower at every season of the year, which increases their value; for where there are many plants, there will be almost a perpetual succession of flowers, which emit a very agreeable odour. ——The species are,

1. Crinum Asiaticum. Leaves keeled. Root solid, turbinate, surrounded with long branching fibres; stem short, thick, coated, white, single; leaves three feet long, three inches wide, subulate-linear, erect, striated, thick, imbricate; flowers white, large, in a simple flat umbel. Rumphius extols the efficacy of the roots in expelling the poison of both serpents and arrows, and also in œdematous swellings, &c.—Native of Malabar, Ceylon, Tranquebar, and Cochin-china.

2. Crinum Americanum; *Great American Crinum.* Leaves oblong-lanceolate, very smooth at the edge, with the end contracted and hooked; flowers pedicelled, with the tube shorter than the border; flowering-stem a foot and a half in height, the thickness of a finger, slightly compressed, coming out, not from the centre of the leaves, but on one side; leaves two feet or more in length, and a hand broad; flowers pale yellow before they open, each opening successively, and lasting a day or two; when open of a milky whiteness, not disagreeable in scent.—They appear in July and August; and the plant is a native of South America.

3. Crinum Erubescens; *Small American Crinum.* Leaves lanceolate, cartilaginous-crenulate, the end produced and unfolded; flowers sessile; tube longer than the border. The flower-stem arises immediately from the root, on the outside

of the leaves, and is about two feet high; on the top are eight or ten flowers, in the form of an umbel, closely joined at their base, but spreading above: they are of a beautiful white colour, and smell very sweet. The stamina are stretched out to a considerable length beyond the petals. After the flowers are past, the germen swells, and becomes an oblong bulb. The plants generally flower three or four times in a year, but at no regular season; and as the petals are of a very tender texture, they do not continue in beauty above four or five days.—Native of the Spanish West Indies.

4. Crinum Tenellum. Spathe many-flowered; corollas equal; leaves filiform.—Found by Sparrmann at the Cape.

5. Crinum Lineare. Leaves linear; corollas bell-form, with two segments narrower than the rest; flowers large and white.—Found by Thunberg at the Cape.

6. Crinum Nervosum. Leaves roundish, nerved; filamenta widened at the base; scape many-flowered, many-leaved; flowers on long pedunceles.—Native of the Philippine Islands.

Crithmum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, manifold, hemispheric; partial similar; involucre universal, many-leaved; leaflets lanceolate, obtuse, reflex; partial lanceolate-linear, length of the umbellule; perianth proper scarcely observable. *Corolla:* universal, uniform; florets all fertile; proper petals five, ovate, inflex, equal. *Stamina:* filamenta five, simple, longer than the corolla; antheræ roundish. *Pistil:* germen inferior; styles two, reflex; stigmas obtuse. *Pericarp:* none. *Fruit:* oval, compressed, bipartile. *Seeds:* two, elliptic, compressed-flat, striated on one side. Essential Character. *Fruit:* oval, compressed. *Florets:* equal.——The species are,

1. Crithmum Maritimum: *Sea* or *Rock Sampire*. Leaflets lanceolate, fleshy. Perennial: stems smooth and even entirely simple; roots triternate, the middle one often five-leaved. It has a root composed of many strong fibres, which penetrate deep into the crevices of the rocks, sending up several fleshy succulent stalks, which rise about two feet high, with winged leaves, composed of three or four divisions, each of which has three or five succulent leaflets near half an inch long. The flowers are produced in circular umbels at the top of the stalks; these are of a yellow colour, and are succeeded by seeds resembling those of fennel, but larger. This herb when pickled is very agreeable to the palate, and is esteemed as a stomachic. It operates also as a gentle diuretic, removes the obstructions of the viscera, and creates an appetite; on which account it is commonly used for sauce. Meyrick and Hill agree in saying, that the leaves make an excellent and very agreeable pickle; that their juice operates very powerfully by urine, and is good for the gravel, stone, suppressions of the menses, and the jaundice. It is not only used as a pickle, but fresh as a potherb, by the inhabitants of the sea-coast. It is gathered upon rocks, where it naturally grows; but those persons who supply the market with it, seldom bring the right herb, but gather the *Inula Crithmoides* instead of it, which they call *Golden Sampire*, but which has a very different flavour from the true, and is wholly destitute of its virtues. This Golden Sampire, as it is called, grows more abundantly, especially upon flat ground, overflowed by salt water; whereas the true Sampire grows only out of the crevices of perpendicular rocks, where it is very difficult to come at.—Native of the rocky shores of the European ocean. Allioni informs us, that it grows on old walls in the Alps. It is found on Dover Cliff; near Winchelsea, Rye, Southampton, the Isle of Wight, and on all the cliffs of the Cornish coast. Not only the *Inula Crithmoides*, above-mentioned, is used for Sampire, but the Salicornia is the only herb known by that name on the east coast, where it is called *Marsh Sampire*; it is tasteless, and has a tough string running through the middle; whereas the true Sampire has a warm aromatic flavour, and presents no impediment to the teeth in eating. Mr. Pennant asserts, that cows and sheep eagerly eat it, and soon grow fat upon it. It has the name *Sampire* or *Sampier*, sometimes incorrectly spelt *Samphire*, from the French *St. Pierre*. Gerarde says, some call it *crest marine*, which is also from the French *criste marine*; in which language it is also named *bacille maritime*, *fenouil marin*, *passe-pierre*, and *herbe de St. Pierre*, evidently from the roots striking deep into the crevices of the rocks. In Italian it is *critmo finocchio marino*, and *herba di Santo Pietro*; in Spanish, *hinojo marino*; in Portuguese, *funcho marino*; in German, *meerfenchel*, *seefenchel*, *bacillen*; in Danish, *sæfenkel*; in Swedish, *sjofenkal*.—It may be propagated either by seeds or by parting the roots, and, if planted on a moist gravelly soil, will thrive tolerably well, and may be preserved some years, but will grow best when rooted in a wall, or on an artificial rock-work.

2. Crithmum Pyrenaicum; *Pyrenæan Sampire*. The side leaflets twice trifid.—This is a biennial plant, and a native of the Pyrenees.

3. Crithmum Latifolium; *Wedge leaved Sampire*. Leaflets wedge-form, cleft. A very smooth plant; root biennial; stem erect-cylindrical, furrowed; leaves petioled; pinnated, leaflets in two or three pairs, sessile; flowers yellow.—Native of Teneriffe.

Crocus; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix*. spathe one-leafed. *Corolla:* tube simple, long; border six-parted, erect; divisions ovate, oblong, equal. *Stamina:* filamenta three, subulate, shorter than the corolla; antheræ sagittate. *Pistil:* germen inferior, roundish; style filiform, length of the stamina; stigmas three, convolute, serrate. *Pericarp:* capsule roundish, three-lobed, three-celled, three-valved. *Seeds:* several, round. Essential Character. *Corolla:* six-parted, equal. *Stigmas:* convolute.——The species are,

1. Crocus Officinalis; *Officinal* or *Autumnal Crocus*, or *Saffron*. Leaves narrower, rolled in at the edges; stigma trifid to a considerable length. This plant has a roundish bulbous root, as large as a small nutmeg, which is a little compressed at bottom, and covered with a coarse brown, netted skin; from the bottom of this bulb are sent out many long fibres, which strike pretty deep into the ground. The flowers come out from the upper part of the root, and, like the young leaves, the tops of which just appear, are closely wrapped about a thin spathe or sheath, which parts within the ground, and opens on one side. The tube of the flower is very long, arising immediately from the bulb without any footstalk, and at the top divides into six ovate obtuse segments, equal, and of a purple blue colour. In the bottom of the tube is situated a roundish germ, supporting a slender style, crowned with three golden stigmas, which is the Saffron.—It flowers in October, and the leaves keep growing all the winter, but it never produces any seeds in England. Haller remarks, that the Autumnal Saffron differs from the Spring Crocus, in having the stigma divided into three long segments, the ends of which are also trifid. These three horns of the stigma are also odorous and aromatic, which is not the case with the Vernal Crocus, and the flowers are much larger. Add to this, that the corolla does not vary much from its high native purple; that they differ also in the root and leaves, the time of flowering, and the place of growth. The native country of Saffron is not well ascertained; the

most probable opinion seems to be, that it came originally from the East, where it had acquired that high reputation in medicine, which it has now almost lost in Europe, although it is still cultivated in Italy, Sicily, Germany, Hungary, France, Spain, and also sparingly in England, where it is commonly said to have been introduced in the reign of Edward the Third, by Sir Thomas Smith, who brought it into the neighbourhood of Walden in Essex, which place has, on that account, since received the name of Saffron Walden. Although Essex was not the only county into which Saffron was introduced, it was cultivated there in great abundance, at the end of the sixteenth and beginning of the seventeenth century. About the middle of the eighteenth century, it had migrated into the parishes of Huxton, Ickleton, and Triplow, bordering on the Roman way, called the Ikenild-street; and westward of these to Gogmagog Hills, in the parishes of Duxford, Newton, Hareton, Hauxton, Great and Little Shelford, Sawston, Stapleford, and even as far as Fulborn, which is to the north of the hills; all in the county of Cambridge. The quantity of land occupied in cultivating Saffron has been gradually decreasing during the last twenty or twenty-five years, which is supposed to arise from the importation of foreign Saffron. It is now confined to two or three parishes only, of which Stapleford is one; and if some means be not employed to encourage it, the cultivation of Saffron will probably soon be entirely lost in this country. Whether, says Mr. Miller, Saffron be of any national consequence, I am not a competent judge; I only know, that when the culture is entirely dropped, it will be no easy matter to revive it. Our modern European term of *Saffron* is derived from the Arabic *sahafaran;* hence the Moorish and Spanish *azafran, azafraon, safra;* the Italian *zaffarano;* and the German, Danish, Swedish, and French *saffran* or *safran*. Lewes assures us, that Saffron is a very elegant and useful aromatic, of a strong penetrating smell, and warm, pungent, bitterish taste; it is said to be more cordial and exhilarating than any of the other aromatics, and is particularly serviceable in disorders of the breast, in female obstructions, and hysteric depressions. Hill also says, that the whole class of medicinal subjects cannot afford a greater cordial than Saffron; which also promotes perspiration, and removes obstructions of the viscera. Mr. Miller enumerates four varieties of the Autumnal Crocus; 1. the sweet-smelling, with deep blue flowers, varying to a sky-blue; growing naturally on the Alps and Swiss mountains; 2. Autumnal Mountain, which has a flower of a paler blue colour; 3. Many-flowering Bluish, with many sky-blue flowers; 4. Small-flowering, with a deep blue flower.——With respect to propagation and culture, the Autumnal Crocuses are not so productive as the Vernal; and as they do not bring forth seed in our climate, they are less common in gardens. These plants must be taken up every third year, or the roots will run long and produce no flowers; they should not, however, be kept out of the ground longer than the beginning of August, for they commonly produce their flowers at the beginning of October, otherwise they will not produce so many nor such strong flowers as when planted early. The following is the method of cultivating Saffron, as it was presented to the Royal Society by Sir James Douglas. 1. *The Choice and Preparation of the Ground.* The greatest part of the tract between Saffron Walden and Cambridge, is an open level country with few enclosures, and the custom there is, to crop two years, and let the land lie fallow the third. Saffron is generally planted on fallow ground, and if all other advantages be equal, that will be preferred which has borne Barley the year before. The Saffron grounds are seldom above three acres, or less than one; and the principal rule in choosing is, that they be well exposed, the soil not poor, nor a very stiff clay, but a temperate dry mould, such as commonly lies upon chalk, and is of an hazel colour. The ground being made choice of about Lady-day, or the beginning of April, it must be carefully ploughed, the furrows being drawn much closer together, and deeper if the soil will allow it, than is required for any grain; and hence the charge is greater. Five weeks afterwards, or any time in the month of May, between twenty and thirty loads of dung are laid upon each acre, spread with great care, and ploughed in as before: the shortest rotten dung is the best; and the farmers who possess the conveniency of making it, spare no pains to make it good, being sure of a proportionable price for it. About Midsummer they plough a third time, and between every sixteen feet and a half, or pole in breadth, they leave a broad furrow or trench, which serves both as a boundary to the several parcels, when there are several proprietors to one enclosure, and to throw the weeds in at the proper season. To this head likewise belongs the fencing of the grounds, because that is generally, though not always, done before planting. The fences consist of what they call dead hedges or hurdles, to keep out not only cattle of all sorts, but especially hares, which would otherwise feed during the winter on the Saffron leaves. Concerning the weather, it is only necessary to observe, that the hottest summers are certainly the best, and therefore if there be gentle showers from time to time, they can hardly miss of a plentiful crop, unless the extreme cold, snow, or rain, of the preceding winter, have injured their heads. 2. *Planting or Setting the Roots.* The only instrument used for this is a narrow spade, commonly termed a spit-shovel. The time of planting is commonly in the month of July, a little sooner or later, as the weather answers. The method is: One man with his spit-shovel raises between three and four inches of earth, and throws it before him about six or more inches; two persons generally women, following with heads, place them in the farthest edge of the trench he makes, at about three inches' distance from each other: as soon as the digger or spitter has gone once the breadth of the ridge, he begins again at the other side, and digging as before, covers the roots last set, and makes the same room for the setters to place a new row, at the same distance from the first that they are from one another. Thus they proceed, until a whole ridge, commonly containing one rod, is planted; and the only nicety in digging, is to leave some part of the first stratum of earth untouched to lie under the root, and in setting to place their roots directly upon their bottom. Formerly, when roots were very dear, they did not plant them so thick as they do now, and that some notice is always taken of the size of the roots, so as to leave the largest farther apart. The quantity of roots planted in an acre, is generally about sixteen quarters, or an hundred and twenty-eight bushels, which, according to the distances before assigned to be left between them, and averaging the diameter of the plants at one inch, ought to amount to three hundred and ninety-two thousand and forty in number. From the time that the roots are planted, till about the beginning of September, or sometimes later, there is no farther labour required, but as they begin to spire, and are ready to shew themselves above ground, (which is ascertained by digging a few out of the earth,) the ground must be carefully pared with a sharp hoe, and the weeds be raked into the furrows, otherwise they would hinder the growth of the plants. 3. *Gathering and Drying the Flowers.* The flowers are gathered as well before as after they are fully blown, and the most proper time for gathering is early in the

morning. The owners of the Saffron get together a sufficient number of hands, who place themselves in different parts of the field, pull off the whole flowers, and throw them handful by handful into a basket, till they are all gathered. As soon as they have carried them home, they immediately spread them out upon a large table, and fall to picking out the stigmas, together with a considerable part of the style itself; the rest of the flower they throw away as useless. The stigmas being all picked out of the flowers, the next labour is to dry them on the kiln, which is built upon a thick plank, supported by four short legs, that it may be moved from place to place; the outside consists of eight pieces of wood about eight inches thick, in the form of a quadrangular frame, about twelve inches square at the bottom on the inside, and twenty-two inches at top, which is likewise equal to the perpendicular height of it: a hole about eight inches square is left in the front, about four inches above the plank, through which the fire is put in; over all the rest are laid laths close to each other, nailed to the frame already described, and then plastered over very thickly on both sides, as are also the planks at the bottom, which serve for a hearth: over the mouth or widest part is placed a hair-cloth, fixed to the sides of the kiln, and also to two rollers, or moveable pieces of wood, which are turned by screws, in order to stretch the cloth: instead of which many persons now use a net-work or iron-wire, with which, it is observed, that the Saffron dries sooner and with less fuel; but the difficulty of preserving the Saffron from burning, occasions the hair-cloth to be preferred by the nicest judges in drying. The kiln is placed in a light part of the house, and they begin by laying five or six sheets of white paper on the hair-cloth, upon which they spread the wet Saffron two or three inches thick; this they cover with other sheets of paper, and over this lay a coarse blanket five or six times double, or instead thereof, a canvass pillow filled with straw; and after the fire has been lighted for some time, the whole is covered with a board having a large weight on it: at first they apply a pretty strong heat to make the chives sweat, as they term it: and in this, unless very careful, they are in danger of scorching, and thereby of spoiling all that is on the kiln. When it has been thus dried about an hour, they take off the board, blanket, and upper papers, and take the Saffron off from that which lies next it, raising at the same time the edges of the cake with a knife, then laying on the paper again, they slide in another board between the hair-cloth and upper papers, and turn both papers and Saffron upside down, afterwards covering them as before: the same heat is continued for an hour longer; they then look on the cake again, free it from the papers, and turn it; then they cover it, and lay on the weight as before. If nothing detrimental occur during these first two hours, they reckon the danger to be over, for they have afterwards only to keep a gentle fire, and to turn their cakes every half hour till thoroughly dry, for the doing of which as it ought, twenty-four hours' attention is required. In drying the larger plump threads, they use nothing more; but towards the latter end of the crop, when these begin to be smaller, they sprinkle the cake with a little small beer, to make it sweat as it ought, and have latterly begun to think that using two linen cloths next the cake, instead of the two innermost papers, may be of some advantage in drying, although that practice is followed by few: the fire may be made with any kind of fuel, but that which smokes the least is best, and therefore charcoal is preferred.—What quantity of Saffron a first crop will produce, is very uncertain; sometimes five or six pounds of wet threads are got from one root, sometimes not above one or two, and sometimes not enough to make it worth while to gather and dry it; but this is always to be observed, that about five pounds of wet Saffron make one pound of dry, for the first three weeks of the crop, and six pounds during the last week; and when the heads are planted very thick, two pounds of dried Saffron may at a medium be allowed to an acre for the first crop, and twenty-four pounds for the two remaining, the third being considerably larger than the second: in order to obtain these crops, the labour of hoeing, gathering, picking, and drying, must be repeated every year, without any addition, except that they let cattle into the fields after the leaves are decayed, to feed upon the weeds; or perhaps mow them for the same use. 4. *Management of the Roots.* About the Midsummer after the third crop is gathered, the roots must all be taken up and transplanted. To take up the Saffron heads, or break up the ground, they sometimes plough it, and sometimes use a forked kind of hoe called a pattock, and then the ground is harrowed once or twice over, during all which time of ploughing, or digging, and harrowing, fifteen or more persons will be sufficiently employed in following and gathering the heads as they are turned up; they are next to be carried to the house in sacks, and there cleansed and dressed, which consists in clearing the roots thoroughly from the earth, and from the remains of old roots, old skins, and excrescences, and thus they become fit to be planted in new ground immediately, and to be kept for a considerable time without danger of spoiling. The quantity of roots which will be taken up, in proportion to those which were planted, is uncertain; but it may be calculated at a medium, allowing for all the accidents which happened to them in the ground, and in breaking up from each acre, to be twenty-four quarters of clean roots, all fit to be planted. The owners are sure to choose the largest, plumpest, and fattest roots, for their own use, but most dislike the longest pointed ones, which they call spickets or spickards, for very small, round, or flat roots are sometimes observed to flower well. Mr. Miller calculates that the charge of cultivating Saffron for three years, will be upwards of £.23 per acre, which he supposes to average twenty-six pounds of Saffron during each year, which, at thirty shillings per pound, will leave five pounds four shillings annual profit per acre.—In the annexed Plate, *a* shows the filaments of the flower, from which the *Saffron* is prepared.

2. Crocus Vernus; *Spring Crocus.* Leaves broader, with flat edges; stigma very shortly trifid. This species has a largish compressed bulb, covered with a light-brown netted skin, from which arise four or five leaves of a purplish colour on their lower parts; from among which one or two flowers come out, sitting close between the young leaves, never rising above two inches high, and having an agreeable odour; out of the centre of the tube arises a slender style, crowned by a broad flat stigma of a golden colour: after the flowers are past, the germen pushes out of the ground. Haller says that it is white, with a purple base, in Switzerland, in a wild state; and purple and white in Austria, according to Jacquin. Gesner gathered it with a yellow flower on the mountains of Glarus. Scopoli does not mention its colour, but says that it is not uncommon in Carniola. It is also a native of Italy and Spain; but not indigenous in Britain, though Mr. Miller states that he remembered to have seen it apparently wild, in a considerable quantity, in Battersea meadow, near the mill; and it has also been found by Dr. Deering in the meadows near Nottingham. Though the varieties of Spring Crocus are very numerous, Mr. Miller only enumerates the following twelve: 1. the Broad-leaved Purple, variegated; which has a flower of a deep blue, and striped;

2. Broad-leaved plain Purple; 3. Broad-leaved Violet-coloured, or large Deep Blue; 4. White with a purple bottom; 5. Broad-leaved White variegated; 6. Broad-leaved with many violet-purple flowers striped with white; 7. Broad-leaved Ash-coloured; 8. Broad-leaved large yellow; 9. Broad-leaved small pale yellow; 10. Broad-leaved small yellow striped with black; 11. Narrow-leaved small brimstone; 12. Narrow-leaved small white. Modern catalogues set down many varieties of the several colours, which are blue and purple, yellow and white, or striped: new ones are also constantly imported from Holland, each of which has a French or Dutch title. The most common varieties now in our gardens are, the Scotch, beautifully striped; the Blue; the Blue-striped; White; Yellow of several shades, larger and smaller; Yellow striped with black; Cloth of gold.—All these several varieties of Crocuses are very hardy, and will increase exceedingly by their roots, especially if they be suffered to remain two or three years unremoved: they will grow in almost any soil or situation, and are very great ornaments to a garden, early in the spring of the year before many other flowers appear; they are commonly planted near the edges of borders on the sides of walks, in doing which, care should be taken to plant such sorts in the same line as flower at the same time, and are of an equal growth, otherwise the lines will seem imperfect. These roots loose their fibres with their leaves, and therefore may then be taken up, and kept dry until the beginning of September, observing to keep them from vermin, for the mice are very fond of them. When you replant these roots, after having drawn a line upon the border, make holes with a dibble about two inches deep or more, according to the lightness of the soil, and about two inches apart, in which you must place the roots with the bud uppermost; then with a rake fill up the holes in such a manner as that the upper part of the root may be covered an inch or more, taking care not to leave any of the holes open, for this will entice the mice to them, and when once they have found them out, they will destroy all your roots, if not prevented. The best way, however, to dispose of these flowers in gardens, is to plant them six or eight near each other in bunches, between small shrubs, or on the borders of the flower-garden, where, if the varieties of these flowers be planted in different patches, and properly intermixed, they will make a much better appearance than when they are disposed in the old method of straight edgings. In January, if the weather be mild, the Crocus will often appear above ground, and their flowers will come out in February, before the green leaves are grown to any length, so that the flowers seem at first to be naked, but soon after the flowers decay, the green leaves grow to be six or eight inches long, and should not be cut off until they decay, notwithstanding they appear a a little unsightly, for, by cutting off the leaves the roots will be so weakened as not to arrive at half their usual size, nor will the flowers of the succeeding year be half so large. Their seeds are commonly ripe about the latter end of April, or the beginning of May, when the green leaves will begin to decay.

Crossostylis; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth terbinate, quadrangular, fastened to the germen; four-parted; segments ovate, spreading, permanent. *Corolla:* petals four, elliptic; claw narrow, inserted into the calix; nectary corpuscles twenty, filiform, ciliate, between the stamina. *Stamina:* filamenta twenty, filiform, shorter than the calix, connected at the base into a little pitcher; antheræ small, roundish. *Pistil:* germen convex, superior; style cylindric, the length of the stamina, permanent; stigmas four, spreading very much, trifid. *Pericarp:* berry hemispherical, grooved, one-celled. *Seeds:* very many, on a columnar receptacle in the centre of the fruit. Essential Character. *Calix:* simple, four-parted. *Corolla:* four-petalled. *Nectary:* twenty corpuscles between the filamenta. *Stigmas:* four, jagged.——The only known species is,

1. Crossostylis Biflora.—Native of the Society Isles.

Crotalaria; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth three-parted, large, rather shorter than the corolla; the two superior divisions lanceolate, leaning on the standard; the third lanceolate, concave, supporting the keel, three-cleft. *Corolla:* papilionaceous; standard cordate, acute, large, depressed on the sides; wings ovate, shorter by half than the standard; keel acuminate, length of the wings. *Stamina:* filamenta ten, connate, rising, with a split line on the back, and gaping base; antheræ simple. *Pistil:* germen oblong, reflex, hirsute; style simple, bent inwards at an angle, rising; stigma obtuse. *Pericarp:* legume short, turgid, one-celled, two-valved, pedicelled; seeds one or two, globose, kidney-form. Essential Character. *Legume:* turgid, inflated, pedicelled. *Filamenta:* connate, with a fissure on the back. —Most of these plants are propagated by seeds, which must be sown upon a hot-bed in the spring, and when the plants are come up an inch high, they should be transplanted to another hot-bed to bring them forward, observing to shade them from the sun till they have taken new root; after which they should have free air admitted to them in proportion to the warmth of the season, to prevent their being drawn up weak. When the plants have acquired strength in this bed, they should be carefully taken up, with balls of earth to their roots, and each planted in a separate pot, filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanner's bark, carefully shading them till they are rooted again. They must afterwards be treated in the same manner as other tender exotics, giving them a due proportion of air and water in warm weather, and when they are grown so tall as nearly to reach the glasses of the hot-bed, the pots may be removed into an airy glass-case or stove, where they will be screened from inclement seasons, and have sufficient air in hot weather. With this treatment the plants will flower in July, and continue to produce fresh spikes of flowers till the end of August: those spikes which appear early in the season, will be succeeded by ripe seeds in September; soon after which the plants will decay.——The species are,

* *Leaves simple.*

1. Crotalaria Perforata; *Perforated Crotalaria.* Leaves perfoliate, cordate, toothletted. Eight feet high; stem smooth and even, with alternate branches; leaves smooth, veined, scarcely an inch long; flowers smooth, yellow, in a kind of umbel, two together, terminating the branches.—Native of the Cape; where a decoction of the leaves is esteemed a powerful diuretic.

2. Crotalaria Perfoliata; *Perfoliate Crotalaria.* Leaves perfoliate, cordate-ovate; stem shrubby, four or five feet high, round, covered with a light-brown bark; leaves smooth, about four inches long, and nearly three broad, much resembling those of our common *Thoroughwax*, or *Bupleurum*, both in shape and size, only stiffer and more veined; the flowers are almost the size of those of the Pea, all the petals being large; they are of a pale yellow colour, and come out singly from the upper part of the branches, sitting close on the axils of the leaves, and appearing in August: it has the appearance of being shrubby, but the branches perish every year.—It is a native of open woods in the back settlements of Carolina.

3. Crotalaria Amplexicaulis; *Stem-clasping Crotalaria.*

native marshes has broad flat stalks, and leaves three inches long, a quarter of an inch broad, rough, and but little indented on the edge; but that on dry ground the leaves are ovate, two inches broad, and serrate.—Discovered near La Vera Cruz; where it flowers in July, and the seeds ripen in autumn.

5. Croton Glabellum; *Laurel-leaved Croton.* Leaves ovate, bluntish, very entire, smooth, and even; fruits pedunculed. This grows in a shrubby form, and is seldom under seven or eight feet in height. All the parts of the plant are of an active warm nature, and have a pretty agreeable smell.—Common in all the low lands about Spanish Town and Kingston, in Jamaica.

6. Croton Tinctorium; *Officinal Croton.* Leaves rhomboid, repand; capsules pendulous; stem herbaceous. Root annual; stem branching, about nine inches high; leaves near two inches long, on slender petioles near four inches in length; flowers in short spikes, from the sides of the stalks at the ends of the branches. The women about Albudebar dye their stockings with it. Nissole dyed both silk and wool of an elegant blue colour; but the French attempt to extract a material from it for dying, similar to indigo, did not succeed. This is the plant from which the *tournsol*, used for colouring wines and jellies, is made. It is made from the juice that is lodged between the calix and the seeds: this, if rubbed on cloths, at first appears of a lively green, but soon changes to a bluish purple. If these cloths be put into water, and afterwards wrung, they will dye the water of a claret colour. The rags thus dyed are brought to England, and sold in the druggists' shops under the name of *tournsol.*—Native of the South of France, Spain, Italy, and the kingdom of Tunis. The seeds of this plant should be sown in the autumn, soon after they are ripe, in a small pot filled with light earth, and plunged into an old tan-bed in a frame, where they may be screened from the cold in the winter; and in the spring following, the pot should be removed into a fresh hot-bed, which will bring up the plants in a month's time; and when grown large enough to remove, they should be each planted into a small pot, and plunged into a fresh hot-bed, being careful to shade the glasses daily, until the plants have taken new root: they should then have air daily admitted to them, in proportion to the warmth of the season, but must be sparingly watered.

7. Croton Glandulosum. Leaves oblong, serrate, biglandular at the base; fruits sessile. It seldom exceeds seventeen or eighteen inches high. The seeds are small, and picked up every where in the fields, both by the wild and tame fowls, in the island of Jamaica, of which it is a native, in the savannas of Liguanea.

8. Croton Argenteum; *Silvery-leaved Croton.* Leaves cordate-ovate, tomentose beneath, entire, serrate. Root annual; stem a foot high, angular; flowers in short close terminating spikes, the upper ones male, the lower female, all white, the former soon falling.—Found in La Vera Cruz.

9. Croton Sebiferum; *Poplar-leaved Croton*, or *Tallow Tree.* Leaves rhomb-ovate, acuminate, flat, smooth; glands subpetiolar; leaflets broader than they are long, and involute. The leaves dye a very fine black; they wither in October, turn to a dirty crimson colour, and fall off before the capsules. The young leaves shoot out again in March. Each capsule contains three hard black shells, the size of pepper-corns or common peas, covered entirely with a delicately snow-white substance. This does not produce the tallow, as it is commonly supposed; it is made from the oil expressed from the kernel; and the white substance above mentioned must be well cleaned from the shells before they are broken, for that will absorb a considerable quantity of oil. For this purpose, the shells should remain ten or fifteen days in water to soak, and then they may be cleared of the white substance by rubbing, although it will not easily separate from the shell. The oil drops from the press like thick glutinous lamp-oil, and soon hardens by cold to the consistence of common tallow, and by boiling becomes as hard as bees' wax. Native of China; where it is called *shea*, or *u-kieu.*

10. Croton Japonicum. Leaves undivided and three-lobed, ovate, acuminate, entire, smooth; stem subangular, naked at bottom, tomentose at top, simple, a foot high and more.—Native of Japan, flowering in July and August.

11. Croton Acutum. Leaves ovate, serrate, acuminate, two-glanded; stem herbaceous, angular, simple, smooth; petals white, woolly, the length of the calix.—It flowers in September, and is cultivated in Japan, where it was introduced by the Portuguese.

12. Croton Tiglium; *Purging Croton.* Leaves ovate, smooth, acuminate, serrate; stem arboreous. This is a middle-sized tree, with few spreading branches; flowers in erect simple terminating racemes.—Native of the East Indies, China, and Cochin-china.

13. Croton Lucidum; *Smooth Croton.* Leaves ovate, smooth; flowers in spikes; styles many-cleft, depressed, pubescent, becoming shrubby.—Grows in Jamaica.

14. Croton Laceiferum; *Lac Croton.* Leaves ovate, tomentose, serrulate, petioled; calices tomentose. A middle-sized tree, with a few long spreading branches; flowers white, with five-leaved calices; leaves tomentose, subacuminate, unequally toothed, scattered over the branches. The leaves infused in warm water or milk, purge and vomit. It exudes a very fine lac spontaneously, but sparingly, which appears like a bud at the origin of the branches; and is employed by the Ceylonese to varnish their lances, the handles of their tools, &c. It is said to be much finer and superior to that formed by the ants in Siam and Pegu. Lac is said also to exude in small quantities from other species of this genus; but all that substance which we commonly call gum-lac in Europe, is the work of the red ants, who are supposed to collect or suck the resinous juice from this, and perhaps other trees, to digest it with the animal acids in their stomachs, and then to encrust the branches with it, to serve as a nest or comb for their young. It is not properly a gum-resin or oil, not being soluble either in water or fat oils. The use of this substance is well known in dying silks, woollens, and morocco leather, of a scarlet colour, which it also communicates to sealing-wax and varnish. The wood of this tree is white, light, and brittle. The bark and resin are reputed to be serviceable in ulcers of the mouth, in the gonorrhœa, fluor albus, dysentery, &c.—Native of the East Indies, the southern provinces of Cochin-china, and Cambodia. It is called *bihar* on the borders of Thibet.

15. Croton Balsamiferum; *Balsam Croton.* Leaves ovate-lanceolate, scabrous, very entire, tomentose beneath. This is an upright, branched, diffused, sweet-smelling, shrub, abounding with a balsamic, thickish, odorous, brownish sap. In Martinico this juice is distilled with spirits of wine, and a cordial liquor obtained, called Eau de Mante. Flowers white, with small petals.—Native of Martinico, Curaçao, and Jamaica.

16. Croton Aromaticum; *Aromatic Croton.* Leaves cordate-ovate, scabrous, serrate at the base beneath and on the edge, having petioled glands; racemes terminating. This is a middle-sized tree, with spreading branches; leaves large spreading, unequally serrate; flowers numerous, scattered, villose.—Native of the island of Ceylon, and near Canton in China.

17. Croton Humile; *Humble Croton.* Leaves cordate

very entire, scabrous, subciliate, tomentose beneath. A shrub, two feet high, with a smooth branching stem; the branches hoary at the end. The smell of the whole herb is strong and balsamic; it is very hot and pungent upon the palate; and is frequently used in baths and fomentations for nervous weaknesses.—Native of Jamaica.

18. Croton Ricinocarpos; *Surinam Croton.* Leaves subcordate, crenate; peduncles racemed, opposite to the leaves; stem herbaceous. Branches and leaves alternate, the latter petioled, naked; flowers heaped together in racemes.—It is an annual plant, and a native of Surinam.

19. Croton Moluccanum; *Molucca Croton.* Leaves cordate, angular, scabrous, tomentose beneath. This is a tree, eight feet high, with long reclining branches; flowers white, in short racemes; capsules smooth and even, bigger than a walnut: a great quantity of oil is extracted from it.—Native of Ceylon, and the Molucca Islands.

20. Croton Flavens; *Yellow Croton,* or *Balsam.* Leaves cordate, oblong, very entire, tomentose on both sides; branchlets more closely tomentose. It frequently rises to the height of two or three feet; it much resembles the 17th sort, but is easily distinguished by the thickness of its extreme branches, which are pretty soft and luxuriant. All parts of the plant are equally sharp, and sometimes used in resolutive baths.—Native of Jamaica, in savannas about Kingston.

21. Croton Capense; *Cape Croton.* Leaves hastate, and undivided, lanceolate, very entire, and very smooth.—Found at the Cape, by Thunberg.

22. Croton Lobatum; *Various-leaved Croton.* Leaves unarmed, serrate, the lower five-lobed, the upper three-lobed. Stems round, furrowed, herbaceous, slightly hairy, erect, branched, a foot and a half in height; flowers of a purple colour, in spikes five or six inches long. Annual: flowering in July.—Found by Houstoun, near Vera Cruz.

23. Croton Spinosum; *Thorny-leaved Croton.* Leaves palmate, five and three lobed, thorny-serrate; flowers scattered over the stem; and subsessile.—Native of the East Indies.

24. Croton Astroites; *Woolly Croton.* Leaves oval, subcordate, very entire, starry-tomentose on both sides; branchlets more closely tomentose, shrubby; flowering in July and August.—Native of the East Indies.

25. Croton Punctatum; *Dotted-leaved Croton.* Leaves ovate, acute, entire, tomentose, and dotted underneath; stem shrubby.—Native of Ceylon.

26. Croton Nutans. Leaves rhomb ovate, acuminate, waved, smooth; glands marginal.—Native of the Society and Friendly Islands, and of the New Hebrides.

27. Croton Inophyllum. Leaves obovate, very entire; stem arboreous.—Native of New Caledonia.

28. Croton Hirtum. Leaves ovate, serrate, with glanduliferous hairs at the base; spikes sessile; stem hispid. It is an annual, and a foot in height; stem herbaceous, erect, round, glandular. It is singular in having glands of three different sorts.—Native of Guiana.

29. Croton Althææfolium. Leaves oblong-cordate, tomentose; stem shrubby, branched; flowers in terminating spikes, it rises with a shrubby stalk, six or seven feet high, dividing upwards into several branches, which are covered with a yellowish down, garnished with long heart-shaped leaves, ending in acute points; flowers white.—Native of Jamaica.

30. Croton Salviæfolium.—Leaves cordate, acute, tomentose beneath; stem shrubby; flowers in spikes, terminating, and axillary. It rises nearly four feet high, with a shrubby stalk. The flowers are produced in short spikes at the ends of the branches; they are small, white, and have woolly calices.—Native of the West Indies.

31. Croton Sessiliflorum. Leaves ovate, acuminate, quite entire, smooth; flowers sessile, axillary, dicœous, five-stamined.—Native of Hispaniolia.

32. Croton Globosum. Leaves ovate, obtuse, entire; peduncles in pairs; flowers dicœous; fruits globular, echinate-hispid.—Native of Jamaica.

33. Croton Divaricatum. Leaves oblong, obtuse, serrate, rough with hairs, biglandular at the base; racemes terminating, solitary; stem shrubby; branches dichotomous, divaricate.—Native of the West Indies.

34. Croten Nitens. Leaves cordate-elliptic, acuminate, almost entire, smooth, shining above, dotted and silvery underneath; racemes axillary; leaves shorter, erect.—Native of Jamaica.

35. Croton Laurinum. Leaves oblong, acute, quite entire, of some consistence, smooth; petioles rugged, they and the leaves dotted underneath; racemes axillary, very long, patulous; stem arborescent.—Native of Jamaica.

36. Croton Pallens. Leaves ovate, acuminate, quite entire, smooth on both sides; racemes solitary, erect, terminating; calices larger than the fruit. It rises with a shrubby stem to the height of seven or eight feet, is covered with an ash-coloured bark, and divides at top into many slender branches; flowers of an herbaceous colour, inclosed in green calices.—Native of Jamaica.

37. Croton Macrophyllum. Leaves cordate-roundish, acuminate, entire, thick, tomentose, nerved underneath.—Native of the West Indies.

38. Croton Populifolium. Leaves broad-ovate, acuminate, serrate-toothed, somewhat rough with hairs, with one gland at the base above; petioles the length of the leaves; racemes terminating, erect, solitary; stem shrubby; branches smooth, scarred.—Native of Jamaica, and other parts of the W. Indies.

39. Croton Cochin-chinense. Leaves lanceolate, quite entire, hoary underneath, shining, dotted; capsules scurfy. This is a middle-sized tree, with spreading branches. The flowers are white, in simple, oblong, terminating racemes.—Native of the woods of Cochin-china.

40. Croton Lanatum. Leaves ovate-lanceolate, quite entire, smooth, opposite; corollas woolly; capsules six-valved. This is a large tree with spreading branches, and white flowers in simple terminating racemes. The wood is white, heavy, and very durable; it is used in building, and for piles of bridges.—Native of mountain-woods in Cochin-china.

41. Croton Congestum. Leaves ovate, gash-serrate, smooth veined; flowers heaped, naked, axillary. Stem suffruticose, five feet high, with many reclining branches; leaves alternate, unequal.—Native of China, about Canton.

42. Croton Dioicum. Leaves oblong, obtuse, hoary; flowers terminating, on the male in spikes, on the female by threes. Stem suffruticose, round, with divaricating branches; the whole plant covered with a soft nap.—Native of Mexico.

43. Croton Plicatum. Leaves ovate, plaited, crenate, hirsute; stem herbaceous; branches round, somewhat rugged, hoary, hirsute above, as are also the leaves, with close, stellate hairs; capsules pendulous, of a violet purple colour.—Native of Arabia.

44. Croton Obliquum. Leaves ovate-lanceolate, quite entire; stem herbaceous, tomentose.—Native of Egypt.

45. Croton Coccineum. Leaves ovate, acuminate, quite entire, smooth, biglandular at the base, dotted with scarlet underneath; racemes terminating; branches round, with a brown bark, mealy, villose at top; flowers subsessile.—Found by Kœnig in Ceylon.

46. Croton Lævigatum. Leaves elliptic, very smooth and even, without glands, entire and serrate, obtuse; racemes

terminating, elongated. Branches round, proliferous, scaly with meal, and ash-coloured at top.—Observed by Dahl in Hainam.

47. Croton Betulinum. Leaves ovate-obtuse, crenate, toothed, rugged, with dots on the upper surface, somewhat rough with hairs underneath; racemes axillary. This has the appearance of Betula or Birch: branches round, with a purplish bark, tomentose-hoary at the end; flowers small, rough with hairs.—Native of the island of St. Thomas in the West Indies.

48. Croton Gossypifolium. Leaves cordate, three-lobed; tomentose, biglandular at the base underneath; stem arboreous. This is a tall tree, with round branches, tomentose and hoary at top; leaves alternate, heaped, towards the end of the branches; flowers copious, scattered males intermixed with females.—Native of the island of Trinidad.

49. Croton Procumbens. Leaves wedge-shaped, acute, quite entire. This plant is shrubby, inodorous, smooth, three feet high; the stems partly procumbent, partly erect; leaves petioled, alternate, two inches long; flowers small and green.—Common at Carthagena.

50. Croton Niveum. Leaves cordate, acuminate, serrulate, tomentose, shining beneath; stem shrubby. It is ten feet high, erect, having a pleasant aromatic smell through all parts of it; corolla white.—Native of Carthagena.

51. Croton Polygamum. Leaves lanceolate, serrate, thinly set with decumbent hairs. This is an upright shrub, four feet high, but little subdivided; branches round, smooth, ash-coloured; flowers whitish, inodorous, hermaphrodite, male and female on the same or different plants. It flowers in June and July.—Native of Carthagena.

52. Croton Cyanospermum. Calix five-leaved, small, turned back below the capsule, which is globular, smooth, very obscurely three-grooved, three-celled, tricoccous. The Ceylonese call it *lyan-gheddie*. This and the next species are very doubtful.—Native of Ceylon.

53. Croton Cardiospermum. Capsule globular, terminated by a three-sided three-tubercled point, smooth, without any groove, tricoccous; rind corky, thick, opening into six parts from the base; shells the substance of paper, elastic, white, ovate. This the Ceylonese call *kebella* and *kebbele*.—Native of Ceylon.

Crow Berry. See *Empetrum.*

Crowfoot. See *Ranunculus.*

Crow Garlic. See *Allium.*

Crown Imperial. See *Fritillaria.*

Crucianella; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth two-leaved, inferior; leaflets lanceolate, slightly keeled, acuminate, stiff, converging, compressed. *Corolla:* one-petalled, funnel-form; tube cylindric, filiform, longer than the calix; border four-cleft; divisions tailed, with the points inflex. *Stamina:* filamenta four, placed in the mouth of the tube; antheræ simple. *Pistil:* germen compressed, between the calix and corolla; style two-cleft, filiform, length of the tube; stigmas two, obtuse, oblong. *Pericarp:* capsules two, connate. *Seeds:* solitary, oblong. Essential Character. *Calix:* two-leaved; involucre two or three leaved, chaffy. *Corolla:* one-petalled, funnel-form, with a filiform tube, and tailed border. *Seeds:* two, linear, inferior, naked, bald.—The species are,

1. Crucianella Angustifolia; *Narrow-leaved Crucianella.* Erect: leaves in sixes, linear; flowers in spikes. It has several upright stalks, which rise a foot high, having six or seven very narrow leaves in whorls at each joint. The flowers grow in close spikes at the top and from the sides of the branches; they are small, white, not longer than the calix, and not remarkable for beauty. They appear in June and July, and ripen seeds in autumn.—Native of the south of France, and Italy. This species, as well as the second, fifth, and sixth, are preserved in some gardens for the sake of variety. If the seeds be sown on a bed of light earth early in the spring, where they are designed to remain, they will require no other culture, but to thin them where they are too close, and keep them clean from weeds; or, if the seeds be permitted to scatter, the plants will come up in the spring, and require no other treatment.

2. Crucianella Latifolia; *Broad-leaved Crucianella.* Procumbent: leaves in fours, lanceolate; flowers in spikes. This is an annual plant, sending out several branching stalks from the roots, which lie prostrate. The flowers are produced in long spikes, at the extremities of the branches; they are very small, and make no great appearance.—It flowers in June and July; and is a native of the south of France, and the islands of the Archipelago.

3. Crucianella Ægyptiaca; *Ægyptian Crucianella.* Leaves in fours, sublinear; flowers in spikes, five-cleft. Annual: stems not at all woody, a palm in height, at first erect, then spreading at the root, diffused or prostrate; flowers hirsute, longer than the bractes, yellowish white, five-cleft, and awned.—Native of Egypt.

4. Crucianella Patula; *Spreading Crucianella.* Diffused: leaves in sixes; flowers scattered.—It is an annual plant; and a native of Spain.

5. Crucianella Maritima; *Sea Crucianella.* A procumbent undershrub: leaves in fours, mucronate; flowers opposite, five-cleft. Root perennial; stems woody, about a foot long, branched, leafy their whole length; flowers trist, yellowish colour, closed in the day, opening in the night, and of a strong smell.—Native of the south of France, Italy, and Sicily. It flowers in June and July; but will not ripen its seeds in England when the autumn is unfavourable.

6. Crucianella Monspeliaca; *Montpellier Crucianella.* Procumbent: leaves acute, those on the stem in fours, and ovate, on the branches about five, and linear; flowers in spikes. Root annual, creeping; plant small, glaucous all over; stems thickish, diffused; spikes five or six inches long, slender and variegated.—Native of the south of France, about Montpellier and Vienne, and also found in Palestine.

7. Crucianella Hispida. Stem hispid; leaves lanceolate, hirsute, opposite; flowers umbelled, terminating. This plant has four-cornered, rough, prickly stalks, which bend downwards. The flowers are produced in small clusters at the ends of the branches; the corolla is blue, and cut into four parts at the top.—Native of La Vera Cruz.

8. Crucianella Americana. Leaves linear-lanceolate, hirsute, opposite; stem erect, villose; flowers solitary, axillary. This rises with a shrubby branching stalk, nearly three feet high, with narrow lanceolate leaves, covered with stinging hairs; flowers pale blue. Native of La Vera Cruz.

9. Crucianella Pubescens. Erect: leaves generally in sixes, linear pubescent; heads of flowers peduncled, axillary and terminal. Whole plant hoary-pubescent; flowers purple.—Native of Canada.

10. Crucianella Capitata. Procumbent, suffruticose: leaves in sixes, sublinear; flowers in heads, five-cleft. Root perennial, horizontal, strong, woody; stem suffruticose, weak, naked at bottom; branches filiform; leaves usually six together, ovate-lanceolate, acute, rugged, rolled back on the sides, on the fruit-bearing branches remote, on the others approximating; flowers dark-coloured; border of the corolla five-cleft, the segments bent in, and having a claw at the tip;

filamenta five, very short; antheræ oblong, two-grooved, dark-coloured.—Native of Mount Lebanon, near the summit.

Crus Galli. See *Cratægus*, and *Panicum*.

Cruzita; a genus of the class Tetrandria, order Digynia.—Generic Character. *Calix:* perianth three-leaved, the anterior leaf linear, acute, the lateral ones ovate, concave, permanent. *Corolla:* petals four, of the appearance of the calix, ovate, concave, the two outer ones perfectly entire, the inner ones with a very thin lacerated border. *Stamina:* filamenta four, capillary, a little shorter than the calix; antheræ small. *Pistil:* germen ovate, obtuse, compressed; style very short, two-parted, with spreading divisions; stigmas simple. *Pericarp:* none. *Corolla:* diverging, deciduous with the seed. *Seed:* single, naked. Essential Character. *Inner Calix:* four-leaved; *outer* three-leaved. *Corolla:* none. *Seed:* one.——The only known species is,

1. Cruzita Hispanica. Stem high; leaves opposite, lanceolate, quite entire; flowers spiked, collected into a panicle.—Native of South America.

Crypsis; a genus of the class Diandria, order Digynia.—Generic Character. *Calix:* glume one-flowered, two-valved; valves oblong-lanceolate, keeled, awnless, outer smaller. *Corolla:* glume two-valved; valves lanceolate-oblong, awnless, inner longer, and outer shorter than the calix. *Stamina:* filamenta two, capillary, longer than the corolla; antheræ oblong, cordate, incumbent. *Pistil:* germen superior, oblong; styles two, capillary, shorter than the stamina; stigmas hairy. *Pericarp:* none. *Corolla:* enclosing the seed. *Seed:* single, subcolumnar. Essential Character. *Calix:* glume two-valved, one-flowered. *Corolla:* glume two-valved, awnless.——The only known species is,

1. Crypsis Aculeata; *Prickly Crypsis.* Root annual; culms many, diffused, four inches high, branching, covered with the sheaths of the leaves, which are smooth, except at the edge, the upper ones gradually broader; spike subglobular, almost fastigiate, with the flowers almost sessile in the bosom of the involucre, which is three-leaved, and a little longer than the spike. This Grass is a native of Europe, of Siberia, and is common in Barbary.—There are two varieties.

Cryptostomum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, funnel-form, ventricose at the base, coloured, with a five-cleft border; segments lanceolate, unequal. *Corolla:* one-petalled, funnel-form; tube very short, inserted into the throat of the calix; border five-cleft; segments lanceolate, acute, unequal, converging; nectary fastened to the base of the corolla, broad, arched, closing the mouth of the corolla, five-toothed. *Stamina:* filamenta none; antheræ five, each inserted below each toothlet of the nectary. *Pistil:* germen roundish, in the bottom of the calix; style cylindric, the length of the calix; stigma capitate. *Pericarp:* berry globular, three-celled. *Seeds:* solitary, ovate, acute, marked with a large hilum or scar. Essential Character. *Calix:* ventricose, five-cleft; tube of the corolla inserted into the throat of the calix; border five-cleft. *Nectary:* five-toothed, closing the mouth of the corolla. *Berry:* dry, three-celled, with one seed in each cell.——The only known species is,

1. Cryptostomum Gujanense; *Guiana Cryptostomum.* It is a kind of spreading shrub, which grows in the isle of Cayenne, and in Guiana, where it is called *aimoutabu.* The root puts forth several twiggy and branching stems, five or six feet long, and sometimes longer. By means of these twigs and branches, it forms bushes more or less thick. These branches are garnished with alternate, nearly sessile, smooth, green, entire, oval leaves, terminating in a point. The flowers are produced in little clusters from the bosoms of the leaves, and exhale an odour much like that of the Syringa. The ovary becomes a three-celled yellow berry, each cell containing a kind of almond, of an agreeable substance, and gelatinous nature, of which the Creoles are very fond.

Cubæa; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, turbinate, spreading, permanent, five-parted; parts roundish, concave, four erect, the fifth and lowest larger, declined. *Corolla:* petals five, oblong, almost equal, furnished with claws, inserted into the neck of the calix, the three upper ones erect, the two lower declined. *Stamina:* filamenta ten, villose at the base, inserted into the calix below the petals, the three upper ones shorter, filiform, erect, pressed close to the upper petals, the seven lower ones longer, capillary, incumbent on and longer than the lower petals; antheræ oblong. *Pistil:* germen oblong, pedicelled; style capillary; stigma acute. *Pericarp:* legume long, coriaceous, villose, ventricose, obliquely acuminate, one-celled. *Seeds:* several, somewhat kidney-form. Essential Character. *Calix:* turbinate, five-parted, unequal, permanent. *Petals:* five, unequal. *Filamenta:* villose, three shorter. *Germen:* pedicelled. *Legume:* villose, six or seven seeded.——The species are,

1. Cubæa Paniculata; *Panicled Cubæa.* This is a tree sixty feet high, extremely branching at top; the branches are thick, the smaller ones, or ramulets, trigonal, growing in a scattered manner; the leaves are large, alternately pinnate; the leaflets in six pairs, opposite, subovate, acute, quite entire, green, and smooth above, somewhat downy beneath, and of an ash-coloured green; there are two opposite stipules at the base of the leaf-rib; the flowers are spicated, terminal, and disposed into a very ample panicle, the ramulets of which are long, trigonal, and many-flowered.

2. Cubæa Trigona; *Trigonal Cubæa.* Leaves pinnated; leaflets alternate. This is probably a mere variety of the former.—Both these species are natives of Guiana in woods on the banks of rivers.

Cuckold Tree. See *Mimosa.*

Cuckoo Flower. See *Cardamine.*

Cuckoo Pint, or *Pintle.* See *Arum Maculatum.*

Cucubalus; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, tubular, five-toothed, permanent. *Corolla:* petals five; claw the length of the calix; border flat; divisions often bifid; nectary none, crowning the corolla. *Stamina:* filamenta ten, subulate, the alternate ones later, alternately inserted into the claws of the petal; antheræ oblong. *Pistil:* germen somewhat oblong; styles three, longer than the stamina, subulate; stigmas pubescent, oblong, bent in an opposite direction to the sun. *Pericarp:* capsule covered, acuminate, three-celled, gaping five ways at the tip. *Seeds:* very many, roundish. Essential Character. *Calix:* inflated. *Petals:* five, having claws, but no crown. *Capsule:* three-celled. This genus is distinguished from *Silene*, by the corolla having no nectarial crown.——The species are,

1. Cucubalus Baccifcrus; *Berry-bearing Campion.* Calices bell-shaped; petals distant; pericarps coloured; branches divaricate; root perennial, creeping, and spreading far in the ground. The whole plant somewhat hairy; stems mounting four or five, and even eight or ten feet, among bushes, but trailing if not supported, herbaceous, and dying to the root every year; the leaves grow opposite at every joint, and resemble those of Chickweed, both in shape and colour; flowers axillary, standing single on slender pedun-

cles, and nodding; fruit an oval capsule resembling a berry, almost as large as a small black cherry, very black when ripe, smooth, shining, soft, and full of pulp. Mr. Miller asserts, that the berries of this plant are as poisonous as those of the *Atropa*, or Deadly Nightshade, itself.—It is a native of Germany, Flanders, France, Switzerland, Carniola, Italy, and Spain, and is found in woods and hedges; it has only been noticed in one place in Great Britain, being found in the isle of Anglesea, by Mr. Foulkes of Llandeber, near Ruthin; other botanists, however, have sought for it in vain. It delights in shade, and will thrive in almost any soil, but multiplies too fast by its creeping roots.

2. Cucubalus Behen; *Bladder Campion*, or *Spatling Poppy*. Calices subglobular, smooth, netted-veined; capsules three-celled; corollas almost naked; root perennial, woody, yellow on the outside, white within. Plant generally free from hairs; stem decumbent at the base, branched, and dichotomous near the summit, round, green or red, a foot or eighteen inches in height, the joints large; leaves below the forkings of the stem connate, frequently tinged with purple; flowers some solitary at the divisions of the stem, others crowded at the ends of the branches, some on long peduncles, nodding; calix inflated, longer than the claws of the petals, veined with green or brownish purple, but sometimes without veins; petals white, cleft beyond the middle, distant, the segments frequently slightly serrulate. This species varies with broader and narrower leaves, smooth and hairy; also with a double flower. It is a native of almost every part of Europe, in corn-fields and dry pastures, flowering in June, July, and August. Schreber says, that cattle reject it; but Linneus informs us, that horses, cows, sheep, and goats eat it; and that in Gothland they apply the herb externally in erysipetalous eruptions. The boiled leaves have something of the flavour of peas, and proved of great use to the inhabitants of Minorca, in the year 1685, when a swarm of locusts had destroyed the harvest: it is frequently called *white corn campion*, and *white bottle*. It is a rambling weed, and seldom cultivated; the root strikes so deep into the ground as not to be easily destroyed by the plough, and hence it is frequently growing in bunches among the corn.

3. Cucubalus Fabarius; *Bean Campion*. Leaves obovate, fleshy; root biennial, putting out many succulent leaves near the ground, out of the middle of which arises an upright stalk, about fifteen inches high, the lower part of which has leaves of the same form and consistence as those at the bottom, but smaller; these are placed opposite: the upper part of the stalk divides into two smaller, on which stand a few small herbaceous flowers at each joint: it flowers in June, and sometimes ripens seeds in Autumn.—It was discovered in the Levant by Tournefort; and is a native of Sicily. This is a biennial plant, generally perishing when it has produced seeds; and unless it be sown upon very dry rubbish, and in a warm situation, it will not survive an English winter.

4. Cucubalus Viscosus; *Clammy Campion*. Flowers lateral, every way decumbent; stem undivided; leaves reflex at the base; root biennial; root-leaves narrow, lanceolate, almost smooth, acuminate; stem-leaves broader, clasping, viscid, villose, somewhat waved, reflex at the base, not on the sides; peduncles opposite, short, three-flowered. The flowers are decumbent; not all turning one way, as in most of the species, but nodding every way, and smelling sweet at night.—Native of the Levant, Italy, Carniola, and Sweden. Linneus observes, that this is one of the many plants common to Sweden and Mount Ararat, as we find from Tournefort's collections.

5. Cucubalus Stellatus; *Four-leaved Campion*. Leaves in fours. This plant has a perennial root, from which arise two or three slender upright stalks, about a foot high, their lower part having four leaves at each joint, placed in the form of a cross. The flowers appear in June, and in warm seasons the seeds will ripen in England.—Native of Virginia and Canada.

6. Cucubalus Ægyptiacus; *Egyptian Campion*. Flowers erect; petals emarginate, retroflex, with a toothlet on each side. Stem weak, branching, spread upon the ground; leaves linear, not smooth, the younger ones ciliate at the base; flowers axillary, solitary, sessile; calix cylindric, in the fruit obovate, ten-cornered, with the interstices membranaceous, and the teeth small; petals minute, hardy, longer than the calix; styles often four.—Found by Hasselquist in Egypt.

7. Cucubalus Italicus; *Italian Campion*. Petals semibifid; calices club-shaped; panicle dichotomous, erect; stamina and pistils declined. Stem erect, about two feet high, viscid, hoary, especially at bottom, with a scarcely visible cotton; flowers on peduncles, erect; calices club-shaped, marked with ten grooves; petals broadish, white, beneath lead-colour. Retzius considers our Dover Campion as a variety of this, not being able to distinguish the one from the other. This is indeed more tender and delicate; that of Dover stiffer, larger, and hardier, the petals somewhat deeper cloven, and not stained underneath as the Italian is; although he does not regard these differences as sufficient to constitute a distinct species, and therefore regards them as varieties. Mr. Miller says that the root is perennial; the corolla pale red; and that it flowers in May and June, and ripens seeds in autumn.—Native of Italy. This, with the eighth, ninth, tenth, and twelfth species, is propagated by seeds which should be sown where the plants are intended to remain; for as they send out long tap-roots, they do not bear transplanting, unless it be performed while the plants are young.

8. Cucubalus Tataricus; *Hyssop-leaved Campion*. Petals two-parted; flowers in one row, decumbent; peduncles opposite, solitary, erect; stem entirely simple. Perennial, flowering from June to August.—Native of Siberia.

9. Cucubalus Sibiricus; *Siberian Campion*. Petals emarginate; flowers subverticilled; whorls umbellate, leafless. It is perennial; and flowers in August.—Native of Italy and Silesia.

10. Cucubalus Catholicus; *Panicled Campion*. Petals two-parted; flowers panicled; stamina long; leaves lanceolate-ovate. It is a perennial plant, sending out many long leaves near the ground; between these arise round viscid stalks, three feet high, having at each joint two long narrow leaves, ending in acute points; flowers in a nodding panicle; calix ventricose, inflated, not sinuated or angular; petals white, antheræ reddish; styles white; capsule subglobular.—It flowers in July and August, and is a native of Italy, Sicily, and Silesia. Dillenius's *Lychnis nocturna non viscosa*, is a variety of this. It is a perennial; stem two feet high, round smooth, purplish towards the top, glaucous; towards the middle and upper part come out branches in pairs, of a purplish green colour, dividing into others that are similar, which put forth flowers in June and July. The root-leaves are many, oblong, narrow, smooth, and without veins.

11. Cucubalus Mollissimus; *Velvet Campion*. Petals half two-parted; panicle dichotomous; stem and leaves soft like velvet; root-leaves spatulate. Stems many, rather stiff, erect, a foot high, somewhat tomentose, very soft; branches at bottom alternate, shorter; lower leaves spatulate, the rest lanceolate; flowers white, erect; stamina the length of the calix; perennial and shrubby.—Native of the sea-coasts of Italy.

12. Cucubalus Otites; *Spanish Campion* or *Catchfly*. Flowers dicœcous; petals linear, undivided. Root long, fusiform, slender; the root-leaves form a thick tuft, and are wedge-shaped, or rather spatulate, entire, and acuminate, diminishing into a long channelled footstalk; from these rise one or several stems, from one to two feet high, upright, and the lower part clothed with a few opposite leaves, shaped like the root-leaves, the upper part of which is naked and clammy; at the bottom of the panicle are two membranaceous connate bractes, and the same under each set of flower-stalks; the lower part of the panicle, both of the male and female flowers, consist of opposite branches, each topped with a kind of umbel. The male plant, says Haller, has a larger flower, and a redder calix; the female a smaller, and a green calix: the male flowers often produce abortive pistils, and the females abortive stamina. According to Scopoli, the male flowers are apetalous, and have the rudiment of a three-styled germen. In England, both sexes have the same narrow entire yellowish petals; and in Tartary it is found with an hermaphrodite flower. Neither Gerarde nor Parkinson seem to have been aware that this plant is a native of England. Ray seems to have been the first who noticed this, and says it was known in Suffolk by the name of *Star of the Earth*, being in great repute as a remedy for the hydrophobia; but although Mr. Ray entertained no doubt of its efficacy, we should be sorry now to depend on such a remedy in such a disorder.—This plant flowers in July and August, and is a native of Germany, Denmark, Switzerland, the Valais, France, Italy, Carniola, Spain, Siberia, and of England, in gravelly and sandy soils; as in gravel pits, on the north side of Newmarket, about Chippenham; beyond Barton mills in the way to Brandon; beyond Brandon, in the road to Hillborough; and near Swaffham and Narborough, in Norfolk.

13. Cucubalus Reflexus. Flowers spiked alternate in one row, subsessile; petals subbipartite, obscure. According to Magnol, root white, fibrous; stem (sometimes there are two) a palm and half in height; root-leaves hairy, forming a tuft on the ground, like those of the Daisy; stem-leaves two, opposite at each joint, narrow and oblong; at the top of the stem a spike of flowers, bent down at first like a scorpion's tail, but becoming gradually erect after the fall of the flowers; petals whitish, deeply cloven, bending inwards when they begin to wither.—Annual: and a native of Montpellier.

14. Cucubalus Saxifragus. Petals bifid; calices striated, the terminating ones subsessile, the side ones peduncled; root perennial; stem a palm in height, with linear leaflets.—Native of the Levant.

15. Cucubalus Pumilio; *Dwarf Campion*. Stems one-flowered, shorter than the flower; root-leaves forming a tuft, linear, obtuse, smooth and even; stem very simple and short, bearing one flower, but having often three joints; corolla red, the borders elliptic; germen sessile; styles short.—Found near Geneva; in Stiria, and the mountains bordering on Carinthia; and also in the mountains of Italy and Moravia: perennial.

16. Cucubalus Glutinosus. Petals two-parted; calices club-shaped; panicle dichotomous, spreading very much; stamina and pistils straight. Root flowering the second year; stems erect, dichotomous, somewhat villose, here and there covered with a tenacious viscid juice; leaves lanceolate, acute, very entire, hispid, especially the midrib, the upper ones linear; corolla greenish white; claws the length of the calix; border cloven almost to the base; stamina straight, the length of the corolla, or rather longer; antheræ incumbent.—Native country unknown.

17. Cucubalus Paniculatus. Root-leaves ovate, acute; stem-leaves lanceolate, opposite; flowers, panicled, erect.

Root-leaves many, on long petioles; from among which rises an upright stalk, sending out two opposite side-branches at each joint, under each of which is one lanceolate acute leaf: the side-branches, and also the upright stems, are terminated by whitish flowers, formed into a panicle, and standing erect. They appear in June.—The plant itself is biennial; and a native of Spain and Italy.

Cucumis; a genus of the class Monœcia, order Syngenesia.—Generic Character. *Male Flowers. Calix:* perianth one-leafed, bell-shaped, the margin terminated by five subulate teeth. *Corolla:* five-parted, growing to the calix, bell-shaped; divisions ovate, veiny-wrinkled. *Stamina:* filamenta three, very short, inserted into the calix, converging, of which two are bifid at the tip. The antheræ are lines creeping upwards and downwards, outwardly adnate. *Receptacle:* three-cornered, truncated, in the centre of the flower. *Female Flowers*, on the same plant with the males. *Calix:* perianth as in the males, superior, deciduous. *Corolla:* as in the males. *Stamina:* none; filamenta three, acuminate, very small, without antheræ. *Pistil:* germen inferior, large; style cylindric, very short; stigmas three, thick, gibbous, two-parted, turned outwards. *Pericarp:* pome (berry, according to Gærtner) three-celled, or four-celled; cells membranaceous, soft, separated into two secondary ones. *Seeds:* numerous, ovate-acute, compressed, placed in a double order. Essential Character. *Calix:* five-toothed. *Corolla:* five-parted. *Male. Filamenta:* three. *Female. Pistil:* three-cleft. *Pome:* with acute seeds.——The species are,

1. Cucumis Colocynthis; *Bitter Cucumber* or *Gourd*, or *Coloquintida*. Leaves multifid; fruits globular, smooth. The leaves are dark green, rough, and deeply laciniated: the stems rough and trailing, like those of Bryony; the flowers are small, and of a dull yellowish colour; the fruit round, and the size of an orange; it is green at first, but grows yellow when quite ripe; the pulp or internal part, is light, spongy, and white, it is most intensely and intolerably bitter, and, when dried, constitutes the coloquintida of the shops, which is an extremely strong and irritating cathartic, and has been sometimes commended, not only as an efficacious purgative, but also as an alterative in obstinate chronical disorders; others, however, have considered it as a dangerous drug. It has been principally used as a stimulus to other purgative medicines, as, for instance, an extract has been ordered in conjunction with aloes, and for mixing with various purgative pills, &c. It flowers from May to August.—Native place unknown.—This species, together with the second, third, fourth, fifth, tenth, eleventh, twelfth, and thirteenth, are raised from seeds; and, coming from hot or warm climates, require the protection of the dry or bark stove, especially the third.

2. Cucumis Prophetarum; *Globe Cucumber:* Leaves cordate, five-lobed, toothletted, obtuse; fruits globular, spiny-muricate. This plant is every way smaller than the common melon, and has a nauseous odour: the fruits are smooth, but armed with soft prickles; they are variegated with uncertain streaks, alternately greenish and yellowish; and are as bitter as coloquintida itself.—Native of Arabia and the Levant, flowering from June to September. Its specific name is an allusion to Jonah's gourd.

3. Cucumis Anguria; *Round Prickly-fruited Cucumber*. Leaves palmate-sinuate; fruits globular, echinate. Root annual; stems angular, hispid, four or five feet long; flowers small, like those of Bryony. The fruit seldom grows so large as a pigeon's egg, which it resembles in shape; but the rind is closely beset with blunt prickles, somewhat like the skin of a hedgehog: where it is exposed to the full air, it is of a dark green colour, but when closely

covered, either by the leaves or weeds, it becomes white. It is as indigenous as the Cucumber in the West Indies, but far inferior to it, although the inhabitants of the West India islands often eat it, and in the sugar islands frequently use it, with other herbs, in soups, and reckon it an agreeable and wholesome ingredient in them.

4. Cucumis Africanus; *African Cucumber.* Leaves palmate-sinuate; fruits oval, echinate; stems numerous, somewhat angular, prostrate; leaves five-cleft; flowers small.—Native of the Cape.

5. Cucumis Acutangulus; *Acute angled Cucumber.* Leaves rounded-angular; fruits with ten acute angles; five inches long, brownish yellow, smooth; flowers yellow. The fruit is very insipid, but it is eaten boiled and pickled.—Native of India; flowering from June till September.

6. Cucumis Melo; *Common* or *Musk-Melon.* Angles of the leaves rounded; fruits torulose. It has the stems procumbent, or trailing to a great length, and very much branched, furnished with tendrils for climbing; leaves palmate-sinuate, or entire, waving about the edge, and slightly toothed, with rounded corners; rough with bristles; flowers pale yellow, lateral, solitary; calix covered with white hairs; corolla wrinkled, ribbed, and having bristles along the ribs on the outside; fruit roundish or oval, blunt, commonly furrowed longitudinally, sometimes netted, sometimes warted or carbuncled, four to ten inches in length and diameter, yellowish green, or white; pulp firm, musky, reddish, seldom green; seeds many, oblong, pale, in a watery pulp.—Some say it is a native of Calmuc Tartary; but as it has been cultivated from time immemorial, it is difficult to determine its native country; however, it was first introduced into Europe from Persia.—There are many varieties of the Melon cultivated in different parts of the world; and in England there are too many of them propagated which are of no value, especially by those who supply the markets, where the size is principally regarded, so that by endeavouring to augment their bulk, the fruit is rendered of no value; on this account, we shall only mention a few of the varieties which are the most deserving of care, excluding the common Melons, as being unworthy of the trouble and expense of cultivation. 1. The Melon most esteemed is the Cantaleupe, so named from a place near Rome, where it has been long cultivated: it was brought thither from that part of Armenia which borders on Persia, where it is so plentiful that a horse-load is sold for a French crown. This Melon is delicious when in perfection, may be safely eaten, and will not offend the tenderest stomach: the Dutch are so partial to it, that they scarcely cultivate any other, but call it Cantaleupe by way of preeminence, never adding the surname *Melon*, as in all the rest: its outer coat is rough, and full of knobs and protuberances like warts; it is of a middling size, rather round than long; and the flesh is for the most part of an orange colour, though there are some in which it has a greenish hue, which are not so good. 2. The Romana is a good Melon, when perfectly healthy, in dry seasons; and as it may be brought more forward than the Cantaleupe, those who desire to have early Melons should cultivate this sort. 3. The Succado may also be cultivated for early fruit, but is not so good as the Cantaleupe. 4. The Zatte is good, but very small, being seldom bigger than a large orange, and a little flatted at each end, but contains so little flesh, that it is hardly worth the trouble of propagating. 5. The small Portugal, or Dormer Melon, is a pretty good fruit, and may be cultivated for an early crop; they are produced in plenty, and are preferred by those who are not nice respecting the quality, if the quantity be but sufficient. 6. The black Galloway, which will ripen in a shorter time, from its first setting, than any other sort here named, and is not a despicable fruit when suffered to ripen naturally.—*Of the Seeds.* Place no dependence upon seeds brought from abroad; they are not only generally unproductive, but when they do produce, the fruit is hardly ever tolerable. Different sorts of Melons or Gourds should not be planted near each other, as the farina from each, by impregnating other plants, makes it impossible to preserve the different sorts distinct; and as this mixture always occasions a great deterioration in point of quality, it ought the more carefully to be avoided. As it is very difficult to clean the seeds properly, Mr. Miller advises every one to do it for himself; as every person will then know from what sort it has been taken, and will not be deceived by the duplicity or ignorance of others. The seeds should not be sown before they are three years old, nor after they are six: seeds that will swim upon the water are to be avoided; the heavy seeds should be preferred.—*Methods of Cultivation.* It is common, says Mr. Miller, to hear many persons valuing themselves upon having two or three early Melons, which, when brought to the table, are not better than a pumpkin, though raised at great trouble and expense; for in order to have them ripe a little earlier than they would naturally come, if suffered to grow to their full size, the stem of the fruit is commonly twisted, to prevent the nourishment from entering it, by which the growth is checked; then the fruit is closely covered with the mowings of grass plats, laid of a sufficient depth to cause a fermentation, by which the fruit becomes coloured: but where this unnatural method is practised, the fruit has but little flesh, without either moisture, firmness, or flavour; so that after three or four months' attendance, with a great expense of dung, &c. there may perhaps be three or four brace of Melons produced, which are fitter for the dunghill than the table. He therefore advises never to attempt to have these fruits ripe earlier than the middle or latter end of June, or from that time till the end of September, during which period, if skilfully managed, they may be plentifully obtained.—*Sowing the Seeds.* But in order to continue the fruit so long, the seeds must be sown at two or three different times; first at the middle of February in forward seasons, but in backward springs at the end of that month. As the success greatly depends on raising the plants with strength, which cannot be so well effected if the severity of the weather should preclude the admission of fresh air, on this account it is advisable not to be two early in sowing the seeds. When the weather favours, they should be sown on the upper side of a Cucumber-bed, where there are any; and otherwise, a quantity of new horse-dung must be provided, thrown in a heap to ferment, and turned over that it may acquire an equal heat, in the same manner as is directed for Cucumbers: the plants also must be raised in the same manner as prescribed for the Cucumber; to which article, to prevent repetition, the reader is referred. The second season for sowing is about the middle of March. Both these sowings must be planted under frames, for those which are designed for bell or hand glasses, or to be covered with oil-papers, should not be sowa till about a week in April, otherwise they will extend their roots to the sides of the glasses, before it will be safe to let them run out, that is, during the sharp frosty mornings which often happen in the month of May; and if when they fill the glasses they are not allowed to run out, they will suffer as much from the heat of the sun during their confinement in the day, as from the frost of the morning and the cold of the night: the seeds of those plants intended for the glasses, should be put a little later into the hot-bed than those which are to be covered with the oil-papers.—*Preparing the Beds*

or *Ridges*. The ridges into which the plants are to be put out to remain, should always be in a warm situation; the best position is where they are open to the south, or a little inclined to the east, and sheltered at a distance by trees from the other points: the ridges should be enclosed with a good reed fence, but at such a distance every way from the bed, as not to obstruct the rays of the sun during any part of the day, with a door wide enough to admit the wheelbarrows, dung, &c. and kept locked up, to prevent children or ignorant persons from taking up the glasses, and letting in the cold air to the young plants.—*Preparation of the Earth and Dung*. The next thing is the preparation of the earth, in which the Dutch and German gardeners are very exact: the mixture which they generally prepare, is one-third of hazel loam, one third of the scouring of ditches or ponds, and one-third of very rotten dung; these are mixed up at least one, and often two years before they are used, and are often turned, to incorporate and sweeten their parts: but the compost in which they succeed best in England, is two-thirds of fresh gentle loam, and one-third of rotten cow-dung, which if mixed together one year before it is wanted, so as to have the benefit of a winter's frost and summer's heat, observing to turn it over often, and never suffering weeds to grow upon it, will be found equal to any other compost whatever. As these plants succeed best when they are planted young, so before the plants appear, there should be a quantity of new dung thrown in a heap, in proportion to the number of lights intended, allowing about fifteen good wheelbarrows full to each light; this must be two or three times turned over, in the same manner as directed for Cucumbers, and will be fit for use in a fortnight: the trench must then be made to receive the dung, and the bed must be made wider than the frames, but in length proportioned to the number of frames intended: the trench should be a foot or more deep in dry ground. When the bed is made, the frame should be placed over it to keep out wet, but there should be no earth laid upon it till after it has been three or four days made, and is found to be of a proper temperature of heat.—*Planting and Management of the Beds*. As soon as the bed is found to be of a proper warmth, the earth should be laid upon it, not more than two inches thick at first, except in the middle of each light where the plants are to be placed, where a hill terminating in a flat cone, fifteen inches high or more, must be raised; and in two or three days after the earth is put on the bed, it will be of a proper temper to receive the plants, which must be transplanted in the evening when there is little wind stirring: the roots must be raised with a trowel, carefully preserving all their fibres, for if they be broken off, the plants do not soon recover, nor ever after flourish so well as those which have been carefully removed; for these plants are more tender than those of the Cucumber, especially the Cantaleupe Melon, which if planted out soon after the third, or what the gardeners call the rough leaf, is put out, is long in recovering its vigour: so that when the beds cannot be ready for them in time, it will be a good method to put each plant into a small pot while they are young; they may also be plunged into the hot-bed where they were raised, or into the Cucumber-bed where there is room, so that they may be brought forward; and when the bed is ready, they may be turned out of the pots, with the whole ball of earth to their roots, whereby they will receive no check in removing; which is the best method that can be pursued with the Cantaleupe. When the plants are placed on the top of the hills, they should be gently watered, which should be repeated once or twice till after the plants have taken good root; after which they seldom require more, for too much wet cankers their roots, and then they never produce good fruit. When they have taken root, there should be a greater quantity of earth laid on the bed, beginning round the hills where the plants grow, that their roots may have room to strike out, and as the earth is put in from time to time, it must be trodden or pressed down as closely as possible; and it should be raised at least a foot and a half upon the dung all over the bed, observing also to raise the frames, that the glasses may not be too near the plants, lest the sun should scorch them. When the plants have got four leaves, the tops should be pinched off with the finger and thumb, but not bruised or cut with a knife, because in either of these cases the wound will not so soon heal over; this pinching is intended to compel the plants to put out lateral branches, for these are what will produce the fruit; therefore, when there are two or more of these lateral shoots produced, they must also be pinched, to force out more; and this must be practised often, that there may be a supply of what the gardeners call runners, to cover the bed. The management of these beds must be nearly the same as is directed for Cucumbers; it needs only be observed, that the Melons require a greater share of air, and very little water, which should be given at a distance from their stems. If the plants succeed well, they will spread over the bed, and reach to the frames in about five or six weeks, at which time the alleys between the beds should be dug out; or, where there is but one bed, there should be a trench made on each side, of about four feet wide, about as low as the bottom of the bed, and hot dung wheeled in to raise a lining to the same height as the dung of the bed, which should be trodden down close, and afterwards covered with the same earth, a foot and a half thick or more, as was laid upon the bed, treading it down as closely as possible. This will add to the width of the bed, so as to make it in the whole twelve feet broad, which is absolutely necessary, for the roots of the plants will extend themselves quite through it; and it is for want of this precaution, that it is common to see the vines of Melons decay before the fruit is well grown; for where there is no addition made to the width of the beds, the roots will have reached the sides by the time that the fruit appears, and having no room to extend themselves, their extremities are dried by the sun and the air, which is soon discovered by the plants hanging their leaves in the heat of the day, many of which decay near the stem; and the plants from that time gradually languish, so that the fruit cannot be supplied with nourishment; and when ripe, will be found to have little flesh, and even that mealy and ill-flavoured; whereas those plants which have sufficient breadth for their roots to run, and the earth laid of a proper depth, and closely trodden down, will remain in vigour until the frost destroys them, so that a second crop of fruit has sometimes ripened very well upon them, even after the first had been produced, of an unusually large size and excellent quality; whereas in most places where the Cantaleupe Melons have been raised in England, the beds have been no wider than they were first made, and had not generally more than three inches thickness of earth upon them, so that the plants have decayed many times without producing a single fruit; and from thence people have imagined, that this sort of Melon was too tender for this climate, while their ill success was entirely owing to their not understanding the culture. There is also another advantage attending this widening the beds, as above directed, which is that of communicating fresh warmth to them, by the hot dung, which is buried on each side, which will cause the dung in the bed to renew its heat; and as the plants will by this time show their fruit, this additional heat will be of great service in setting the fruit, especially if the season should prove cold, which frequently

happens even in May. When the beds are made up in the manner here directed, and the vines have extended so far as to fill the frames, and want more room, the frames should be raised about three inches upon bricks, to admit the shoots of the vines to run from under them; for if the plants be strong, they will run six or seven feet each way from the stems, and ought therefore to have room allowed them. On this account only one plant should be put in each light; for when the vines are crowded, the fruit will seldom set well, but will often drop off when they are about the size of an egg; neither should the frames be small, but about six feet wide, for the wider they are, the better the plants will thrive, and the more fruit they will produce.—*Pruning and Management of the Plants.* Mr. Miller observes, that there is no part of gardening in which practitioners differ more than in this: indeed, he says, rules laid down in books, and the different methods pursued by different individuals, have appeared so absurd to him, that no one that follows them ought to expect to succeed. Having before advised the pinching off the ends of the plants to produce lateral shoots, and their tops to force out more runners,—after a sufficient number are put out, the fruit should be waited for, which will soon come out in abundance; at which time the vines should be carefully looked over two or three times a week, to observe the fruit, and make choice of one upon each runner, which is situated nearest the stem, having the largest footstalk, and appearing to be the strongest fruit: then immediately pinch off all the other fruit which may appear upon the same runner, and also the end of the runner at the third joint above the fruit; and if the runner be gently pinched at the next joint above it, that will stop the sap, and set the fruit. Those who are so covetous of having a number of fruit, as not to suffer any to be taken off, generally fail in their expectation, for one fruit is as much as a single plant can properly nourish. As the pinching the three joints of the runners above the fruit will cause fresh runners to come out a little below the places where the others were pinched, the vines should be carefully looked over, to stop these new runners soon after they come out, as well as to pull the superfluous young fruit which will appear; and this must be repeated as often as necessary, which will be until those intended to stand are grown so large as to draw off all the nourishment which the plants can supply, for then the plants will begin to abate of their vigour. These few directions, if properly made use of, is all the pruning that will be necessary; they will only want to be watered at a distance from their stems, which will assist in setting the fruit, and cause it to swell; but this must be done with great caution. They should have as much air as possible in warm seasons, and in alterations of heat to cold should have their extremities covered every night with mats. —*Culture under Hand or Bell Glasses.* The plants must be raised in the same manner as the preceding: and at the latter end of April, in forward seasons, the beds should be made of a quantity of hot dung in proportion to their intended number. They must not be placed nearer than four feet apart, or the vines will not have room to run without entangling, which will fill the bed so closely as to prevent the fruit from setting. The bed should be made as above directed. If the plants intended for them be in pots, one only should be put under each glass; if not in pots, two, one of which may be afterwards removed, if both should happen to grow. They must be watered at first planting, to settle the earth to their roots, and shaded every day until they have taken new root; but if the nights be cold, it will be proper to cover the glasses with mats, to preserve the warmth of the bed. After they have taken root, they must be treated as directed for plants under frames. It must however be remarked, that as the Cantaleupe is very impatient of wet, the beds where it is raised must be arched over with hoops, to support the mats, and defend them at all times from the rain, which is the only means of ensuring their success in our variable climate; for Melons under these glasses, in as fine order as possible, have been destroyed totally by one day's heavy rain in June. Water must be given them with great caution, and never applied to their stems.—*Raising under Paper Covers.* Many persons, of late years, have raised Melons under oiled paper, and have often succeeded very well; but care must be taken not to keep the covering too close over them, in which case the vines draw up weak, and rarely set their fruit in any plenty. Mr. Miller, therefore, advises the bringing up of the plants under hand or bell glasses, in the manner before directed, until they are grown far enough to let them out from under the glasses, and then, instead of the covering with mats, to cover them with oiled paper, which, if prudently managed, will be the best that can be used The best sort of paper for this purpose is that which is strong, and not of too dark a colour, and it should be done over with linseed-oil, which will dry soon. A proportionable number of these sheets of paper should be pasted together, such as will spread to the dimensions of the frame for which it is intended; and if it be fixed before the oil be rubbed over, it will be an improvement, only observing that the paper should be oiled so long before they are used, that the oil may be thoroughly dry. and the stench gone off, otherwise it will destroy the plants. Some persons make these frames of broad hoops, in imitation of waggon-covers; but as they are too cumbersome to move, and have no convenience for admitting air to the plants, (except by raising the whole frame on one side) frames made of pantile laths, shaped like the ridge of a house, and each slope having hinges by which each side may be raised at pleasure to admit the air to the plants, should be preferred.—*Management after the Fruit is set.* Continue to pinch off all superfluous fruit, and weak runners; turn the fruit gently twice a week, that each side may have equal benefit of the sun and air. The plants will only require a little water in dry weather, once in a week or ten days will be sufficient, and will encourage the growth of the fruit, and cause the flesh to be thick; but the great caution to be observed is, not to overwater them, and to give them as much free air as possible whenever the weather will permit, for this is absolutely necessary to render the fruit good.—*Time of Cutting.* When the fruit is fully grown, they must be daily watched, to cut them at the proper time; for if left too long upon the vines, they will lose much of their delicacy. They should be looked over at least twice every day; and if the fruit intended for the table be cut early in the morning, before the sun has warmed them, they will be much better flavoured; but should any of them be wanted in the course of the day, they should be put into cold spring water, or ice, before they are brought to the table: those cut in the morning should also be kept in the coolest place possible until served up to table. The sign of this fruit's maturity is, that of its beginning to crack near the footstalk, and its beginning to smell, which never fail; for as the Cantaleupes seldom change their colour until too ripe, that should never be waited for. The directions here given for the raising of the Cantaleupe, will answer equally well for all the other sorts; and are greatly superior to the common method of raising this delicious fruit.——The seeds only are used in medicine, and not often, though they are not destitute of virtues. They are very cooling, and have a tendency to promote the urinary discharge, when beaten into an emulsion with barley-water; they make an ex-

cellent drink to be given in fevers, and other disorders, where a cooling regimen is necessary. It must, however, be confessed, that these are very old prescriptions, which are now little esteemed. The Melon is generally esteemed one of the most delicious summer fruits, and when taken in moderate quantities, is of easy digestion; but to excess, is apt to produce violent and sometimes dangerous disorders in the stomach and bowels. It is peculiarly refreshing in hot climates, abounds more in saccharine matter, and is said rarely to disagree.

8. Cucumis Chate; *Hairy Cucumber.* Hirsute: angles of the leaves entire, rounded; fruits fusiform, drawn to a point at each end, rough with hairs. Stems decumbent, cirrhose, obscurely five-cornered. The whole plant covered close and thick with soft, white, pellucid hairs, like the germen in the common Melon, which differs in this, in being rough, with stiffish, conical, distant hairs. The fruit swells in the middle, is rough, with erect white hairs, and has a beak at each end. It is found in the fertile earth round Cairo, after the inundation of the Nile, but no where else in Egypt; (Linnæus adds,) and in Arabia.—It is a native of the Levant. The fruit is rather watery; the flesh almost of the same substance as the Melon; the taste somewhat sweet and cool, but not equally so with the Water-Melon. The grandees and Europeans in Egypt, eat it as the most pleasant fruit, and that from which they have least to apprehend; but in England it is very indifferent, and is rarely cultivated.

9. Cucumis Sativus; *Common Cucumber.* Leaves straight between the angles; fruit oblong, scabrous. The Cucumber is so well known, it is only necessary to remark, that the leaves differ very much in their form from those of the Melon, running out into sharp angles, especially at the end, with the line between the angles straight, having the nerves prominent on the upper surface, and very rough with bristles; they are also of a firmer texture. In the flowers, the segments of the calix are much longer; the corolla of a deeper yellow, each petal or part much wrinkled, commonly rolled in at the edges; the ribs at the back bristly as in the Melon, and the principal rib ending in a long green point. The principal varieties are, 1. Common rough green prickly; six or seven inches long, with a dark green skin, closely set with small prickles: it is hardy, and a plentiful bearer, but does not fruit early: 2. short green prickly; three or four inches long, skin rather smooth, but having small black prickles: one of the hardiest and early sorts: 3. long green prickly; from six to eight or nine inches long, thinly set with prickles: this is a good bearer, and the best for main crops: there is also a variety of it with white fruit: 4. early green cluster, shortish, early, and remarkable for the flowers appearing in clusters: 5. long smooth green Turkey; the stalks and leaves much larger than those of the former sorts; the fruit generally twice as long, from ten to fifteen inches, and has a smooth rind without prickles: 6. long smooth white Turkey; differs little from the foregoing, except in colour; it is however less watery, and is therefore generally better esteemed: 7. large smooth green Roman; the plants are very strong; and the fruit large, long, and quite smooth: 8. long white prickly Dutch; fruit eight or ten inches long, white, with small black prickles. It is a bad bearer in England, and not so hardy as the common sorts; but the fruit is less watery, and has fewer seeds. Ray observes, in his *Travels,* that the Italians call our Cucumbers *citrulli;* and Water Melons, and Pompions, *cucumeri:* in Spanish it is called *cohombro;* in French, *concombre;* in Swedish, *gurka;* in Danish, *angurke, agurke;* in Dutch, *komkommer;* in German, *gurke, kukummer.*—*Culture of the Cucumber.* Those persons who wish to be early with their Cucumbers, generally put them in before Christmas; but the generality of gardeners commonly put their seeds into the hot-bed about Christmas. A stove will raise these plants of a better quality, and with less danger of failure, than a common hot-bed. The seeds should be sown in small pots filled with light dry earth, and plunged into the tan-bed, in the warmest part of the stove. The pots with earth should be plunged three or four days before the seeds are sown, that the earth may be properly warmed to receive them: the seed should be at least three or four years old, or more the better, provided it will grow. The plants will appear in a week or nine days; then as many small pots filled with dry light earth, as there are plants intended for planting, should be prepared by plunging them into the bark-bed, that the earth may be warmed to receive the plants; two of which should be pricked into these pots, as soon as the two first leaves are raised above the ground; but when they have taken root, and are safe, the worst should be drawn out, taking care not to disturb the roots of those which are left. The water given to these plants should be lukewarm, and they must be guarded from the moisture which frequently drops from the glasses of the stove. They should not be kept long in the stove, but a hot-bed must be prepared to receive them, the size of which must be in proportion to the quantity of plants. A cart load of dung will make a bed large enough for a middling family. The dung should be new, not too full of straw, with some sea-coal ashes well mixed together, and thrown in a heap, until it has fermented a few days, when it should be turned over and mixed, laying it up again in a heap. The bed should be well sheltered by reed hedges, and the ground should be dry. The trench ought at least to be a foot deep, into which the dung should be wheeled, and carefully stirred up and mixed, so that no part of it should be left unseparated; for where there is not this care taken, the bed will settle unequally; there should also be great care taken to beat the dung down close alike in every part of the bed. The frame and glasses should then be put upon it to keep out the rain, but no earth ought to be laid upon the surface until two or three days after, that the steam of the dung may have time to evaporate. If there should be any danger of the bed burning, it will be proper to lay some short old dung, two inches thick, over the top of the other, which will prevent it by keeping down the heat. After this, there should be a sufficient number of three-farthing pots placed upon the bed, filled with light dry earth, and all the interstices between them filled up with any common earth. In two or three days the earth in these pots will be of a proper temperature to receive the plants, which should then be turned out of the first small pot, and planted into these, with the ball of earth adhering to their roots, taking care not to give them too much wet; and as they will have such large balls of earth, as not to feel their removal, they will not require shading from the sun; but the glasses should be raised up a little on the contrary side to the wind, to let the steam of the bed pass off; and the glasses should be frequently turned in the day-time, that the wet occasioned by the steam of the dung may be dried, otherwise the moisture will fall on the plants, which will be very injurious to them. If the bed should heat too violently, so as to endanger scalding the roots of the plants, the pots may be raised so as to allow of a little hollow at their bottoms, which will effectually prevent it; and when the heat declines, the pots may be settled down again. The glasses of the hot-bed should be well covered with mats every night, to keep the bed in a proper temperature of heat; and great care must be taken to admit fresh air every day to the plants, which must

be cautiously done, so as to guard against the cold winds, which usually blow at that season. A mat or canvass ought to be hung over the opening made by the raising of the glasses, to prevent the cold from rushing in too violently. If the weather prove inclement, and the heat of the bed decline, there should be some hot dung laid round the sides to renew the heat, which must not be suffered to fail; for as the plants have been tenderly brought up, the cold would soon destroy them. In this bed the plants may remain three weeks or a month, in which time, if they have been properly managed, they will have acquired sufficient strength to be put out altogether; therefore a proper quantity of dung should be mixed, and turned before-hand, for making the beds into which they are now to be removed. The quantity usually allowed is one good cart-load to each light, which should be well mixed and turned over in the manner before directed, and then wheeled into a trench of the length and breadth of the intended bed, and worked and covered with old cow-dung as before. The frames and glasses should then be put on the bed, and raised every day to let the steam pass off, and in about three days the bed will be in a proper temperature of heat to receive the plants. The dung should then be covered over with dry earth, four inches thick, or eight inches in the middle of the bed, which should be done at least twenty-four hours before the plants are removed into it, in order that the earth may be properly warmed. The plants should then be carefully shaken out of the pots, preserving all the earth to their roots, and placed on the top of the earth in the middle of the bed. Two, or at most three, of these plants will be sufficient for each light; they should be placed seven or eight inches asunder, but never close together. There should always be a magazine of good earth laid under cover to keep it dry, for the earthing of these beds; for if it be taken up wet it will chill the beds, and occasion great damps therein; it is therefore quite necessary to have a sufficient quantity of earth prepared long before it is used. When the plants are settled, they must have proper air and water, but not too much of either. The glasses should be kept well covered with mats every night, to keep up the warmth of the bed, and some fresh earth should be introduced at different times, which should be laid at some distance from the roots of the plants until it be warmed, and should then be drawn up round the heap of earth in which they grow, to increase its depth. By this method of supplying the earth, the whole bed will be covered nine or ten inches deep with it, which will cherish the roots of the plants, and prevent them from hanging their leaves in the heat of the day. It will however be necessary to raise the frames, after the earth has been laid to the full thickness on the bed, otherwise the glasses will be too close to the plants; but when this is done, there must be care taken to stop the earth again very close round the side of the frame, to prevent the cold air from entering under them. When the fruit appears, many male flowers will also come out on different parts of the plant; but as the female flowers have the young fruit situated under them, and the male have none, they are thus easily distinguished, especially as the male have three stamina in their centre, with their antheræ, which are loaded with a golden powder. This is designed to impregnate the female flowers, and when the plants are fully exposed to the open air, the soft breezes of wind convey this male powder or farina from the male to the female flowers; but if the air be too much excluded at this season, the plants will drop off for want of it. Bees have been observed to creep into the frames when the glasses were raised to admit the air, and being accidentally shut in, have supplied the want of those gentle breezes of wind, by carrying the farina of the male flowers on their hind legs into the female flowers, where they have left a sufficient quantity to impregnate them. These insects therefore have taught the gardener a method to supply the want of free air, which is so indispensable in the natural way of accomplishing that purpose. This is done by carefully gathering the male flowers at the time when the farina is fully formed, and carrying them to the female flowers, turning them down over them, and with the nail of one finger gently striking the outside of the male, so as to cause the powder on the summits to scatter into the female flowers, by which means the crop is much more certain to be produced. After the Cucumbers are thus fairly set, if the bed be of a proper temperature of warmth, they will soon swell, and become fit for use; it is therefore only necessary to water the plants properly, which is done by sprinkling the water all over the bed, for the roots will extend to the sides of the bed; therefore, those who wish to continue these plants as long as possible in vigour, should add a sufficient thickness of dung and of earth all round the sides of the beds, so as to enlarge them to nearly double their first width; this will supply nourishment to the roots of the plants, whereby they may be continued fruitful during great part of the summer; whereas, when this is not practised, the roots of the plants, when they have reached the side of the beds, are dried by the wind and sun, so that they languish and decay long before their time.—In gardens where there are no stoves, the seeds should be sown upon a well-prepared hot-bed. It should be sown in halfpenny pots, that they may be easily removed from one bed to another, if the heat should decline; or raised up, if the heat should prove too great. When they are come up, a fresh hot-bed must be prepared, as was before directed, and the after-management of the plants must be nearly the same; but as the steam of the hot-beds frequently occasions great damps, the glasses must be frequently turned, and have the condensed moisture wiped off them, which is very destructive to the plants on which it falls. Care also must be had to let in fresh air at all proper times, and also to keep the bed in a proper temperature of heat; for as there is no fire to warm the air, that must be supplied by the heat of the dung; and finally, the plants may be ridged out as before directed. In about a month after they are ridged out, you may expect to see the beginnings of fruit, which is often preceded by male flowers, which ignorant persons sometimes pull off, calling them false blossoms; which is very absurd, as these flowers are of absolute service to promote the welfare of the fruit, which very often falls away and comes to nothing, in consequence of the removal of these false blossoms, as they are ridiculously termed. Neither ought the vines to be pruned, as is the custom of unskilful people, especially when they are too luxuriant, which often occurs when the seeds were fresh, or of the last year's saving, and the plants in good heart. When this is the case, it is very proper to pull up one of the plants before it has run so far as to entangle with the other; for it often happens that one or two plants, when they are vigorous, are better than four or five; for when the frame is too much crowded with vines, the fruit is seldom either so good or so plentiful as when there is a moderate quantity of shoots, for the air being thereby excluded from the young fruit, they are consequently liable to decay and fall off. The glasses must be covered every night, and during the extreme heat of the day; and when the vines are spread so as to cover the hot-bed, it will be very serviceable, when you water them, to sprinkle them all over gently, so as not to hurt the leaves, but never to do this when the sun is very hot; or the exhalations, which his beams might draw up from this watering, would

destroy the plants. *Culture of Cucumbers under Hand or Bell Glasses.* In the middle of March or a little later, according to the earliness of the season, you must put in your seeds either under a bell-glass, or in the upper side of your early hot-bed; and when the plants are come up, they should be pricked upon another moderate hot-bed, which should be covered with bell or hand glasses, placed as closely as possible to each other: the plants should be pricked in two inches apart, observing to shade and water them until they have taken new root, which will be in a very short time. This is to be understood of such places where a great quantity of plants are required, which is constantly the case in the kitchen-gardens near London; but where a family only is to be supplied, there may be plants enough raised on the upper side of the beds, where the first crop is growing; or if the vines should have extended themselves so far as to cover the whole bed, whereby there will not be sufficient room to prick the plants, a single light will contain such a number of young plants for planting out in ridges, as will supply the largest family with Cucumbers during the latter part of the season. In severe weather, and at night, the glasses should be covered with mats, but raised during the day in hot weather, on the opposite side from the wind, to give air to the plants, which will greatly strengthen them; but they must be very sparingly watered while young. By the middle of April these plants will be strong enough to ridge out; you must therefore be provided with a heap of new dung, in proportion to the quantity of holes you design to plant, allowing one load to six holes. When the dung is fit for use, dig a trench about two feet four inches wide, and in length just as you please, or the place will allow; if the soil be dry, it should be ten inches deep; but if wet, very little in the ground, levelling the earth in the bottom, then putting in the dung, mixing and stirring up every part of it, as was directed for the first hot-beds, laying it close and even. When this is done, you must make holes about eight inches over, and six deep, just in the middle of the ridge, and three feet and a half distance from each other; but if there be more than one ridge, eight feet and a half from each other; fill the holes with good light earth, put a stick into the middle of each for a mark, and afterwards cover the ridge over with earth about four inches thick, laying the same thickness of it round the sides. When the earth is thus levelled smooth, set the glasses upon the holes, leaving them close down about twenty-four hours, in which time the earth in the holes will be sufficiently warmed to receive the plants; then stir up the earth of these holes with your hand, hollowing it out in the form of a bason, in each of which set three or four plants, taking care to shade and water them until they have again taken root; they must afterwards have air admitted to them, in proportion to the heat of the weather, by raising the glasses on the side opposite to the wind, which must only be done in the middle of the day; the glasses should then be raised by a forked stick on the south side, in height proportioned to the growth of the plants, that they may not be scorched by the sun, which will also harden and prepare them to endure the open air, to which, notwithstanding, they ought not to be prematurely exposed, as they are often killed by the morning frosts in May. Towards the latter end of that month, when the weather appears settled and warm, turn your plants down gently out of the glasses, not in hot sunny weather, but when the sky is cloudy, with an appearance of rain. In doing this, raise the glasses either upon bricks or forked sticks, upon which they may stand securely at four or five inches from the ground, that the plants may lie under them without bruising. The glasses should not be wholly removed till the latter end of June or the beginning of July, for they will preserve the moisture much longer at the roots than when the plants are exposed to the open air. About three weeks after you have turned the plants out of the glasses, they will have made a considerable progress, especially in favourable weather: the spaces of ground between the ridges should then be dug up, making it very even, and laying out the runners of the vines in exact order, taking care not to disturb them too much, nor to break or bruise the leaves: this digging of the ground will loosen it, and make it more penetrable for the roots of the plants to strike into, and at the same time make the surface of the earth more suitable to the vines that run upon it. After this there will be no farther care needful, except to keep them clear from weeds, and to water them as often as they shall require, which is when they hang their greater leaves. The ridges thus managed, will continue to produce large quantities of fruit, from June until the latter end of August, after which time the coldness of the season renders them unwholesome, especially if the autumn prove wet. From these ridges it is common to select Cucumbers for seed, reserving two or three of the fairest fruit upon each hole, never leaving above one upon a plant, and that situated near the root, for if more be left, they will weaken the plant so much as greatly to diminish the size and quantity of the other fruit. Those persons who value themselves upon producing Cucumbers very early in the season, generally leave three or four of the first produce of the earliest crop when the fruit is promising, and the seeds of these early fruit are generally preferred to any other for the first crop; these should be situated near the main stem of the plant near the root: they should remain upon the vines till the middle or end of August, that the seeds may be perfectly ripe; and when you gather them from the vines it will be proper to set the fruit in a row upright against a hedge or wall, where they may remain until the outer covers begin to decay, at which time you should cut them open, and scrape out the seeds, together with the pulp, into a tub, which ought to be afterwards covered with a board, to exclude dirt of every kind; let it remain eight or ten days in the tub, observing to stir it well to the bottom every day with a long stick, in order to rot the pulp, that it may be easily separated from the seeds; then pour some water into the tub, stirring it well about, which will raise the scum to the top, but the seeds will settle to the bottom, so that by two or three times pouring in water, and afterwards straining it off, they will be perfectly cleared from the pulp: the seeds ought then to be spread upon a mat, and exposed three or four days to the open air till perfectly dry, when they may be put up in bags, and hung up in a dry place out of the reach of vermin, where they will keep good for several years, but are generally preferred when three or four years old, as being apt to produce less vigorous but more fruitful plants.—*Culture of Cucumbers in the open Ground.* The season for sowing these is towards the latter end of May, when the weather is settled; the ground where they are commonly sown is between Cauliflowers, in the wide rows between which, four feet and a half space is allowed at planting: in these rows square holes should be dug three feet and a half distance from each other, breaking the earth well with a spade, and afterwards smoothing and hollowing it into the form of a bason with your hand, then put eight or nine seeds into the middle of each hole, covering them over with earth half an inch thick; and if it should be very dry weather, it will be proper to water the holes gently in a day or two after the seeds are sown, in order to facilitate their vegetation. In five or six days, if the weather be good, the plants will begin to thrust their heads above ground, at which time it will be very

necessary to keep off the sparrows, which are extremely fond of the young tender seed-leaves of these plants, and will soon destroy the whole crop, if not prevented. But as the plants do not remain above a week in danger, it will be no great trouble to look after them during that time; for when the plants have appeared, and expanded their seed-leaves, the sparrows will no longer molest them. You must not fail to water them gently, according to the season; and when the third or rough leaf of the plants begin to appear, pull out all the weakest plants, leaving only three or four of the most promising and best-situated in each hole, stirring the earth round about them with a small hoe, to destroy the weeds, and raise the earth about the shanks of the plants, introducing a little earth between them, and pressing it down gently with your hand, to separate the plants more distinctly from each other to a greater distance: they must be carefully watered in dry weather, and kept entirely free from weeds. When the Cauliflowers are drawn off the ground from between the Cucumbers, you must hoe and clean the ground, drawing the earth up round each hole in the form of a bason, the better to retain the water that is given them. The plants must also be laid out in the exact order in which they are to run, and to extend so that they may not interfere with each other. A little earth must then be laid between them, and pressed down gently with the hand, giving them at the same time a little water to settle the earth about them, repeating it as often as is necessary, and taking care to remove the weeds. The plants thus managed will begin to produce fruit towards the end of July, when you may either gather them young for pickling, or suffer them to grow for large fruit. The quantity of holes necessary for a family is about fifty or sixty, for if you have fewer, they will not produce enough at one gathering to make it worth the trouble and expense of pickling, without keeping them too long in the house: for from fifty holes, more than two hundred cannot be gathered at each time, but this may be done twice a week throughout the season, so that about two thousand may be gathered if they be taken small, which will not be too many even for a private family; but should so many not be wanted, they may be left to grow to a proper size for eating.

10. Cucumis Anguinus; *Serpent Cucumber*, or *Melon*. Leaves lobate; fruit cylindric, very long, smooth, and even writhed. Flowers smaller than others of the genus, with a long tube, they scarcely exceed the size of Jessamine flowers; the fruit or cucumber is three feet and a half long, never straight, but strangely twisted, so as to resemble a snake; it is externally of a grayish-green, and grows very red in time; the odour is rank, and the taste bitter.—Native of the East Indies. This, says La Marche, is only a variety of Trichosanthes Anguina.

11. Cucumis Flexuosus; *Flexuose Cucumber*, or *Melon*. Leaves angular-sublobate; fruits cylindric, furrowed, curved. Fruit the size of a large pear, of an oblong cylindric form, smooth, even, eatable, and delicious.—It ripens in June; is called *banket-melon* by the Dutch, and is cultivated about Nagasaki, and in other parts of Japan.

12. Cucumis Conomon. Leaves angular-sublobate, toothed; fruits fusiform, ten-furrowed, smooth. Stem decumbent, striated, hispid, with scattered hairs, as are the petioles; leaves cordate, nerved, pale underneath; flowers axillary, pedunculed, aggregate, yellow; peduncles very short, hispid; fruit the size of a man's head or larger, oblong.—It is cultivated every where in Japan; the fruit preserved is sold under the name of *connemon*, and is a common food among the Japanese; it is also frequently eaten by the Dutch at Batavia, and is sometimes brought to Holland.

13. Cucumis Maderaspatanus. Leaves cordate, entire, toothletted; fruits globular, smooth. Loureiro informs us, that it is very nearly allied to Melothria; according to him the stem is round, slender, branched, climbing; leaves roundish, petioled, alternate, small; flowers white, axillary, on many-flowered peduncles; fruit yellow, half an inch in diameter.—Native of Ceylon, and other parts of the East Indies, of Cochin-china, and also of the Cape.

Cucurbita; a genus of the class Monœcia, order Syngenesia.—Generic Character. *Male Flowers. Calix:* perianth one-leafed, bell-shaped, the margin terminated by five subulate teeth. *Corolla:* five-parted, growing to the calix, bell-shaped; divisions veiny-rugose; nectary a gland in the centre of the flower, concave, triangular. *Stamina:* filamenta three, converging, connected above, distinct below, growing to the calix; antheræ creeping upwards and downwards, linear. *Female Flowers. Calix:* perianth as in the male, superior, deciduous. *Corolla:* as in the male; nectariferous glandule concave, spreading. *Stamina:* margin surrounding, ending in three very short cusps. *Pistil:* germen large, inferior; style conic, three-cleft at the tip; stigma single, with a thick convex margin creeping upwards and downwards, three-cleft. *Pericarp:* pome generally three-celled; cells membranaceous, soft, distinct. *Seeds:* very many, compressed, swollen on the margin, obtuse placed in double order. Essential Character. *Calix:* five-toothed. *Corolla:* five-cleft. *Male. Filamenta:* three. *Female. Pistil*; five-cleft. *Seeds* of the pome with a swelling margin.—The plants of this genus are very nearly allied to those of *Cucumis*, and are distinguished from it chiefly by the swelling rim of the seed: like them, they are annual, with trailing herbaceous stems, furnished with tendrils for climbing.——The species are,

1. Cucurbita Lagenaria; *Bottle Gourd*, or *Long Gourd*. Leaves somewhat angular, tomentose, biglandular at the base underneath; fruit woody. Stems thick, long, climbing, with tendrils, branched, extending nearly twenty feet in length, covered with a fine soft hairy down; flowers large, white, on long peduncles, solitary, lateral; fruit shaped like a bottle, with a large roundish belly and a neck very smooth, when ripe of a pale yellow colour, some nearly six feet long, and eighteen inches round; the rind hardens on being dried, and will contain water: the Arabians call it *charrah*. The poor people eat it boiled with vinegar, or fill the shell with rice and meat, thus making a kind of pudding of it. In Jamaica the shells are generally used for water-cups, and frequently serve for bottles among the negroes, and poorer sort of white people in that country. A decoction of the leaves is strongly recommended in purging clysters; and the pulp of the fruit is often employed in resolutive poultices; it is bitter and purgative, and may be used instead of coloquintida.—The large gourd, (the Cucurbita Lignosa of Miller) a variety of this species, is cultivated on account of the woody shell of the fruit, which will frequently contain between twenty and thirty quarts: where aloes is manufactured in any quantity, it is commonly preserved in these shells; but in Jamaica they are only employed to hold water and small grain. The shells are of different forms, some shaped like a pear, others like a bottle, others again like an orange.—They grow in all parts of Egypt and in Arabia, wherever the mountains are covered with rich soil; and is also a native of both Indies. This, as well as the second, third, fourth, fifth, and sixth species, may be propagated by sowing their seeds on a hot-bed in April, and transplanted when the plants come up, to another moderate hot-bed, where they should be brought up hardily, and have a great deal of air to strengthen them; and when they have

got four or five leaves, they should be transplanted into holes made upon an old dunghill, or some such place, allowing them ample room, as some of them will run to a great distance. The first species requires to be more tenderly treated than the others, in order to procure ripe fruit; the seeds therefore should be sown upon a moderate hot-bed in April, and the plants afterwards planted each into a penny pot, and plunged into a very moderate hot-bed to bring them forward, but must not nevertheless be tenderly treated, for if they have not a large share of free air admitted to them every day, they will draw up weak. When the plants are grown too large to remain in the pots, holes must be dug wherever they are designed to grow, and three or four barrows-full of hot dung be put into each; these must be covered with earth, in which the plants must be set, and covered with hand-glasses till they run out. There are some persons who place these plants by the sides of arbours, over which they train the vines, so that in a short time they will cover the whole arbour, and afford a strong shade: others plant them near walls, pales, or hedges, to which they fasten the vines, and train them to a considerable height: the orange-shaped gourd is the sort that is commonly so planted, for the ornament of its fruit, which has a pretty effect when seen at some distance. All these plants require a large supply of water in dry weather.

2. Cucurbita Hispida; *Rough Gourd.* Leaves angular; stem and petioles hispid. Stem furrowed, climbing, covered with ash-coloured hairs; leaves petioled, having five angles, or sublobed with straight angles, nerved, villose on both sides; petioles round, hispid, a finger's length; flowers axillary, very closely set with ferruginous hairs, the lower a finger's length, the upper shorter; tendrils simple, bifid or trifid; calix and peduncle very closely hirsute, with ferruginous hairs. —Native of Japan, where it flowers in September.

3. Cucurbita Ovifera; *Egg Gourd.* Leaves lobed; fruits obovate; tendrils in sevens, digitated. The herb and flowers are very like the Pompion, but not so rough; the leaves are not many-cleft, neither is the fruit bitter; the tendrils are straight, and end in small spiral tendrils, usually seven in number; fruit smooth and even, the size and form of a hen's egg, with the rind so hard as to be scarcely cut with a knife, painted with ten milk-white longitudinal lines.—Native of Persia, in the neighbourhood of Astracan.

4. Cucurbita Pepo; *Pompion*, or *Pumpkin Gourd.* Leaves lobed; fruits glossy. Stems thick, angular, extremely hispid, branched, climbing by means of bifid tendrils, or spreading to the distance of forty feet, so that a single plant, if properly encouraged, and all the side-branches be permitted to remain, will overspread twenty rods of ground: leaves cordate, large, roundish, angular, toothed, wrinkled, hairy on both sides, on alternate, thick, flexuose, hirsute petioles; flowers yellow, lateral, solitary, on peduncles resembling the petioles, but shorter; teeth of the calix large, gashed, waved, reflex; fruit roundish, ovate-globular or oblong-ovate, pale green on the outside, and commonly hispid with bristly hairs; within having a spongy insipid white pulp or flesh, divided in the middle into three primary cells, each of which is double, and again subdivided into the proper cells of the seeds, which are very numerous, horizontal, elliptic, of a compressed lens-shape. The fruit varies in form and size; two hundred and sixty of them, on an average the size of half a peck, have been produced from a single plant in New England. In Europe, the Pompion, which we have corrupted to *Pumpkin*, is frequently planted by the country people on their dunghills, and suffered to trail at length over the grass of an orchard, When the fruit is ripe, they cut a hole in the side, take out the seeds, fill the void with sliced apples, adding a little sugar and spice, and bake it; but it is esteemed hard of digestion. The Eastern nations reckon it to be the most wholesome of its genus, and give it to the sick as a cooling diuretic. In England, Pompions were formerly called English Melons, or, corruptly, *Millions;* and the true Melons, *Musk Melons.* The Pompion flowers from June to August; but its native place is not known.

5. Cucurbita Verrucosa; *Warted Gourd.* Leaves lobed; fruits knobby-warted. The plant, flower, and seeds of this, are the same as in the Pompion; but the fruit is smaller, with a harder and almost woody rind.—It is very common in most parts of America, where it is cultivated as a culinary fruit: the form and size are various, being round, flat, shaped like a bottle, or oblong: the rind becomes white when the fruit is ripe, and is covered with large protuberances or warts. It is commonly gathered when half grown, and boiled by the inhabitants of America, to eat as sauce with their meat. In England it is cultivated merely as a curiosity.

6. Cucurbita Melopepo; *Squash Gourd.* Leaves lobed; stem erect; fruits flatted, knobby. Stem roundish, hairy; procumbent or climbing, with trifid tendrils; branches many, long; leaves lobed, angular serrate, hairy, alternate on long petioles; flowers yellow, on lateral one-flowered peduncles; segments of the calix linear, spatulate, spreading; antheræ linear, distinct, erect; fruit large, reddish, yellow or yellowish white within and without, commonly roundish, often flatted at top and bottom, always torulose, sometimes ovate, seldom warted. Linnæus seems to be mistaken in describing the tendrils on the stem as neither climbing nor procumbent; for Loureiro informs us, that in India it is always scandent when a support is at hand, but when there is none, always procumbent. Mr. Miller also remarks, that it often grows with a strong bushy erect stalk, without putting out runners from the sides like the other sorts, but that after it has been cultivated a few years in a garden, it will become trailing, and that seeds out of the same fruit have produced erect plants, bearing the same fruit with the parent in one garden; and trailing plants, with larger fruit of a different shape, in another.—It is common in North America, where it is cultivated like the preceding species as a sauce; and also in the East Indies and China. The fruit is of great use in long voyages, for it may be kept several months fresh and sweet.

7. Cucurbita Citrullus; *Water Melon.* Leaves many-parted. Stem round, striated, long, branched, hairy, procumbent, diffused, with lateral bifid tendrils; flowers yellow, on short, solitary, lateral peduncles; fruit large, smooth, round, oblong, a foot and a half in length, within watery, sweet, very red or pale; seeds black or rufous. The fruit varies much in form and colour: it serves the Egyptians for meat, drink, and physic, and is eaten by them in abundance during the season, which is from the beginning of May until the overflowing of the Nile, that is, to the end of July or the beginning of August. It is the only medicine the common people use in ardent fevers, for which purpose they have a variety, which is softer and more juicy than the common sort; when this is very ripe, or almost putrid, they collect the juice, and mix it with rose-water and a little sugar. Europeans should be cautious in eating this fruit, for when taken in the heat of the day whilst the body is warm, colics and other bad consequences often ensue; and it is well known that worms are a very prevalent complaint while this fruit is in season. Gerarde calls the Water Melon *citruls, cucumber citruls,* and *pome citruls;* Parkinson the *citrull,* or *Turkey Million.* The Water Melon is cultivated in the warm countries of Europe and also in Asia, Africa, and America, where it is greatly esteemed for its wholesome cooling quality.—*Culture.* The best sorts

to cultivate in England, are those with small sound fruit which come from Astracan; those which have large fruit seldom ripen in this climate. First procure the seeds three or four years old; prepare a heap of new dung in the beginning of February, which should be thrown in a heap for about twelve days to heat, turning it over twice, mixing it well; then make a hot-bed, in which those seeds and also Cucumber and Musk-Melon seeds may be sown: the dung should be well wrought in making the bed, and should be beaten down pretty close with a dung-fork, that the heat may not be too violent, but of longer continuance: when the dung is thus laid, cover it about four inches thick with a good light earth; and, having spread it very even, put the frame and glass over it, leaving it to warm four or five days before the seed be sown, and observing, if much steam arise, to raise the glass that it may pass off. When the bed is in proper temper, sow the seeds in drills, covering them over with about half an inch of earth; after this, if you find the bed very warm, air must be admitted by raising the glasses in the day-time; but if the bed be cool, cover it well with mats in cold or wet weather, and every night. In four or five days' time another hot-bed must be prepared to receive these plants, which will be fit to transplant in ten days, or at farthest in a fortnight, after the seeds are sown. This second bed need not be very large, for a few of these plants, when planted out, will fill a large quantity of frames; and while they are young, the same quantity may be kept in one light, so that those persons who raise early Cucumbers and Musk-Melons, may also raise these plants in the same bed, for two or three lights will be sufficient to raise plants of all the three kinds to supply the largest families, until they are planted out to remain. In the management of these plants while young, there is little difference from the directions given for raising Musk-Melons, which need not be repeated here. (See p.398, &c.) The chief thing to be observed is, to let them have a large share of air whenever the weather will permit, otherwise the plants will draw up weak, and be good for little. As they will require two or three hot-beds to bring the fruit to perfection, it will be the better way to put the plants into baskets, when they have put forth four leaves, two in each basket will be sufficient, for when both plants succeed, the weakest must be drawn out, which must be done before they put out their side-shoots, otherwise they will entangle, and then one can hardly be removed without seriously injuring the other. The baskets need only be twelve inches in diameter, so that one light will contain twenty-four of them, which will be sufficient to stock twenty-four others when they are planted out to remain; for where they are vigorous, a single plant will spread so far as to cover three lights, which they must be allowed to do, as they seldom set their fruit well when restrained from spreading: the baskets may remain in the nursery-bed until the plants have spread and put out many runners; for when the heat of the bed declines, it is soon revived by adding a proper lining of warm dung quite round the sides of the bed; so that when the plants are taken out and planted in the ridges where they are to remain, the heat of the beds will last so long as to set their fruit; which is of great consequence, for when the plants are ridged out very young, the beds are generally made of great thickness in dung in order to continue their heat, so that for some time after they are made, they are so extremely hot as to endanger the scalding of the plants; and by the time the fruit begins to appear, there is little heat left in the beds, which often causes the fruit to drop off, and come to nothing. After these plants are placed in the beds where they are to remain, carefully lead the shoots as they are produced, so as to fill each part of the frame, but not to crowd each other; and be careful to keep them clear from weeds, and also to admit fresh air whenever the weather will permit, and to water them, but only in small quantities. In short, there is little difference to be observed in the management of these from that of Musk-Melons, except that they require more room.

Cudweed. See *Athanasia*, *Filago*, and *Gnaphalium*.

Cuminum; a genus of the class Pentandria, order Digynia. —Generic Character. *Calix:* umbel universal and partial, often four-parted; involucre universal of as many leaves, which are very long, perfectly entire, but in some three-cleft; partial similar; perianth proper scarcely manifest; florets all fertile. *Corolla:* universal uniform; proper of five petals, inflex-emarginate, somewhat unequal. *Stamina:* filamenta five, simple; antheræ simple. *Pistil:* germen ovate, larger than the flower, inferior; styles two, very small; stigmas simple. *Pericarp:* none; fruit ovate, striated. *Seeds:* two, ovate, striated on one side and convex, on the other flat. Essential Character. *Involucres:* four-cleft. *Umbellules:* four. *Fruits:* ovate, striated.—— The only known species is,

1. Cuminum Cyminum; *Cumin.* Root annual, round, scarcely branched. Stem a palm in height; leaves divided into long narrow segments like those of Fennel, but much smaller, of a deep green, and generally turned back at the end; pedunclcs opposite to the leaves, spreading the length of the internodes; rays of the umbel from four to six, nearly equal, spreading the third of an inch in length; corollas purplish, or pale blush-colour, rayed; fruit oblong, thicker in the middle, the same size as those of Fennel, and aromatic; seeds convex on one side, on which are nine streaks, with minute bristles scattered over it, the other side is flat. The seeds are kept in the shops, and have a very disagreeable flavour, but possess considerable virtues, being excellent against the colic, and wind in the stomach: bruised, and externally applied in the form of a plaster, they will frequently remove stitches, and other pains in the sides and breast; a large quantity of them must be laid on, when used in the latter case.—This plant flowers in June and July; and is a native of Egypt; cultivated in the south of Europe, and all over Lesser Asia. It is also commonly sold in Malta, where they call it *cumino aigro*, hot cumin, to distinguish it from anise, which they term *cumino dolce*, or sweet cumin. If the seeds of this plant be sown in small pots, filled with light kitchen-garden earth, and plunged into a very moderate hot-bed to bring up the plants, and these, after having been gradually inured to the open air, turned out of the pots, and planted in a warm border of good earth, preserving the balls of earth which adhered to their roots in the pots, and afterwards taking care to keep them clean from weeds, the plants will flower pretty well, and by thus being brought forward in the spring, will probably perfect their seeds when the season happens to be very warm.

Cunila; a genus of the class Diandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, cylindric, permanent, ten-streaked; mouth somewhat lipped, five-toothed, permanent. *Corolla:* one-petalled, ringent; upper lip erect, flat, emarginate; lower lip three-parted; divisions rounded, middle one emarginate. *Stamina:* filamenta two, filiform, and two rudiments of filamenta; antheræ roundish, twin. *Pistil:* germen four-parted; style filiform, length of the stamina; stigma two-cleft, sharp. *Pericarp:* none; calix with its throat closed with shaggy hairs. *Seeds:* four, oval, minute. Essential Character. *Corolla:* ringent; upper lip erect, flat. *Filamenta:* two, barren

Seeds: four.—These plants are all hardy, and may be propagated by seeds which they sometimes produce here.——The species are,

1. Cunila Mariana; *Mint-leaved Cunila.* Leaves ovate, serrate; corymbs terminating, dichotomous. There are two varieties of this species; one has narrower leaves and larger heads, and the leaves have very little scent; whereas those of the common sort smell so like Pennyroyal as scarcely to be distinguished from it.—It is perennial, flowering from July to September; and a native of North America. This may be increased by planting cuttings in the spring in the same manner as is practised for Mint; they will take root freely, and flourish exceedingly, if planted in a moist soil.

2. Cunila Pulegioides; *Pennyroyal-leaved Cunila.* Leaves oblong, two-toothed; flowers in whorls. Annual; a span high, and brachiate; whorls of flowers the whole length of the plant; corolla white, with a violet-coloured throat; the upper lip scarcely emarginate. It has a strong scent, and an infusion of it is used in North America, by persons who have taken cold, or have pains in their limbs.—Native of dry places in North America. It flowers with us in August.

3. Cunila Thymoides; *Thyme-leaved Cunila.* Leaves oval, very entire; flowers in whorls; stem four-cornered, erect, a span in height, with a few simple short branches. Whorls of flowers the whole length of the stem.—Annual: and a native of the country about Montpellier.

1. Cunila Capitata. Leaves ovate; flowers terminating; umbel roundish; stem a palm in height; leaves somewhat oblong, naked; calices smooth and even, streaked; corollas purple; antheræ black.—Native of Siberia.

Cunninghamia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-toothed, very small, permanent. *Corolla:* one-petalled; tube short; border four-cleft, acute; nectary a rim surrounding the base of the style. *Stamina:* filamenta four, the same length with the border of the corolla, inserted in the throat; antheræ roundish. *Pistil:* germen roundish, inferior; style filiform, bifid; stigmas obtuse. *Pericarp:* berry ovate, crowned, one-celled. *Seed:* single, ovate, two-celled, with oblong kernels. Essential Character. *Calix:* very small four-toothed. *Corolla:* four-cleft, with a short tube. *Berry:* crowned with a two-celled two-seeded nut.—The species are,

1. Cunninghamia Sarmentosa. A sort of ramping shrub, with the stem about six feet high, and four or five inches in diameter. The bark is reddish, wrinkled, and cloven; the wood whitish. As the shrub grows, it pushes out towards right and left long twiggy branches, which apply themselves to the trunks of large trees, and insensibly climb to their tops, where they also spread, but in the same kind of long twiggy branches, many of which hang pendent to within six or eight feet of the ground. The leaves are six inches long, and four broad, two on each knot, opposite. The flowers, which are small, grow in spikes, proceeding from the bosoms of the leaves towards the extremities of the twigs; their colour is bluish; the calix reddish.—This shrub is found on trees which grow near the Crique de Galibis.

2. Cunninghamia Bifurcata. Leaves egg-shaped, acute at both ends, nearly smooth; peduncles forked at their upper part; flowers unilateral.

3. Cunninghamia Nitida. Leaves egg-shaped, quite smooth, shining; peduncles dichotomous.—This, and the foregoing, natives of the Caribbee islands.

4. Cunninghamia Verticillata. Leaves inversely egg-shaped, acuminate, whorled, generally in threes; peduncles axillary, forked.—Native of the isle of France and Bourbon.

Cunonia; a genus of the class Decandria, order Digynia.—Generic Character. *Calix:* perianth five-leaved, very small; leaflets ovate, concave, acute. *Corolla:* petals five, obovate, spreading, sessile. *Stamina:* filamenta ten, subulate, the length of the corolla; antheræ roundish, twin. *Pistil:* germen conic; styles two, subulate, longer than the corolla; stigmas obtuse. *Pericarp:* capsule oblong, acuminate, two-celled. *Seeds:* very many, roundish. Essential Character. *Corolla:* five-petalled. *Calix:* five-leaved. *Capsule:* two celled, acuminate, many-seeded. *Styles:* longer than the flower.——The only known species is,

1. Cunonia Capensis. A shrub: leaves opposite, pinnate, with an odd leaflet, sessile, and not larger than the rest; leaflets often seven, lanceolate, smooth, serrate; racemes terminating, in pairs, simple, with many one-flowered scattered pedicels springing from one point.—Native of the Cape of Good Hope.

Cupania; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved, inferior; leaflets oblong, erect. *Corolla:* petals five, cowled at top, upright. *Stamina:* filamenta eight, capillary, longer than the calix, erect; antheræ incumbent. *Pistil:* germen ovate; style short, trifid; stigmas blunt. *Pericarp:* capsule coriaceous, turbinate-ovate, three-lobed, three-celled, three-valved. *Seed:* solitary, roundish, with a bell-shaped crenate aril embracing the seed like a calix. Observe, *many of the flowers are abortive.* Essential Character. *Calix:* five-leaved. *Petals:* five, cowled at the top. *Style:* trifid. *Capsule:* three-celled. *Seeds:* solitary, arilled.——The species are,

1. Cupania Tomentosa. Leaves pinnate, obovate, retuse, ferruginous-tomentose underneath. Jacquin describes this tree as twelve feet high, the younger branches and ribs of the leaves slightly tomentose; leaves alternate, half a foot long; leaflets usually three pairs, alternate; flowers small, numerous, with yellowish petals, in the shape of an isosceles triangle inverted, whence the name *trigonis.*—Native of the woods of Hispaniola.

2. Cupania Glabra. Leaves pinnate, ovate, obtuse crenate, smooth. It rises to the height of twelve or fourteen feet. The leaves are large, and the wood soft and useless.—This shrubby tree is common in the lower hills of Jamaica, where it is called *loblolly-tree.*

3. Cupania Saponarioides. Leaves pinnate, oblong, entire, rugged underneath.——Native of the West Indies.

Cupressus: a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male Flowers,* about twenty, disposed in an egg-shaped catkin. *Calix:* scale roundish, acuminate, concave, pedicelled, peltate. *Corolla:* none. *Stamina:* filamenta none; antheræ two or four, oval-roundish, one-celled, adnate to the base of the inner side of the scale. *Female Flowers,* from eight to ten, clustered into a small short cone. *Calix:* scale egg-shaped, thickish, spreading. *Corolla:* none. *Pistil;* scarcely discernible; but at the base of each scale there are several points which appear to be germina, with simple or double sessile stigmas. *Pericarp:* a strobile; scales thickened, at first shut, afterwards expanding, orbicular, angular, generally peltate, convex and almost pointed on the outside, a little concave within, appearing like the heads of nails. *Seeds:* several, small, oblong, angular. Essential Character. *Males. Catkin:* imbricated. *Calix:* a scale. *Corolla:* none. *Antheræ:* two or four, sessile, without filaments. *Females. Catkin:* strobilaceous. *Calix:* a scale. *Corolla:* none. *Stigma:* one or two concave points. *Nut:* angular.——These trees are all propagated by seeds, sown early in the spring, on a bed of warm dry

sandy earth, which must be levelled very smooth. The seeds should be sown rather thick, sifting the same light earth over them, half an inch deep. If the weather should prove very warm and dry, it will be proper to shade the bed from the sun in the day, and water it carefully, observing not to wash the seeds out of the ground. If the seed sown be good, the young plants will appear in about two months' time. They must be kept clean from weeds, and often refreshed with water in dry weather. If the seeds be sown upon a moderate hot-bed, covered with mats, they will come up much sooner, and with greater certainty, than when they are sown in the cold ground. When the young plants have remained two years in this bed, they will be strong enough to bear transplanting into the nursery; but as they are very tender while young, they should be covered with mats in severe frosts. The best season for removing them is the beginning of April, when the drying easterly winds of March are over, selecting if possible a cloudy day, when the weather inclines to rain. In taking them out of the seed-bed, preserve the roots as entire as possible, and, if you can, a ball of earth to each plant. The soil for the two first sorts should be a warm sand or gravel, which should be levelled, after it has been dug and cleansed from all noxious weeds. Then draw the lines where the trees are to be planted, at three feet asunder, planting them at eighteen inches' distance in the rows, observing to close the earth well to their roots, as well as to lay a little mulch upon the surface of ground about their stems, and water them well, so as to settle the earth to their roots, which should be repeated twice a week until the plants have taken fresh root. They may remain in the nursery three or four years, according to the progress they make, or till the ground where they are to be planted is ready. If, however, you desire to let them remain longer, you should take up every other tree in the row, to transplant them out, for otherwise their roots will be matted together, so as to make it difficult to transplant them, as well as to endanger their future growth. They ought on no account to be left too long in the nursery before they are transplanted out to remain, because they do not mat together so closely as many other sorts of evergreen-trees, whereby they may be taken up with a good ball of earth to their roots, but the roots of the Cypress being apt to extend out in length, it is one of the most difficult trees to remove when grown large; therefore most curious persons prefer putting the young plants into small pots, when they first take them up out of the seed-bed, and so train them up in pots two or three years, until they are fit to plant out where they are to stand for good, and by this management they are secure of all the plants. When they are planted out to remain, if they be intended for timber, they should be placed twelve or fourteen feet every way apart. Those in the full ground should be carefully removed, observing not to shake the earth from their roots; to prevent which, you should open the ground about each tree, cutting off all long roots, then working under the ball of earth, cut the downright roots off, and after paring off all the earth from the upper part of the ball, to reduce the bulk of it, (so that its weight may not be too great for its fibres to support,) they may be carried upon a hand-barrow by two persons, to the place where they are to be planted, which if very distant, will make it necessary to put them into baskets, or have their roots closely matted up. When they are planted, you must settle the earth close to their roots as before, laying a little mulch upon the surface of the ground about their stems, to prevent the sun and wind from entering the earth and drying their fibres. They must also be well watered, to settle the ground to their roots, which must also be repeated, if the weather prove dry, until they have taken root; after which time they will require little more care than to keep them clean from weeds.——The species are,

1. Cupressus Sempervirens; *Evergreen Cypress.* Leaves imbricate; fronds quadrangular. Stem upright, with many round branches, either growing upright or spreading abroad, strigose and toothed with the rudiments of leaves; fronds dichotomous, subquadrangular; leaflets alternately opposite, decurrent, subcarinate; fruits globular, or somewhat ovate, on the sides or at the ends of the branches when unripe dark green; seed linear, oblong, subcolumnar, bay-coloured. Mr. Miller specifically distinguishes the *upright* from the *spreading Cypress*, (Cupressus Horizontalis:) the former, he says, is very common in most of the old gardens in England, but are not at present so much in request as formerly; though it is not destitute of advantages, for it serves to add to the beauty of wildernesses, or clumps of evergreens, and has considerable effect where properly disposed. It was formerly planted in the borders of pleasure-gardens, and kept shorn to a pyramidal or conic form, while others, who thought that cutting would destroy them, tied them up with cords, in order to form the same figure in which they are naturally disposed to grow; but this winding them about prevented the air from entering the inward parts of the branches, so that the leaves decayed, and became unsightly, and the growth of the whole plant was greatly retarded: even those which are sheared, if the operation be not performed in the spring or early in the summer, are very subject to be injured by sharp winds and cutting frosts in winter. Upon the whole, therefore, it is much better to suffer them to assume their natural form, planting them among other evergreen trees, where, by the darkness of their green leaves, together with their waving heads, they will greatly add to the variety. The spreading Cypress is by far the largest-growing tree, and is the most common timber in some parts of the Levant: this, if planted upon a warm, sandy, gravelly soil, will prosper exceedingly; and though the plants of this sort are not so finely shaped as the first, yet they greatly compensate that defect by their vigorous growth and strength, in resisting all weathers. This tree is very well adapted for intermixing with evergreens of a second size, next to Pines and Firs, to form clumps, in which class it will keep pace with trees of the same line, and be very handsome. The wood of this tree is very valuable, when grown to a size fit for planks, which it will reach as soon as Oaks; why, therefore, should not this tree be cultivated for that purpose, since there are many places in England where the soil is of a sandy or gravelly nature, and seldom produces any thing worth cultivating? Now in such places these trees will thrive wonderfully, and greatly add to the pleasure of the owner while growing, and produce afterwards as much profit to his successors probably as the finest plantation of Oaks; especially if the timber prove as good in England as in the islands of the Archipelago, where we find it was so gainful a commodity to the island of Candia, that the plantations were called *dos filiæ*, the felling of one of them being reckoned a daughter's portion. The timber of this tree is said to resist the worm, moth, and all putrefaction, and to last many hundred years. The doors of St. Peter's church at Rome were made of this material, which lasted from the time of the Emperor Constantine to that of Pope Eugenius II. and were then sound and entire, when the Pope exchanged them for gates of brass. Thucydides informs us, that the coffins in which the Athenians used to bury their heroes, and the mummy-chests brought with those condited bodies out of Egypt, were made of this wood; which is of a dusky brown red colour, has a sweet

smell, and is fitted by its hardness for a variety of purposes. It is fit, says Evelyn, for chests, and other domestic furniture; harps and other musical instruments, being a sonorous wood; for stakes to vines, pales, rails, and planks, of which there were some of this wood at Venice above four feet in breadth. It is used for building by the Maltese and Cretans. It is recommended for the improvement of the air, and as a specific for the lungs, by sending forth great quantities of aromatic and balsamic scents; hence, many of the ancient physicians of the Eastern countries, used to send their patients, who were afflicted with disorders of the lungs, to the island of Candia, which at that time abounded with these trees. The Cypress, among the ancients, was sacred to Pluto and Proserpine, and was used at funerals, especially of persons of fashion. It was placed in front of the house, or in the vestribule, that no person who was to perform any sacred rites might enter a place polluted by a dead body; and the reason assigned for its use on this melancholy occasion was, that the Cypress, when once cut down, never springs up again: hence it would be an improper emblem in a Christian country. The use of evergreens is yet not uncommon among us; but they are supposed to be significant of immortality, at the same time that their balsamic scent guards the attendants against the effluvia and infection that may be apprehended from a putrid body. On account of its extreme durability, Plato would have the laws and sacred rites inscribed on Cypress tablets; and Pliny informs us, that the statue of Jupiter in the capitol, made of this wood in the year of Rome 661, was sound in his time. Notwithstanding all the excellent qualities it possesses; it is not much cultivated in England, principally because it cannot endure the frost of our winters, and the severe blasts which follow in the spring. The upright Cypress above described is the most common sort in England, although it seldom produces good seeds; it is therefore the best way to have the cones brought over entire from the south of France and Italy, where they ripen perfectly well, and take them out just before you sow them. When you wish to extract the seeds, expose the cones to a gentle heat, which will cause them to open, and easily emit their seeds. Dr. Hunter recommends the ground, in which the seeds are to be sown, to be well worked, turned over, and mellowed by frost; and, if the soil be not naturally sandy, to work in some drift-sand all over the bed, six inches deep; to sow the seeds moderately thin, because when they are sown too thick the roots become matted together, so that the plants cannot be removed out of the seed-bed into the nursery without great danger. Mr. Boutcher informs us, that if in the beginning of winter some saw-dust be sifted over them, it will much contribute to their preservation, in case of severe weather. In the spring after sowing, the plants, if well managed, will be six or seven inches high, and should be removed and planted in rows eighteen inches asunder, and eight or nine inches from each other; they should remain here only one year, when they ought to be upwards of a foot high. In the second spring, they ought to be planted in the common nursery, in rows three feet asunder, and eighteen inches from each other; and after having stood two years in this nursery, they may be removed to the place where they are to remain. As it is no uncommon thing for a hard winter to destroy whole beds of these plants, it becomes necessary to provide against such a misfortune, by sowing some seed in pots, which must be placed in a sheltered situation, so as to receive the morning sun till eleven o'clock, kept moderately watered, and removed in October under a frame. In the succeeding spring, let them be shaken out of these pots, and planted in others of fourteen or sixteen inches diameter, each of which will admit from sixteen to twenty plants, which must be placed in the shade till in a free growing state, and removed in winter under a frame. Mr. Miller declares, that the spreading Cypress is rare in England, and that the tree which has passed under that title is only a variety of the common sort, the branches of which grow much looser; but that the true spreading Cypress extends its branches horizontally from the first year, and continues to extend them to a great length, as the tree advances. He affirms, that it is certainly a distinct species, growing to a much larger size, and that there are some of a considerable stature in Italy.—The fruit of the Cypress, gathered before it is quite ripe, and dried, is an excellent balsamic and styptic medicine. It stops bleeding at the nose, the bloody flux, spitting of blood, and is beneficial in excessive discharges of the menses. Hill observes, that the fruit, which is the only part employed in medicine, ought to be gathered before it bursts, and carefully dried, and given in powder; five and twenty grains is the dose. Few are aware how powerful this remedy is, or it would certainly be held in greater estimation.

2. Cupressus Disticha; *Deciduous Cypress Tree.* Leaves distich, spreading.—It is a native of America, where it grows in watery places, and rises to a prodigious height and wonderful bulk, some reaching seventy feet high, and being several fathoms in circumference. They grow constantly in water; and may therefore be of singular advantage to plant in such swampy or wet soils where few other trees will grow, especially of the resinous kind. That they are very hardy with respect to cold, is evident from some few trees of this kind, which were formerly planted in England; particularly one in the gardens of John Tradescant, at South Lambeth, near Vauxhall, "which (says Miller) is upwards of thirty feet high, and of a considerable bulk: though in a common yard, where no care is taken of it, but, on the contrary, many hooks are driven into the trunk to fasten cords thereto for drying clothes, yet the tree is in great health and vigour, but it has not produced any fruit, which may be occasioned for want of moisture; for we often see many aquatic plants growing upon a drier soil, but seldom so productive of either flowers or fruit as those which grow in the water." The tree above described has however been long destroyed, and is only introduced here, to shew how well this species will resist the cold of our climate. The cones may be easily procured from Virginia or Carolina, of which it is a native; and the seeds will rise as easily as those of the first species, for it is at least equally hardy. It was formerly kept in pots, and housed in winter; but did not succeed so well with this management, as since it has been planted in the full ground; and it has always been observed to thrive best in a moist soil. By casting its leaves in winter, it does not suit with plantations of evergreens at that season, but in summer it has much the appearance of an evergreen. It may also be propagated by cuttings, which should be planted in a bed of moist earth in the spring, before they begin to shoot.

3. Cupressus Thyoides; *White Cedar*, or *Arbor-Vitæ-leaved Cypress.* Leaves imbricate; fronds ancipital.—This tree grows to a considerable size in North America, where it is a native. It seldom exceeds fifteen feet high in England; and when raised from cuttings, has rather the appearance of a shrub, not being above nine or ten feet high. Loureiro informs us, that in China, and Cochin-china, where it also grows naturally, it is only eight feet high. The branches are numerous, and stand two ways; the tree naturally forms itself into a regular head; the leaves are evergreen, flat, sharp, very short, imbricated, and resemble those of the *Arbor-Vitæ*;

they are small, and of a browner green than the common Cypress. The fruit is blue, and not larger than the berry of the Juniper, from which it is not easily distinguished at a little distance; but it is a perfect cone or strobile, having several nuts, like that of the common sort. It abounds in the swamps of New Jersey, and in some parts of Pennsylvania and New York, but not further northward than lat. 41. 25. The number, however, has been greatly reduced; and as this tree requires to be of eighty years' growth from the seed before it can be used for timber, posterity will probably feel the want of this useful tree in America. It is used for fencing, and even for posts, but does not last in the ground so well as the red cedar, or Juniperus Virginiana, but makes good canoes, hoops, and other coopers' ware. Many houses are built of it; but it is in the highest esteem for shingles, and great quantities of it are sent for that purpose to New York; and it is also exported to the West Indies, both for shingles and pipe staves. This tree, if planted in a strong moist soil, may become profitable for timber, and growing in a climate much colder than England, would undoubtedly succeed in the open air of our climate; and as it is an evergreen of regular growth, thrives in cold situations, and a moist soil, which is unfavourable to other species of the same genus, besides being a great ornament to large plantations, it certainly deserves to be much encouraged.—It is propagated by seeds sown in the spring, in boxes or tubs filled with light fresh earth, and placed where they are to enjoy the morning sun till eleven or twelve o'clock. They must be watered in dry weather, and kept clear from weeds. At Michaelmas they should be removed to a warmer place, for the plants seldom appear till the following spring, so that it will be proper to place the boxes or tubs near a south fence during the winter season, lest by being too much shaded, the wet should rot the seeds. In the second spring, if the tubs or boxes be placed on a moderate hot-bed, it will bring up the plants very soon, and greatly forward their growth; but as the spring advances, they should be introduced into the open air by degrees, and placed in a sheltered situation, where they may enjoy the morning sun, taking care to remove all weeds, and supply them with water in dry weather. In the following winter, it will be proper to remove the tubs near a south wall or pale; for while the plants are young, they are sometimes tenderer than they afterwards become. At the end of March, or the beginning of April, just before the plants begin to shoot, they should be carefully taken up out of the boxes, and having prepared a bed or two of fresh earth (according to the quantity of plants raised) in a sheltered situation, place the plants in it in rows about eighteen inches asunder, and about a foot from each other. This should be done in cloudy weather, when there is rain; for in dry weather, when easterly winds commonly blow at this season, it will be very dangerous to transplant these plants; so that in dry weather, it had better be deferred a fortnight longer, until a change in the weather. When first planted, they should be watered, to settle the earth to their roots; and then the surface of the ground should be covered with mulch, to prevent the sun and wind from penetrating to the roots of these plants, for nothing is more injurious to them than to have their fibres dried when they are transplanted. They ought not, therefore, to be taken out of the tubs, until the ground be ready to receive them, for they cannot lie any time out of it, without great danger of perishing.

4. Cupressus Juniperoides; *African* or *Cape Cypress*. Leaves opposite, decussated, subulate, patulous. The young plants of this species, raised from seeds in England, have loose spreading branches, closely beset with narrow straight leaves, alternately opposite, nearly an inch long, of a light green colour, and continuing in verdure all the year. The cones are black when ripe.—Native of the Cape of Good Hope. This is too tender to thrive while young in the open air of England, but would probably do well in warmer situations, after the plants have acquired considerable strength. Young plants, placed under a frame which had no glass, but only wooden shutters, were not injured by the cold, though the earth of their pots was frequently frozen hard. The practice now is, to keep them in pots, and house them in winter, till they are a yard in height. When they are committed to the open air, they must have a dry warm soil, and a well-sheltered situation; nothing, however, can ensure them but the dry-stove.

5. Cupressus Pendula; *Portuguese Cypress*. Leaves imbricate, glandulose: fronds quadrangular, glaucous; branches hanging down. This is a small tree, with a glaucous appearance. The leaves are glandulous. The flowers resemble those of the first species. It is at present rare in the English gardens, though there have been many plants raised here, which, as it is not quite so hardy as the common Cypress, have either perished, or been irrecoverably injured in severe winters. There are plenty of these trees growing at Busaco, near Coimbra in Portugal, where it is called the Cedar of Busaco, and grows to be a timber tree, so that from thence the seeds may be easily obtained.—It grows naturally at Goa, whence it was originally brought to Portugal, where it flourishes as above stated, although in England it seldom exceeds fifteen feet high. The branches extend horizontally to a great distance every way, quite from the ground; they grow without much order, and the tree has a very different appearance from the other sorts. Thunberg describes the Cupressus Pendula of Japan, to be a tree of a man's height, or rather more, erect, and smooth; and adds, that this handsome singular tree is easily distinguished from all the evergreens of this order, by its abundance of very long, dichotomous, pendent branchlets.—It may be propagated from seeds, in the same manner as the common Cypress, and the plants treated as directed for that species, with this difference only, that it will be proper to cover them during the two first winters after they are come up especially if the frost should be severe, which might destroy them while young and exposed. It may also be propagated by cuttings, which, if planted in autumn, and screened in winter, will take root; but are generally two years before they will be rooted enough to transplant; nor will the plants so raised thrive so fast as the seedlings, which are therefore greatly to be preferred whenever the seeds can be obtained.

6. Cupressus Japonica; *Japan Cypress*. Leaves in four rows, sickled, compressed, furrowed, decurrent. This is a very lofty straight tree, with a trunk the thickness of the human thigh, or more. The wood is very soft, and is much used for cabinets, and other furniture, that are varnished or japanned, as it is termed.—Native of Japan.

7. Cupressus Columnaris. Leaves imbricate, subulate, furrowed; strobiles cylindric, elongated.—Native of New Caledonia, and Norfolk Island.

Curatella; a genus of the class Polyandria, order Digynia.—Generic Character. *Calix*: perianth five-leaved, rounded; leaflets roundish, concave, the fifth interior, extremely like the petals. *Corolla*: petals three or four, roundish, concave, very like the calix. *Stamina*: filamenta very many, filiform, shorter than the corolla: antheræ roundish. *Pistil*: germen two-parted, roundish; styles two, filiform, erect, length of the stamina; stigmas headed. *Pericarp*: capsule two-celled, two-parted: lobes roundish,

one-celled; seeds in pairs, oblong, shining. ESSENTIAL CHARACTER. *Calix:* five leaved. *Petals:* four. *Styles:* two. *Capsule:* two-parted, with two seeds in a cell.——The only known species belonging to this genus is,

1. Curatella Americana. It is of the stature of *Coccoloba*. Leaves alternate, oblong, subsessile, large, very rough; flowers in racemes, from the axils of the leaves which have already fallen, the division of the raceme having two bractes. —Native of South America.

Curculigo; a genus of the class Polygamia, order Moncecia. —GENERIC CHARACTER. *Hermaphrodite Flowers,* few, below. *Calix:* none. *Corolla:* petals six, oblong, spreading, withering. *Stamina;* filamenta six, very short; antheræ linear, erect. *Pistil:* germen sessile, lanceolate; style very short; stigma large, tapering, with a three-cleft apex. *Pericarp:* capsule, when a germen, three-celled, with the rudiments of six or eight seeds in each cell; when ripe, appearing one-celled. *Seeds:* one to four, shining, black, beaked. *Male Flowers* several, above. *Corolla* and *Stamina:* as above. *Pistil:* wanting. ESSENTIAL CHARACTER. *Calix:* none. *Corolla:* six-petalled. *Filamenta:* six. *Pistil:* one. *Capsule:* seeds beaked.——The only known species is,

1. Curculigo Orchioides. Root tubcrous, with many fleshy vermicular fibres; leaves numerous, all radical, petioled, sword-form, nerved, slender, with very few soft white hairs on them while young, from six to eighteen inches long, and half or three quarters of an inch broad; flowers pretty large, yellow, the one or two lowermost hermaphrodite, above all male.—Native of the shady uncultivated places about Samulcotah. It is the *nallatady* of the Telingas. Gærtner remarks, that it differs from all other plants in the singular structure of the style and capsule, and the roundish horny process from the outer and upper part of the seed, thickening upwards, and being slightly incurved.

Curcuma; a genus of the class Monandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth superior obscure. *Corolla:* tube of the petal narrow; border three-parted; divisions lanceolate, spreading, gaping more on the sinus; nectary one-leafed, ovate-acuminate, larger than the divisions of the petal, inserted into the more open sinus. *Stamina:* filamenta five, of which four are erect, linear, barren; one, (the fifth,) within the nectary, linear, petal-form, with a two-cleft tip; antheræ adnate. *Pistil:* germen roundish, inferior; style length of the stamina; stigma simple, hooked. *Pericarp:* capsule roundish, three-celled, three-valved. *Seeds:* very many. ESSENTIAL CHARACTER. *Stamina:* four, barren, a fifth fertile. *Corolla:* four-parted. *Nectary:* three-lobed. *Filamenta:* flat.—These plants must be placed in the bark-stove; they are only propagated by parting their roots, in the spring, before they put out new leaves: plant them in rich kitchen-garden earth, and keep the pots constantly plunged in the bark-bed. In summer, when the plants are in a growing state, refresh them frequently with water, but not in large quantities, and admit a large share of air to them in warm weather. When the leaves are decayed, they should have very little wet, and be kept in a warm temperature. They usually flower in August, but strong roots only produce flowers.——The species are,

1. Curcuma Rotunda; *Round-rooted Turmeric.* Leaves lanceolate-ovate; lateral nerves very few. Root perennial, with a large ovate bulb, frequently as big as a goose's egg, covered with a thin rufescent pellicle, that has parallel rooting rings, within solid, fleshy, reddish-yellow, of a bitterish taste, and slightly aromatic smell. It creeps underground by means of little bulbs of the same ovate-form, growing by the side of the maternal bulb. Stem none: leaves annual, three feet high, grooved, bright green; flowers in a loose spike, of a yellowish colour, enclosed in several spathes, or sheaths which drop off.—Native of the East Indies, and the mountains of China and Cochin-china.

2. Curcuma Longa; *Long-rooted Turmeric.* Leaves lanceolate; lateral nerves very numerous. Root perennial, creeping, fleshy, palmate, with columnar branches, and parallel rooting rings, the skin thin and pale, the flesh saffron-coloured, with a bitterish taste, and a smell of salve; stem none; leaves broad lanceolate, large, quite entire, smooth, annual, pale, green, grooved with oblique, slender, frequent lines; flowers sessile, white, with a yellow nectary, solitary, and inclosed within the scales of the spike; corolla one-petalled, funnel-shaped; tube slender, equal to the calix, widening above; seeds round, few; it has no barren filamenta.—Native of the East Indies, China, and Cochin-china, &c. It very seldom produces seed. It was much used formerly in cookery, to give things a colour, for which purpose it is still used in the East, as well as for dying. The root of this plant had the reputation of being a powerful aperient and resolvent, being commonly prescribed in obstructions of the liver, and other chronic complaints; the disease in which it has been thought to be most efficacious, is the jaundice; it is now, however, very rarely employed in Europe: it tinges the urine of a deep yellow colour. It is yet in high repute in the East. The first species being stronger, is seldom internally applied, but is used externally as a cataplasm, with the root of Crinum Zeylanicum and the leaves of Artemisia, and are esteemed a sovereign remedy in swellings of the abdomen, arising from a suppression of the menses. The English druggists, says Hill, keep the dried roots, which are good in the jaundice, and all obstructions, operating as a diuretic, and promoting the menses. Meyrick declares the root of Turmeric to be one of the most effectual remedies known in obstructions of the viscera and mesentery, as also of the menses, strangury, and affections of the kidneys. The dose in substance is from a scruple to a drachm, and three or four times as much in decoction or infusion.

3. Curcuma Pallida; *Pale Turmeric.* Bulbs knotted; scape long, bracted. An annual plant, without any stem, upright, three feet high. Root perennial, horizontal, creeping, oblong, columnar, twisted and knotty, within and without pale, fleshy, with little smell or taste; leaves lanceolate, large, with several oblique slender grooves; corolla yellowish white.—Native of China near Canton, and of Cochin-china.

Currants. See *Ribes.*

Curtisia; a genus of the class Tetrandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one leafed, four-parted; parts ovate, acute. *Corolla:* petals four, ovate, obtuse, sessile, longer than the calix. *Stamina:* filamenta four, inserted into the receptacle, subulate, shorter than the petals; antheræ ovate. *Pistil:* germen superior, ovate; style subulate, the length of the stamina; stigma four or five cleft. *Pericarp:* drupe subglobular, smooth. *Seed:* nut roundish, bony, four or five-celled; kernels solitary, oblong. ESSENTIAL CHARACTER. *Calix:* four-parted. *Petals:* four. *Drupe:* superior, roundish, succulent, with a four or five-celled nut.——The only known species is,

1. Curtisia Faginea; *Beach-leaved Curtisia,* or *Hassagay Tree.* This is one of the largest trees in the African woods, with very diminutive flowers. The Hottentots and Caffres make the shaft of their javelins or assagays from the wood of this tree: they always carry one or two of these with them on their journeys; they consist of an iron spear hollowed out on each side about six inches long, with or without an

iron shaft, which is sometimes round and smooth, and sometimes grooved; it is fastened with thongs of leather to a slender round stick, five feet long, tapering towards the end, and made of this wood. With these lances, which they throw with great dexterity to the distance of an hundred paces, the Hottentots and Caffres defend themselves, and kill buffaloes and other wild animals. The Dutch call this tree *wite-else, stink-hout,* and *assaguay-hout.*

Cuscuta; a genus of the class Tetrandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, cup-form, four-cleft, obtuse, fleshy at the base. *Corolla:* one-petalled, ovate, a little longer than the calix; mouth four-cleft, obtuse; nectary of four scales, which are linear, two-cleft, sharp, and growing to the corolla at the base of the stamina. *Stamina:* filamenta four, subulate, length of the calix; antheræ roundish. *Pistil:* germen roundish; styles two, erect, short; stigmas simple. *Pericarp:* fleshy, roundish, two-celled, cut round, or opening horizontally. *Seeds:* in pairs. Essential Character. *Calix:* four-cleft. *Corolla:* one-petalled. *Capsule:* two-celled.—This genus consists of parasitical plants, fastening themselves to, and drawing their nourishment from others; the seed does not split into lobes, but opens and puts forth a little spiral body, which is the embryo: the stalk twines about some other plant, contrary to the apparent motion of the sun, sending out from the inner surface a number of little vesicles, which attach themselves to the bark of the plant. They have no leaves, except here and there a small membranaceous scale, close under a branch. They adhere to the ground by the original root, and at first draw a part of their nutriment thence; but the original root withers away as soon as the young stem has fixed itself to any other plant.——The species are,

1. Cuscuta Europæa; *Common Dodder.* Flowers conglomerate, sessile; corolla pitcher-shaped, with bluntish segments; number of parts generally four. Stem slender, filiform, smooth, four-cornered, reddish; a small, single, ovate-acute scale under each ball of flowers, where also it frequently puts forth a branch; corolla white, or with a tinge of purple; seeds generally two in each cell.—Native of Europe, in hedges, usually upon Hops, Brambles, Woody Nightshade, Fern, Thistles, Hemp; also on Flax, Nettles, Clover, Grass, &c. and lofty plants in general: it flowers in July and August. The whole plant is bitter; an infusion of it, according to Meyrick, in the proportion of an ounce to a pint of water, is a brisk purge, and is of considerable efficacy in obstructions of the viscera, as well as in the sciatica and scorbutic complaints. The fresh herb, bruised and applied externally, is excellent in dispersing scrofulous tumours. Dodder, says Hill, is best fresh gathered; it is to be boiled in water, with a little ginger and allspice, and the decoction works by stool briskly; it also opens obstructions of the liver, and is good in the jaundice, and many other disorders arising from the same cause. The Dodder which grows upon garden Thyme has been usually preferred to others, and supposed to possess peculiar virtues from the plant on which it grows; but this is imaginary, as experience shows it to be only a purge like the other, only less powerful; the common Dodder is preferable, because we can gather it fresh; while that which is imported looses a considerable portion of its virtues in passing through the hands of the druggist.

2. Cuscuta Epithemum; *Small Dodder.* Flowers conglomerate; corolla bell-shaped, deeply cloven with acuminate segments; number of parts constantly five. Corolla paler than that of the common sort, deeper cut; the segments sharper and smaller; the balls of flowers closer. From its destructive quality of suffocating plants, it has the opprobrious names of *hell-weed,* and *devil's-guts.*—It is annual, and flowers from June to August. It is found in cultivated fields, particularly among pulse, nettles, and heath; it has been also often seen on beans, furze, flax, thyme, wild thyme, lavender, spurge, hops, grass, &c.

3. Cuscuta Americana; *American Dodder.* Flowers peduncled. This is a very branching, leafless, twining, parasitical plant, tender, shining, and yellowish; common peduncles very short; flowers small, without scent, aggregate, yellowish or greenish. Sloane says, the stems are very long and strong, stretching themselves over very large trees, and whole fields and pastures.—Native of America.

4. Cuscuta Lupuliformis; *Hop Dodder.* Flower racemed, sessile; number of parts four. Stem round, branching, very thick like hop-binds; bark reddish-green or brown-purple, rough and studded with stiff rising grains like millet; flowers on racemes, coming out laterally, an inch or two in length, sometimes branched; they are scattered, solitary, or only two or three together, not glomerate, sessile, not peduncled. —It is annual; a native of Silesia, and the Levant; and flowers in July and August.

Cussonia; a genus of the class Pentandria, order Digynia. —Generic Character. *Calix:* umbel none, but three or more peduncles, umbelled, collecting the flowers into a raceme or spike; involucre none, but scattered bractes at the base of the peduncles: perianth one-leafed, truncate, obscurely five-toothed, shorter than the corolla, permanent. *Corolla:* petals five, oblong, acute. *Stamina:* filamenta five, very short; antheræ ovate. *Pistil:* germen inferior, turbinate; styles two, filiform, patulous; stigmas simple, obtuse. *Pericarp:* twin, compressed, angular, crowned with the calix and styles, two-celled, two-valved. *Seeds:* solitary. Essential Character. *Petals:* three-cornered; margin of the receptacle dilated into a five toothed calix.——The species are,

1. Cussonia Thyrsiflora. Leaves digitate; leaflets sessile, wedge-form, truncate, three-toothed; flowers racemed. Stem frutescent, at bottom scabrous, unequal, simple, the thickness of a finger, very simple at top. A shrub. There is a variety of this with jointed leaflets, the lowest joint dilated at the end into smaller lobes, whence the leaflets are as it were proliferous.—Native of the Cape of Good Hope.

2. Cussonia Spicata. Leaves digitate; leaflets petioled, spatulate; ligule three or five palmate, finely serrate; flowers in spikes.—Native of the Cape of Good Hope.

Custard Apple. See *Annona.*

Cyanella; a genus of the class Hexandria, order Monogynia—Generic Character. *Calix:* none. *Corolla:* petals six, cohering by their claws, oblong, concave, patulous, the three inferior ones hanging forwards. *Stamina:* filamenta six, contiguous at the base, very short, somewhat spreading, the lower one declined, and twice the length of the others: antheræ oblong, erect, gaping at the tip, with four obtuse teeth. *Pistil:* germen three-cornered, obtuse; style filiform, declinate, length of the lower stamina; stigma somewhat sharp. *Pericarp:* capsule superior, roundish, three-furrowed, three-celled, three-valved. *Seeds:* many, oblong. Essential Character. *Corolla:* six-petalled, the three lower petals hanging forwards. *Stamina:* lower, declined, longer than the rest. The roots of these plants should be planted in pots filled with light earth, placed in winter in a frame, and treated in the same manner as is directed for Ixia.——The species are,

1. Cyanella Lutea; *Yellow-flowered Cyanella.* [illegible] ensiform; branches erect.—It flowers in July, and by Sparrmann at the Cape of Good Hope.

2. Cyanella Capensis; *Purple-flowered Cyan[illegible]*

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 105.

CUCURBITA CITRULLUS.
Water Melon.

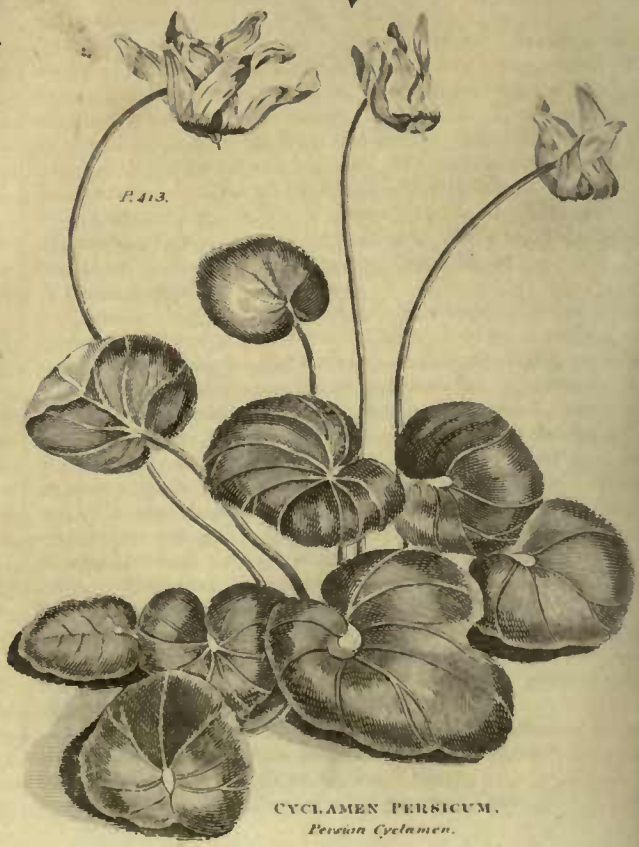
P. 416.

CYPRIPEDIUM.
Lady's Slipper.

P. 419.

CYNOGLOSSUM OFFICINALE. *Com. Hounds Tongue.*

P. 413.



CYCLAMEN PERSICUM.
Persian Cyclamen.

Published by Henry Fisher, Caxton, London. 1823

waved; branches spreading very much. The root is shaped like that of the Spring Crocus; leaves long, narrow, with a groove on their upper side; the peduncle arises immediately from the root, supporting one flower of a fine blue colour, which appears in May, but the flowers are not succeeded by seeds in England. The roots are roasted and eaten in Africa. —Native of the Cape of Good Hope.

3. Cyanella Alba; *White-flowered Cyanella.* Leaves linear-filiform.—Found by Thunberg at the Cape.

Cycas; (the Todda Panæ) a genus of Palms, of the class Dioecia, order Polyandria, according to Jacquin.—Generic Character. *Male. Calix:* spathe none; spadix none; ament strobile-form, ovate, squarrose, imbricated with scales; scales spathule-form, smooth, fleshy, coloured, keeled beneath, with a reflected point, distant. *Corolla:* none. *Stamina:* filamenta none; antheræ none; pollen spread within the upper surface of the scales of the ament, sessile, very plentiful, very crowded, somewhat globose, one-celled, bursting longitudinally on one side. *Female*, in a distinct individual. *Calix:* spathe none; spadix very simple, compressed, ancipital, long, sharpened; perianth none. *Corolla:* none. *Pistil:* germina solitary, immersed beyond the middle into the corners of the spadix, remote, roundish; style cylindric, very short; stigma simple. *Pericarp:* drupe oval, one-celled. *Seed:* nut woody, one-celled. Essential Character. *Male. Ament:* strobile-form, with the scales covered every where beneath with pollen. *Female. Spadix:* sword-form. *Germen:* immersed into the corners of it, solitary. *Style:* one. *Drupe:* with a woody nut.—The trees of this genus require to be plunged into the bark-bed in the stove, which should be kept up fully to temperate heat in winter, but in summer should be much hotter. In hot weather they will require to be frequently refreshed with water, but must have it sparingly administered in autumn and winter.——The species are,

1. Cycas Circinalis; *Broad-leaved Cycas.* Fronds pinnate; leaflets linear, flat.—Native of the East Indies, the Friendly Islands, and the New Hebrides, in the South Seas.

2. Cycas Revoluta; *Narrow-leaved Cycas.* Fronds pinnate; leaflets linear, revolute about the edge. Trunk round, branched, a fathom or more in height, the thickness of the thigh, ferruginous, and hirsute from the falling off of the leaves; the stipe of the fonds has spines below: the leaflets are nearly opposite, linear, somewhat sickle shaped towards the inside; the fruit is an ovate, flat, red drupe, an inch and half in length. The fruit is eaten by the Japanese, but the pith of the trunk is most esteemed for its highly nutritive quality; they affirm that a soldier can subsist for a day on a very small piece of it. It is not used for food in China or Cochin-china, but is cultivated there for its beauty. In Tonquin, however, they make a sort of bread called *sagu*, from the pith of the trunk. Dampier says, that the inhabitants of Mindanao, one of the Philippine Islands, call the sago-trees *libby-trees*, and that they grow wild in great groves of five or six miles long, by the sides of the rivers. Its body and shape are much like the Palmeto or Cabbage-tree, but is not so tall as the latter; the wood is full of white pith, like that of Elder. They cut down the tree, split it in the middle, and scrape out all the pith, which they beat with a great pestle in a wooden mortar or trough, and then put it into a cloth or strainer held over a trough, and pouring water in among it, they stir it about, so that the water carries all the substance of the pith through the cloth, leaving a sort of husk behind, which is thrown away: that which runs into the trough settles to the bottom like mud, which, when the water is drawn off, they bake into cakes, and proves very good bread. The Mindanese live three or four months of the year on this food. The native Indians of Ternate, Tidore, and all the spice islands, have plenty of these trees, and use them for food; the sago, which is transported into other parts of the East Indies, is dried in small pieces like little seeds or comfits, and commonly eaten with milk of almonds by those that are troubled with the flux.

Cyclamen; (Sow-bread) a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth half five-cleft, roundish, permanent; divisions ovate. *Corolla:* one-petalled; tube somewhat globose, twice as large as the calix, small, nodding; border bent upwards, five-parted, very large; divisions lanceolate; neck prominent. *Stamina:* filamenta five, very small, in the tube of the corolla; antheræ straight, sharp, in the neck of the corolla, converging. *Pistil:* germen roundish; style filiform, straight, longer than the stamina; stigma sharp. *Pericarp:* berry globose, one-celled, gaping five ways at the top, covered with a capsular cell. *Seeds:* very many, somewhat ovate, cornered. *Receptacle:* ovate, free. Essential Character. *Corolla.* rotate, reflex, with a very short tube, and prominent throat. *Berry:* covered with a capsule.—All the sorts are propagated by seeds, which should be sown after they are ripe, in boxes or pots filled with light kitchen-garden earth, mixed with a little sand, and covered about half an inch deep, placing them where they may have the morning sun till the beginning of September, when they may be removed to a warmer exposure. The most proper time for removing these plants, is about the beginning of June, when the leaves decline; but they should not be often removed, as the roots do not lose their fibres, as in some others of the tuberous and bulbous-rooted kinds. ——The species are,

1. Cyclamen Coum; *Round-leaved Cyclamen.* Leaves orbicular, cordate, quite white. It has plane orbicular leaves, with short weak petioles; their under side is very red in the beginning of winter, but that colour goes off in the spring; their upper side is smooth, of a lucid green, and spread flat open; whereas the other sorts are hollowed, and reflex at the base. The flowers are very bright purple, and as they appear in the middle of winter, when there are few other flowers, they are the more valuable.—Native of the south of Europe. This, and the second and fourth species, may be plunged into the ground close to a south wall, a pale, or reed-hedge, in October, where, if the frost be very severe, it will be proper to cover them either with mats or pease-haulm, but in common winters they will not want covering.

2. Cyclamen Europæum; *Common Cyclamen.* Leaves orbicular, cordate, crenate. Root tuberous, oblately spheroidal, white within, brown without; stem very short; leaves kidney-form, roundish, very blunt, slightly crenulate, deep green and spotted above, beneath commonly red purple, smooth, on very long round red petioles; flowers drooping, sweet-scented, purple; seeds large, rufous, kidney-form.—Native of Austria.

3. Cyclamen Persicum; *Persian Cyclamen.* Leaves oblong-ovate, cordate, crenate; leaves stiff, on strong fleshy petioles, nearly six inches long, of a purple colour, as are also the veins of the leaves underneath, but the upper side is veined and marbled with white; the corolla is pure white, with a bright purple bottom, but it varies in colour, and is sometimes entirely white: this variety smells very sweet. It flowers in March and April, and ripens seeds in August. It is admirably adapted to decorate the parlour or the study, and varies with fragrant flowers with the eye more or less red.—By its name it should be a native of Persia; but from Mr. Curtis we learn, that it comes from the East Indies; and Dr. John Sibthorp found it in the island of Cyprus. The

pots in which it is sown should be placed under a common hot-bed frame, where they may be protected from frost and hard rains, but the glasses may be taken off every day in mild weather, to admit the fresh air. This species is more impatient of cold than any of the others, and must be constantly preserved in pots filled with light sandy earth, or a mixture of loam and lime rubbish, and housed in winter, but should be placed near the glasses, where the plants may enjoy as much free open air as possible, when the weather will permit, for if they be crowded too closely under other plants, they are very subject to mould and rot.

4. Cyclamen Hederæfolium; *Ivy-leaved Cyclamen.* Leaves cordate, angular, toothletted. Root large, orbicular, compressed; leaves numerous, on petioles six or seven inches long, marked with black in the middle; the flowers appear before them on long fleshy scapes in August or September. Soon after, the leaves come out, continue growing all the winter and spring till May, when they begin to decay, and in June are entirely dried up. There are two varieties of this species, one with white, and the other with a purplish flower. —Native of Italy.

5. Cyclamen Indicum. Border of the corolla nodding. It differs only in having the divisions of the corolla not reflected but hanging down, and the whole corolla being much larger than in the European species.—Native of Ceylon.

Cyclas; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed; tube short, turbinate; border four-parted, patulous; segments ovate-oblong, acute. *Corolla:* none. *Stamina:* filamenta ten, capillary, inserted into the neck of the calix, and longer; antheræ ovate. *Pistil:* germen ovate-oblong, villose, pedicelled; style capillary, flexuose; stigma obtuse. *Pericarp:* legume roundish, depressed, wrinkled, surrounded by an orbicular, membranaceous, broad, waving wing, one-celled, not opening. *Seed:* single, kidney-form. Essential Character. *Calix:* four-parted, spreading, with a short turbinate tube. *Corolla:* none. *Filamenta:* inserted into the neck of the calix. *Style:* flexuose. *Legume:* roundish, winged, one-seeded.——The species are,

1. Cyclas Spicata. Leaves pinnate. The trunk of this tree is from thirty to forty feet high, and a foot and half in diameter; the bark is gray and smooth, and the wood whitish; it has several large boughs at top spreading in all directions; leaves alternate, unequally pinnate; stipules in pairs at the base of the common petiole; flowers in long spikes, axillary and terminating, on short pedicels.—Native of the great forests of Guiana, flowering there in November, and fruiting in January. The Caribbee name is *apalatoua.*

2. Cyclas Aromatica. Leaves ovate. The trunk of this tree is from forty to fifty feet high, and more, and about two feet in diameter; bark gray; branches very numerous, spreading in every direction; leaves alternate, large, stiff, ovate, acute, smooth, quite entire. The wood is light, and a little aromatic. The Caribbees call this tree *moutouchiraou.*—It is a native of marshy places in the great forests of Guiana, where it flowers in December, and fruits in May.

Cylista; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, four-parted, very large, permanent, the upper division reflex, bifid, the rest erect, oblong, acute. *Corolla:* papilionaceous, a little longer than the calix, and permanent; banner roundish, emarginate, with a small lobe on each side of the base; wings oblong, obtuse, shorter than the banner, with a process on each side of the base; keel oblong, cleft at top and bottom, longer than the wings. *Stamina:* filamenta diadelphous, (simple and nine-cleft) ascending; antheræ roundish. *Pistil:* germen superior, ovate, compressed; style subulate, ascending; stigma subcapitate. *Pericarp:* legume ovate-oblong, compressed, one-celled. *Seeds:* two, oval. Essential Character. *Calix:* very large, four-parted, the upper division cleft at the end. *Corolla:* permanent.—— The only known species is,

1. Cylista Villosa; *Hairy Cylista.* A shrub, and requires the heat of a stove to preserve it; flowering in April and May.—Native country unknown.

Cymbachne; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite Flowers. Calix:* glume two-valved, one-flowered, so placed that each valve is pressed close to the rachis and parallel, not one hid by the other; outer valve linear, blunt, ciliate at the back; inner equal in length, semiovate, acute, boat-shaped, very much compressed, striated, coloured, ciliate at the back, inclosing the corolla. *Corolla;* two-glumed, hyaline, smaller than the calix. *Stamina:* filamenta three; antheræ black. *Pistil:* germen minute; style simple; stigmas two, black-bearded. *Female Flowers. Calix:* one-valved, ovate, slightly bifid at the tip, ciliate at the edge, opposite to the rachis, pressed close. *Corolla:* none. *Pistil:* as in the hermaphrodite, but with longer stigmas. Essential Character. *Inflorescence:* half-spiked. *Hermaphrodite: Calix:* two-glumed, one-flowered, parallel to the rachis; outer valve linear, the opposite boat-form. *Female. Calix:* one-glumed, ovate, opposite to the rachis.——The only known species is,

1. Cymbachne Ciliata. This is a slender grass, a foot in height, with several culms, simple or branched, with a single leaf or leafless; leaf short, slender, ciliate on the edge above the sheath with long separate hairs; sheath truncate, with a pale brown mouth, and ciliate; spikes two, terminating, linear, an inch and half long, a line broad, some hermaphrodite, others female—Native of Bengal.

Cymbaria; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth ten-toothed, erect; two opposite teeth stronger and more spreading; the rest erect, linear, permanent. *Corolla:* one-petalled, ringent; tube oblong, bellied; border two-lipped, upper lip two-parted, reflex, obtuse, lower lip three-cleft, obtuse. *Stamina:* filamenta four, length of the tube; antheræ two-cleft, prominent. *Pistil:* germen ovate; style filiform, length of the stamina; tip incurved; stigma obtuse. *Pericarp:* capsule ovate, one-celled, two-valved; receptacle quadrangular. *Seeds:* very many, cornered, smooth. Essential Character. *Calix:* ten-toothed. *Capsule:* cordate, two-celled. ——The only known species is,

1. Cymbaria Daurica. The whole plant is hoary, and nearly allied to Antirrhinum; branches opposite, barren; flowers lateral, very few, subsessile, large; upper lip of the corolla vaulted; lower equal; palate gibbous; capsule marked with a groove on each side.—Native of the mountains of Dauria.

Cynanchum: (Base Dog's-bane) a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, five-toothed, erect, very small, permanent. *Corolla:* one-petalled; tube scarcely any; border five-parted, flat; divisions linear, long; nectary in the centre of the flower, length of the corolla, erect, cylindric, with a five-cleft mouth. *Stamina:* filamenta five, length of the nectary, parallel; antheræ touching, within the mouth of the corolla. *Pistil:* germen oblong, two-cleft; style scarcely any; stigmas two, obtuse. *Pericarp:* follicles two, oblong, acuminate, one-celled, gaping lengthwise. *Seeds:* numerous, oblong, crowned with a down, placed in an imbricate manner. Essential Character. Contorted. *Nectary:* cylindric, five-toothed.—These are shrubs or under shrubs, com-

monly twining, with opposite leaves, and the flowers axillary or terminating, disposed in spikes, corymbs, or umbels. Those of the tropical climates are all tender, and will not thrive in this country, unless placed in a bark-stove. As they abound with a milky juice, they must have but little water in winter. They may be propagated by laying down the young shoots, which in three or four months will put out roots, and may then be transplanted into pots filled with light sandy earth, and plunged into the tan-bed, where the plants should continue all the year. They may also be increased by parting their roots, or by cuttings. Such as produce good seeds in Europe, which many of them do, may be propagated in that way.——The species are,

1. Cynanchum Viminale; *Naked Cynanchum.* Stem twining, perennial; leaflets. Naked. Cynanchum is so called from its having stems without any leaves on them. It sends out a great number of slender taper stalks, of a dark green colour, which are smooth, and twist about each other, or any neighbouring support, and then will rise to the height of ten or twelve feet, putting out branches at top, which also twine about the other stalks. It has not flowered in England. —Native of the Cape of Good Hope. This, and the eleventh, twelfth, and fifteenth species, come from the Cape, and must be preserved in the dry-stove. They may be increased either by layers or cuttings.

2. Cynanchum Acutum; *Acute-leaved Cynanchum.* Stem twining, herbaceous; leaves cordate-oblong, smooth. Root perennial, creeping; stems annual, twisting like hops round whatever plants are near them, and rising to the height of six or eight feet; leaves ending in acute points, flowers in small axillary bunches, of a dirty white colour.—It flowers in June and July, but does not produce seeds in England, occasioned probably by the roots creeping so far under ground; for most plants which propagate themselves so much by their roots become barren, especially if their roots have full liberty to extend. This, and the eighth species, being natives of the south of Europe, are hardy, and propagate too fast by their creeping roots, which are not easily extirpated, when they have once got possession of the ground. The roots may be transplanted any time after the stems decay, till they begin to shoot in the spring.

3. Cynanchum Planiflorum; *Flat-flowered Cynanchum.* Stem twining; leaves cordate, smooth, tomentose underneath; peduncles subracemed. This is a milky plant, with twining, round, smooth stems; leaves oblong-cordate, acuminate, quite entire, very soft, with a scarcely conspicuous nap underneath, smoothish on the upper surface, but bearded at the origin of the petiole, with abrupt, rigid, ferruginous cilias; common peduncles smooth, lateral, solitary, sustaining about five flowers, on pedicels elongated beyond the common one; flowers void of scent, very flat, half an inch in diameter; corollas veined and æruginose; calices greenish-white.—It flowers in July and August, and is a native of Carthagena in New Spain.

4. Cynanchum Racemosum; *Racemed Cynanchum.* Stem twining; leaves cordate, smooth, acute; racemes simple. Stems herbaceous, twining, smooth, scandent, full of a white milky juice; leaves quite entire, shining, slightly waved, bright green on the upper surface, æruginose on the back, petioled; racemes lateral, three inches long, solitary; but by the side of the principal a smaller branch comes out, which is also loaded with flowers; they are scentless, small, and white.—It flowers in October and November, and is a native of Carthagena.

5. Cynanchum Maritimum; *Sea Cynanchum.* Stem twining; leaves cordate, hirsute, tomentose underneath, peduncles aggregate. A milky plant, with twining, round, hirsute stems; leaves acuminate, quite entire, petioled, from two to four inches long; peduncles one-flowered and shortish, springing aggregately from a tubercle among the leaves; flowers scentless, with a green calix, and a dark purple corolla.—It flowers in November, and is a native of the coast of Tierra Bomba.

6. Cynanchum Suberosum; *Cork-barked Cynanchum.* Stem twining, cork-barked at bottom, and cleft; leaves cordate, acuminate. Root perennial; stems slender, hairy, twining, and, if supported, rising six or seven feet high; the lower part is covered with a thick fungous bark, somewhat like cork, and full of fissures. At each joint is a pair of leaves, on long hairy footstalks. The flowers are in small axillary bunches; they are star-shaped, and green when they first appear, but afterwards change to a dusky purple colour. —Native of Carolina. It will live in the open air of England, if it be planted in a dry soil, and a warm situation. It may be increased by laying down the young shoots about Midsummer, which, if they are now and then refreshed with water, will put out roots, and may be transplanted in the autumn where they are designed to remain. The roots should be covered in winter with some rotten tan, to keep out the frost.

7. Cynanchum Hirtum; *Hairy Cynanchum.* Stem twining, shrubby, cork-barked, and cleft at bottom: leaves ovate-cordate. It rises to the height of twenty feet, or more, with a twining stem, if supported. The lower part is cork-barked, and full of fissures, like the preceding: leaves on long footstalks, smooth; flowers of a yellowish green colour, not succeeded by pods in England.—Native of Jamaica.

8. Cynanchum Monspeliacum: *Montpellier Cynanchum.* Stem twining, herbaceous; leaves reniform, cordate, acute. Stems filiform, green, smooth, swelling at the joints, very long, climbing; leaves acute, glaucous, about the same length as the petioles; flowers on solitary peduncled racemes, between two petioles, the peduncles thickening toward the top; calix small, five-cleft; corolla deeply five-parted; segments linear, white above, pale rose-coloured beneath; in the centre is a white pitcher-shaped body, or nectary, ten-cleft at the top, with five broad shorter segments, and five sharp longer ones. Both this and the seventh species abound with a milky juice like the Spurge, which issues out wherever they are broken, and when concreted, has been frequently sold for Scammony, but is not as strong. —Native of the south of Europe.

9. Cynanchum Extensum; *Hairy-flowered Cynanchum.* Stem twining, frutescent; leaves cordate, acute; peduncles elongated; pedicels filiform; corollas hirsute at the edge; follicles ramentaceous. From an annual root, divided into whitish fibres, a foot and a half long, and not so thick as a quill, arises a twining stem, very much branched, twelve feet high, round, villose, with longer hairs thinly interspersed, rough, glaucous, when far advanced slightly tinged with purple. The branches are the same; leaves quite entire, almost smooth on both sides, on a long round villose petiole; flowers pendulous, sweet-smelling, beginning to open about six o'clock in the evening, and closed by morning; they are of a greenish pale colour. The plant is elegant, and abounds with a white milk.—It flowers in July and August, and is a native of the East Indies.

10. Cynanchum Undulatum; *Wav'd-leaved Cynanchum.* Stem twining: leaves lanceolate, ovate, smooth; umbels globular. A milky plant, entirely smooth, with twining round stems; leaves quite entire, fat to the touch, on very short petioles, four inches long; flowers small, without scent, firm; calices ash-coloured; corollas nearly of the same

colour on the outside, and dirty purple within.—It flowers in July, and is a native of Carthagena in New Spain.

11. Cynanchum Capense; *Cape Cynanchum.* Stem twining, conform on every side; leaves subcordate-ovate; peduncles many-flowered. Stem lofty, scarcely pubescent, even at top, by no means cork-barked; leaves petioled, mucronate, even; the younger ones ovate, the more advanced emarginate.—Observed by Kœnig and Sparrmann at the Cape. This and the next species must be preserved in the dry-stove, and may be increased by layers, cuttings, &c.

12. Cynanchum Obtusifolium; *Blunt-leaved Cynanchum.* Stem twining, herbaceous; leaves oblong, rounded at the tip, with a point; umbels lateral.—First observed by Thunberg at the Cape of Good Hope.

13. Cynanchum Tenellum. Stem somewhat twining, herbaceous; leaves ovate-oblong.—Found by Mutis in New Grenada.

14. Cynanchum Erectum; *Upright Cynanchum.* Stem erect, divaricated; leaves cordate, smooth. This is a perennial plant, which rises with slender upright stalks, about three feet high; leaves broad, smooth, ending in points; flowers axillary, in small bunches, on branching peduncles; they are small and white, greatly resembling those of the common white Asclepias.—It flowers in July and August, and is a native of Syria. It requires a warm situation to live abroad in England; and is propagated by parting the roots before they shoot in the spring.

15. Cynanchum Filiforme. Stem erect, quite simple; leaves linear; flowers verticilled, axillary.—Found by Thunberg at the Cape of Good Hope. It must be preserved in the dry-stove; and may be increased by layers, cuttings, &c.

16. Cynanchum Crispiflorum. Stem twining; leaves underneath villose, oblong, cordate, with the sinus closed; petals curled at the end.—It flowers in July; and is a native of South America and the West Indies.

17. Cynanchum Reticulatum. Stem twining, cork-barked at bottom, and chinky; leaves ovate, acute. Stem woody, covered with a thick whitish bark; the branches opening, striated, smooth; leaves far from each other, petioled, smooth, upper one lanceolate; flowers small, hairy on the outside, unequally pedicelled in peduncled axillary umbels.—Observed by Kœnig in the East Indies.

18. Cynanchum Asperum; *Rough-leaved Cynanchum.* Stem twining, shrubby; leaves cordate, acute, rough; flowers lateral. Stem twenty feet high, or more, very slender, and armed with small stinging hairs; leaves broad, on slender footstalks, covered underneath with rough hairs. The flowers are produced in small clusters, sitting close to the stalks; they are pretty large, yellow, and star-shaped, spreading open to the bottom.—Native of La Vera Cruz in New Spain.

19. Cynanchum Carolinense. Stem climbing, rough with hairs; leaves oblong-cordate, acuminate; corymbs axillary; segments of the corolla oblong, obtuse.—Native of Carolina.

20. Cynanchum Rostratum; *Beak-flowered Cynanchum.* Stem and petioles hirsute; leaves cordate-oblong; petals lanceolate, flat. Stem twining, shaggy, with reversed hairs, as are also the petioles: leaves two or three inches long, acuminate.—Found by Rohr on the island of Trinidad.

21. Cynanchum Parviflorum; *Small-flowered Cynanchum.* Stem twining, filiform; leaves ovate, subulate at the end; umbels subsessile.—Native of the West Indies.

22. Cynanchum Prostratum; *Prostrate Cynanchum.* Stem prostrate; leaves heart-shaped, orbiculate-acute, tomentose underneath. Stems a foot high, round, filiform, branched, knotted, tomentose, subherbaceous; leaves in pairs at each knot, nearly equal to the petioles, quite entire, soft, glaucous underneath, having an unpleasant smell; flowers in solitary umbels; corolla deep green, deeply parted into five spreading segments, with a revolute border.—Native of Mexico.

23. Cynanchum Grandiflorum; *Great-flowered Cynanchum.* Stem twining; leaves heart-shaped, ovate-cuspidate, glaucous underneath; corollas coriaceous, before they expand rolled up in a spiral form, but afterwards spreading very much, deep green on both sides, divided into five lanceolate very sharp segments, nearly an inch in length. Stem very long, cylindrical, with a rufous nap at the joints; leaves with one branching nerve; flowers in short racemes.—Native of South America.

24. Cynanchum Odoratissimum; *Sweet Cynanchum.* Stem twining, corky, and cloven at bottom; leaves heart-shaped, acuminate, wrinkled; cymes reflex. Stem very long, round, shining, and very smooth, except at bottom, where it has a bark like cork; leaves waved, smooth, on long petioles; flowers yellow, very sweet-scented, in large hemispherical, axillary, reclining cymes. This plant is not inferior to the Arabian Jasmin in fragrance.—It is a native of Siam and Cochin-china, where the women of fashion use it to adorn their hair.

25. Cynanchum Inodorum. Stem twining, cork-barked, and chinked towards the bottom; leaves ovate-acuminate; peduncles subdivided. Root perennial; stem long, branched; leaves smooth, opposite; flowers numerous, small, yellow, scentless; peduncles short axillary; corolla rather salver-shaped; segments linear, longer than the tube, spreading; stigma large, sessile, ovate-oblong; follicles oblong, acuminate, downy, curved inwards.—Native of Cochin-china.

26. Cynanchum Altissimum; *Lofty Cynanchum.* Stem twining; leaves heart-shaped, tomentose on both sides; flowers umbelled. This is a milky shrubby plant, climbing trees to the height of fifty feet. Stems round; when old woody, smooth ash-coloured, leafless; when young, green, tomentose, leafy. Flowers thick, firm, scentless; calices greenish ash-colour; corollas dirty purple.—Native of New Spain, near Carthagena.

27. Cynanchum Longiflorum; *Long-flowered Cynanchum.* Stem twining; leaves oblong, acute, villose; flowers umbelled; stems round, hairy, climbing to the height of fifteen feet; flowers destitute of either smell or beauty. The unusual elongation of the tube gives the flower a very different appearance from the others.—Native of Carthagena in New Spain.

28. Cynanchum Filiforme Americanum. Stem twining; leaves ovate-acuminate, flat, shining; umbels globular. Stems round, filiform, branched, very numerous; flowers without scent, small; the petals and nectaries snow-white.—Native of Carthagena in New Spain.

29. Cynanchum Clausum; *Close-flowered Cynanchum.* Stem twining; leaves acuminate, oblong, rolled back at the edge; flowers umbelled. Stems round, smooth, numerous; flowers scentless, with snow-white corollas and nectaries.—Native of Carthagena in New Spain.

Cynara; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common ventricose, imbricate; scales numerous, roundish, fleshy, increased by a membranaceous scale-formed appendicle, which is larger, roundish, channelled, and emarginated with a spine. *Corolla:* compound tubulous, uniform: corollets hermaphrodite, nearly equal; proper one-petalled, funnel-form; tube very slender; border erect, ovate, five-cleft; divisions linear, one more deeply serrated. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubu-

lose, length of the corollule, five toothed. *Pistil:* germen somewhat ovate; style filiform, longer than the stamina; stigma simple, oblong emarginnte. *Pericarp:* none; calix converging but a little. *Seeds:* solitary, oblong-ovate, four-cornered, compressed; down sessile, long; receptacle bristly. Essential Character. *Calix:* dilated, imbricate, with fleshy scales, emarginate, with an acumen.—The species are,

1. Cynara Scolymus; *Common Artichoke.* Leaves somewhat spiny, pinnate, and undivided; calicine scales ovate. In its wild state, the Artichoke is said to attain the height of a man, but the cultivated Artichoke seldom exceeds four feet in height, with a stout, furrowed, leafy stem, slightly tomentose, sometimes a little branched at top. The root is large, thick, and perennial; root-leaves two to four feet long, petioled, irregularly pinnatifid, deeply cut, more or less spinous; stem-leaves simple, serrated or jagged; flowers terminating the stem and branches, on thick fleshy peduncles; heads subglobular, green or dark purple. Mr. Miller divides the Artichoke into two species. 1. The Green or French, and 2. the Globe Artichoke. The former, being the sort most commonly cultivated in France, is generally known here by the title of French Artichoke, and is the only sort in Guernsey and Jersey. Its heads are of a green colour, like those of the Globe Artichoke, but the bottoms are not near so thick of flesh; and they have a perfumed taste, which to many persons is very disagreeable, so that it is seldom cultivated in the gardens near London, where the Globe or Red Artichoke is the only sort in esteem.—The Artichoke is a native of the south of Europe, as in Italy, Sicily, and the south of France. In some parts it is eaten raw in its wild state, by the common people, and must certainly be a most wretched food. It is said to dye a good yellow; and the flowers are used instead of rennet, to turn milk for cheese. The whole plant has a peculiar smell, and a strong bitter taste. It was formerly in great repute for qualities which it is not now allowed to possess. It is reputed to be aperient, stomachic, and somewhat heating. According to Meyrick, the juice of the leaves, or a strong decoction of the roots, is powerfully diuretic, and of great efficacy in the jaundice and dropsy, which will frequently yield to this medicine. Hill also observes, that the root fresh gathered, sliced, and boiled in water in the proportion of six ounces to a quart, makes a decoction which works by urine, and which he has known to cure the jaundice alone. The Artichoke has the same name, with very little variation, in all the European languages. The Germans call it *artischoke*, corruptly *erdschocke;* the Dutch, *artisjok* or *artichok:* the Danes, *ærteskok;* the Swedes, *ærtskocka;* the French, *artichaut;* the Italians, *carciofo;* the Spanish and Portuguese, *alcachofa;* the Poles, *karciof;* and the Russians, *artitschok.* —*Propagation and Culture.* The way of propagating the common Artichoke is, from slips or suckers taken from the old roots in February or March, or rather some time in March or the beginning of April, which if planted in a good soil, will produce large fair heads in the autumn following. To make a new plantation, dig and bury some very rotten dung in the ground set apart for that purpose. Choose such plants as are taken from clear, sound, but not woody old stocks. Cut off with your knife the knobbed woody part that joined them to the stock; if that cuts crisp and tender, it is good, but if tough and stringy, through it away as useless. Cut off also the large outside leaves pretty low, that the middle or heart-leaves may be above them. If the weather be very dry, or the plants have been any time taken from the stocks, it will be expedient to set them upright in a tub of water, three or four hours before they are planted, which will greatly refresh them. To plant them, range a line across the ground, and with a measure-stick place them at two feet distance from each other in the rows; and if designed for a full crop, five feet distance row from row. The plants must be set about four inches deep, and the earth closed very fast to their roots, observing, if the season prove dry, to water them two or three times a week until they are growing; after which they seldom require any. A thin crop of Spinach may be sown upon the ground before the Artichokes are planted, observing to clear it from about them after it appears. But whenever it is intended to plant any thing between the Artichokes, nine or ten feet must be allowed between the rows, which is the space left by the kitchen-gardeners near London, who sow the ground between with Radishes or Spinach, and plant two rows of Cauliflowers at four feet distance from row to row, and two feet and a half asunder in the rows, so that there are always five feet allowed for the Artichokes to grow; and in May, when the Radishes and Spinach are taken off, they sow a row of Cucumbers for pickling, exactly between the two rows of Cauliflowers, at three feet distance from each other; and between the rows of Cauliflowers and the Artichokes, plant a row of Cabbages or Savoys for winter use, which, when the Cauliflowers are drawn off and the Artichokes gathered, will have full liberty to grow; and by this means the ground is fully employed throughout the whole season. This has long been the practice of the kitchen-gardeners near London, who pay large rents for their land, and are obliged to get as many crops in a year from it as possible. In those which are planted at five feet distance from row to row, a line of Cabbages or Savoys may be planted for winter use in every other row, which will be gone by the time of landing them up; in doing this, you must lay the whole five feet of earth into one ridge, except the ground be extremely stiff, or the plants young, in both which cases you may lay only three feet and a half of the ground in the ridge over the roots, and the remainder may be laid in a small ridge between: the same compass of ground must also be allowed, where they are planted at a wider distance. If in the spring you find your stocks shoot very weak, which may be occasioned either by hard frost or too much wet, you must then cover them, and loosen and break the earth about them, raising a small hill round each stock; levelling the rest between the rows, which will greatly assist them, and in three weeks or a month after, they are commonly fit to slip. If any of the plants which are set in the spring should not fruit in autumn, you may, at the season of earthing up the roots, tie up the leaves with a small willow twig, and lay up the earth close to it, so that the top of the plant may be above ground; and when the frost come on, if you will cover the top with a little straw or pease-haulm, to prevent their being killed by the frost, these plants will produce fruit in winter, or early in the spring. If you intend to continue your Artichokes through a whole season, you must make a new plantation every year, otherwise you cannot possibly have fruit longer than two or three months. Those Artichokes which are planted in a moist rich soil, will always produce the largest and best fruit, especially in kindly seasons; so that where such a soil can be obtained, it will be advisable to make a fresh plantation every spring, to succeed the old stocks, and supply the table in autumn. But the roots will not live through the winter in a moist soil, so that the stocks which are intended to remain to supply the table early, and to furnish plants, should be in a drier soil, and ought always to be planted in an open situation, not under the drip of trees, where they will draw up very tall, and produce small insignificant fruit.—*Winter Dressing and Landing.* Since we have experienced, that in very severe frosts these roots are

sometimes destroyed, (though it rarely happens in dry ground) the earthing of Artichokes should be deferred till the latter end of November, or the beginning of December, provided the season continue mild; and towards Christmas, when there appears any danger of severe frosts, lay a quantity of long dung, pease-haulm, tanner's bark, or any other light covering, over the ridges of earth, which will keep out the frost, and, being at a distance from the roots, will not injure them; but this should be carefully removed in the beginning of February, or at least as soon as the weather is mild, otherwise the plants will be injured by its lying too long upon them It will also be a good method, whenever any roots of Artichokes are dug up in autumn, either to bury them deep in the ground in a pit till spring, or lay them in a heap, so as that they may be easily covered in hard frosts; and these may be a supply, if those in the ground be destroyed. When you have thus earthed them up, you have nothing more to do till February or March, by which time they will have grown through the ridge of earth; and when the weather is favourable, must be dressed as before directed.—*Spring Dressing.* At the end of February, in March, or at the beginning of April, according to the earliness of the season, or forwardness of the old Artichoke roots, will be the proper time for dressing them, which must be thus performed: with the spade remove all the earth from about the stock, down below the part whence the young shoots are produced, clearing the earth by hand from between the shoots, so as to be able to judge of the goodness of each, with their proper position upon the stock; then make choice of two of the clearest, strongest, and most promising plants, that are produced from the under parts of the stock, which are much preferable to the strong thick plants, which generally grow upon the crown of the roots; for having these hard woody stems, never produce good fruit, but are generally what the market people call *rogues*, which have very little bottom, and the scales of their heads are irregularly placed. In slipping off the plants, be careful not to injure those which are to remain for a crop, but with your thumb force off all the other plants and buds also, close to the head of the stock whence they are produced, taking care not to overlook any of the buds, which would soon produce plants to the great detriment of those which are left; round which two you must draw the earth with a spade, and close it fast to each of them by hand, separating them as far as possible without breaking them, observing also to crop off the tops of the leaves that hang down with your hands. The ground being levelled between the stocks, you may sow thereon a small crop of Spinach, which will be taken off before the Artichokes can cover the ground. They must be kept clear from weeds; and towards the latter end of April, or the beginning of May, when your old plants begin to show their fruit, carefully inspect the stocks, and draw up all young plants from them, which may have been produced after their dressing, cutting off all suckers that are produced from the stems of the Artichokes, leaving only the principal head; which will increase the size of the fruit. When they are fit to gather, they ought not to be broken down close to the surface of the ground, that your stocks may make strong fresh shoots before the end of October: the season for earthing, or, as the gardeners term it, *landing* them up, is the middle or latter end of November, and is thus done: cut off all the young shoots quite close to the surface of the ground, then dig between every stock, raising all the earth between every row of stocks into a ridge, as is done in the common method of trenching ground, so as that the row of Artichokes may be exactly in the middle of each ridge; which will be sufficient to defend them from frost.

2. Cynara Horrida; *Madeira Artichoke.* Leaves pinnatifid, tomentose underneath, spiny; spines at the base of the leaves, and pinnas connate at bottom.—Native of the island of Porto Santo, near Madeira.

3. Cynara Carduncnlus; *Cardoon Artichoke.* Leaves spiny, all pinnatifid; calicine scales ovate. Bauhin asserts, that this is a hybrid plant, or mule, from the seed of the common Artichoke. The corrollets and pistils are of a deep blue colour, but the stamina are gray. Parkinson says, that he was assured by John Tradescante, that he saw three acres of land about Brussels planted with this kind of Artichoke, which the owner whited like Endive, and then sold them in the winter, but that "we cannot yet find the true manner of dressing them, that our countrey may take delight therein." In some parts of Spain they substitute the down of this plant for rennet, in making cheese; a strong infusion is made over night, and the next morning, when the milk is warm from the cow, they put nearly half a pint of the infusion to nearly fourteen gallons of milk. This plant has the same name, with slight variations, in all the languages of Europe, as *kardonen, kardon, cardone,* and *cardo.*—Native of Candia. The Cardon or Cardoon, is propagated in the kitchen-gardens to supply the markets, being annually raised from seeds, which should be sown upon a bed of light earth in March; and when the plants come up they should be thinned where they are too close, transplanting those which are drawn out into a bed at about three or four inches' distance, where they should stay until finally removed to where they are to remain: these young plants must be kept clean from weeds, and should be transplanted out in the beginning of June, on a moist rich spot of ground, at about four feet asunder every way: the ground should be well dug before they are planted, and the plants should be well watered until they have taken new root; after which it must be very diligently weeded, to encourage the growth of the plants, and as they advance in height, there should be some earth drawn up about each plant; and when they are fully grown, their leaves should be closely tied up with a hay-band, and the earth round them drawn up in hills, almost to the top, being careful to keep the earth from falling between the leaves, which may occasion the rotting of the plants: the earth should be smoothed over the surface, that the wet may run off, and not fall into the centre of the plants, which would also rot them. In about eighteen weeks after they have been thus earthed, they will be blanched enough for use, so that if a succession of them be wanted for the table, there should be but few plants earthed up at each time. Towards the middle or latter end of November, if the frost should be severe, it will be proper to cover the tops of those plants which remain with pease-haulm or straw, to prevent the frost from penetrating to the tender leaves, which frequently pinches them where they remain totally uncovered; whereas if the covering be only removed in fine weather, the plants may be thus preserved for use during most part of the winter. If a few of the plants be placed out in a warm situation to stand for seed, they should not be blanched, but only in a very hard frost some light litter or pease-haulm may be laid round them to keep out frost, which should be removed in the spring, and the ground gently dug between the plants, which will not only destroy the weeds, but also encourage the roots of the plants to shoot out on every side, and thereby add fresh strength to their stems. They will flower about the beginning of July, and if the season prove dry, their seeds will ripen in September; but in cold wet seasons they will not come to maturity in England. The stalk of the leaf, which is thick and crisp, and may be thought to be palatable, is the part eaten; it is rendered white and tender,

like celery, by the blanching, and is about a yard or more in length. The season for it is autumn and winter, when it is used in salads, soups, stews, &c.: it is not, however, in great estimation in England, and therefore not much cultivated. Never tie up the leaves for blanching before they be full grown, unless they are wanted in September and October, in which case they must be tied up and earthed in August, but then the stalk of the leaf will never be broad and thick, and in that its chief excellence consists. The proper time to begin blanching, is at the end of September or October, when the plants will come into use in December, and continue all the winter: observe also to tie up the leaves in a dry day, adding fresh hay-bands as the plants advance in height, taking care to cover their tops with long litter, if the frosts should be severe.

4. Cynaris Humilis; *Dwarf Artichoke.* Leaves spiny, pinnatifid, tomentose underneath; calicine scales subulate. The heads have some resemblance to those of the French Artichoke, but have no fleshy substance in their bottoms. —Native of Spain and Barbary. This may be planted in the same manner as the preceding species; the plants being set three or four feet apart; they require only to be kept clean from weeds; they will flower in the second year, and if the season prove dry, the seeds will ripen in September: they generally decay in the following winter, if it be severe, especially if they remain uncovered.

5. Cynara Acaulis. Stemless: leaves pinnate, unarmed, smooth above.—Native of Barbary.

6. Cynara Integrifolia. Leaves lanceolate, toothletted; calicine scales lanceolate-acuminate. It is a low smooth plant, with a simple striated stem; leaves petioled, broad, lanceolate; corollas blue.—Found by Barnadas in the mountains near Toledo in New Castile.

Cynoglossum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, oblong, acute, permanent. *Corolla:* one-petalled, funnel-form, length of the calix; tube cylindric, shorter than the border; border half five-cleft, obtuse; mouth closed, with five squamules, which are convex, prominent, converging. *Stamina:* filamenta five, very short, in the mouth of the corolla; antheræ roundish, naked. *Pistil:* germina four; style subulate, length of the stamina, permanent; stigma emarginate. *Pericarp:* none, but four arils of the seeds, depressed, roundish, outwardly more obtuse, scabrous, not gaping, somewhat flattish on the exterior side, affixed by their tip. *Seeds:* as many, somewhat ovate, gibbous, acuminate, smooth. Essential Character. *Corolla:* funnel-form, the throat closed with arches. *Seeds.* flat, affixed to the style by the inside only.—The species are,

1. Cynoglossum Officinale; *Common* or *Great Hound's-tongue.* Stamina shorter than the corolla; leaves broad-lanceolate, attenuated to the base, tomentose, sessile; calicine segments oblong. The whole plant is downy, and soft to the touch; root biennial; stem two or three feet in height, upright, grooved, angular, villose, very leafy, branched at top; root-leaves large, a foot or more in length, on petioles, ovate or lanceolate, pointed, covered with a silky down which gives them a grayish colour, veiny; stem-leaves, at least the uppermost, sessile, half stem-clasping, quite entire, with a waving edge, seven or eight inches long, crowded, placed irregularly on the stem, upright, lanceolate, and broadest at the base; flowers at first of a dull red, marone, or mulberry colour, afterwards becoming bluish, growing in racemes.—There are two varieties; the large Dutch Hound's-tongue, double the size of the common sort, but probably only a variety, from luxuriancy of soil; and the Evergreen Hound's-tongue, the leaves of which are nerveless, much narrower and rougher than the common sort, but entirely destitute of its hoariness, so that the leaves are therefore of a full green colour: it also wants that strong scent which distinguishes the common Hound's-tongue; the stem has a slight hairiness, and the flowers are blue and smaller. Hound's-tongue is frequently found with a white flower. The whole plant has a disagreeable smell, much resembling that of mice: it is suspected to possess narcotic qualities; and in the *Historia Oxoniensis*, vol. iii. p. 350, an instance is related, in which the leaves boiled by mistake for Comfrey, disordered a whole family, and proved fatal to one person; but many will not admit the fact. Mr. Ray informs us, from Dr. Hulse, that a decoction of the roots inwardly, and cataplasms of them outwardly, were used in his time to relieve strumous and scrofulous cases. It is, says Meyrick, a plant of very considerable virtues, being of an astringent balsamic nature, and excellently adapted to ease those coughs which proceed from a thin acrid humour falling upon the lungs, or other parts of the breast. A decoction of the roots drank freely, relieves the bleeding of the piles, and stops the overflow of the menses and the whites: the root powdered, and taken in doses of half a drachm twice or three times a day, is excellent against purgings and the bloody flux: an ointment made of its leaves, with honey and turpentine, is a good application to dress old fistulous ulcers. Cattle in general dislike this plant; the goat alone is said sometimes to eat it.—It grows wild by road-sides in most of the uncultivated parts of Europe, particularly in Germany and Switzerland. In England it may be met with in the London road between Kelvedon and Witham in Essex, but more abundantly about Braxsted; about Southend, by Eltham; beyond Waltham Abbey, towards Harlow; at Norbury, near Leatherhead, in Surry; and near Worcester. It flowers in April and May.

2. Cynoglossum Virginicum; *Virginian Hound's-tongue.* Leaves spatulate lanceolate, lucid, three-nerved at the base; bracte of the peduncles stem-clasping. This rises with an upright branching stem nearly four feet high, covered with rough hairs; the flowers grow scatteringly towards the ends of the branches; they are small and white, appear in June, and are succeeded by four small seeds, which ripen in autumn, and then the plants decay.—Native of Virginia, and other parts of North America. This, with the 3d, 4th, 5th, and 10th species, are hardy plants, which will grow plentifully without much care, if they only be permitted to scatter their seeds.

3. Cynoglossum Cheirifolium; *Silvery-leaved Hound's-tongue.* Corollas twice the length; leaves lanceolate; root perennial, branched; stems several, a foot high, round, branching; leaves half stem-clasping, obversely lanceolate, or spatulate, quite entire, covered on both sides with a white silvery down; flowers in racemes, without any bractes; corollas white, with red, blue, or purple veins.—Native of Silesia, Carniola, Italy, the south of France, Spain, Gibraltar, and the Levant.—It flowers in June and July.

4. Cynoglossum Apenninum; *Apennine Hound's-tongue.* Stamina equalling the corolla. The leaves of this species are much larger, the petal of the flower much shorter, and the stature taller, than the first sort; it also flowers earlier.—Biennial; flowering from April to June; and a native of the Apennines.

5. Cynoglossum Lævigatum. Leaves lanceolate-ovate, smoothish; calices tomentose; seeds glossy. Stem erect, a foot in height, striated, panicled at top; root-leaves petioled, soft; stem-leaves small, sessile.—Native of Siberia.

6. Cynoglossum Lusitanicum; *Portugal Hound's-tongue,* or *Venus's Navelwort.* Leaves heart-shaped, stem-clasping,

smooth, even about the edge. The whole of this plant is very smooth; stem erect, a foot high, round; branches axillary, alternate, quite simple; flowers red or violet, remote, in naked terminal racemes.—Native of Portugal. Both this and the seventh species are annual plants, commonly sown in gardens, with other low annual flowers, to adorn the borders of the flower garden; but the seeds should be sown in autumn, for those which are sown in the spring often fail, especially in dry seasons; and the autumnal plants always grow much larger, and flower earlier. The seeds should be sown where the plants are intended to remain, for they will not bear transplanting, except while they are young. The plants require no other culture but to be thinned where they are too close, and kept clean from weeds: they flower in June and July, and ripen seeds in autumn; but the autumnal plants appear a month earlier.

7. Cynoglossum Linifolium; *Flax-leaved Hound's-tongue*, or *Venus's Navelwort*. Leaves linear-lanceolate, smooth, toothletted, and rugged about the edge. It seldom rises more than five or six inches high, and the stalks do not branch nearly so much as those of the preceding; the leaves are very narrow and long, and of a grayish colour; the flowers grow in short loose panicles at the ends of the branches, they are white like those of the sixth species, but smaller, and have the seeds of the same form, namely, umbilicated, from which circumstance they both derive the name of Navelwort.—Native of Portugal.

8. Cynoglossum Omphalodes; *Comfrey-leaved Hound's-tongue*. Creeping: root-leaves cordate. Root perennial; branches trailing, and putting out roots from the joints; leaves bright green, on long slender footstalks; flowers shaped like those of Borage, but smaller, and of a lively blue colour. It flowers from March till May in England, and about Christmas in the woods of the south of Europe, of which it is a native.—This plant propagates very fast by its trailing roots, which require to be kept within compass, on this account it seldom produces seeds; it delights in a cool moist situation.

9. Cynoglossum Japonicum. Leaves oblong, villose; stems prostrate. Root annual; stems four or five, round, villose, flexuose, and erect, unequal; flowers terminating in racemes; calix wholly villose; corolla purple, longer than the calix; style simple, with an obtuse stigma.—Native of Japan.

10. Cynoglossum Pictum; *Painted Hound's-tongue*. Corollas nearly equal to the calix; segments roundish, dilated; leaves lanceolate, tomentose, the upper ones cordate at the base. Leaves much shorter, softer, and more hoary than those of the common sort; stems a foot and a half in height, more branched; seeds smaller. It agrees with the common species in habit, size, and manner of growth, and has therefore been confounded with it by those who have not seen both: it differs from it in having the leaves not narrowed but cordate at the base, and the flowers pale blue or pale purple, beautifully painted with darker veins. It is a perennial, and flowers in August. Mr. Miller informs us, that it grows naturally in Andalusia, and that he received the seeds from Gibraltar.— Native of the south of Europe, and of Barbary, and also of Madeira, where it was found by Masson.

11. Cynoglossum Lanceolatum. Leaves lanceolate, drawn to a point at both ends, rugged, with dots on the upper surface. Stem herbaceous, upright, angular, rough with hairs, hoary at top; lower leaves drawn out into a petiole an inch in length, upper ones sessile, veiny, nerved.—Native of Egypt and Arabia.

12. Cynoglossum Myosotoides. Arils basket-shaped, smooth, striated, tubercled, toothed on the edge; leaves hairy, tubercled, entire; root-leaves spatulate-lanceolate. Root perennial; stems usually several, pipe-form, ascending, scarcely half a foot high, hairy, usually simple; leaves rough next the root, petioled; on the stem sessile, linear, lanceolate; calix hairy, with subovate segments; flowers in naked terminal racemes, small, alternate; corolla very small, scarcely longer than the calix, blue.—Native of the very summit of mount Lebanon.

Cynometra; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix*: perianth four-leaved, oblong, reflex, length of the corolla. *Corolla*: petals five, lanceolate, equal, acute. *Stamina*: filamenta ten, twice the length of the corolla; antheræ oval, two-cleft at the tip. *Pistil*: germen boat-form; style filiform, length of the stamina; stigmas simple. *Pericarp*: legume crescent-shaped, compressed, fleshy, tuberculate. *Seed*: single, kidney-form, large. Essential Character. *Calix*: four-leaved. *Antheræ*: bifid at the tip. *Legume*: fleshy, crescent-shaped, one-seeded.—These trees are natives of the East Indies. Their leaves are conjugated, and the peduncles many-flowered.—The species are,

1. Cynometra Cauliflora. Trunk floriferous. Roots knotty and large, appearing above ground, and having smaller ones between them, which are curled, and look like pigs' tails; trunk very irregular and short, seldom above two feet high; it is rugged, unequal, ugly, in hills and holes, covered with a thick hard cloven bark, the colour of Liverwort. The flowers come out on the trunk and large branches, and on the root when above ground. The corolla is small and white.

2. Cynometra Ramiflora. Branches floriferous. This is a lofty tree, sixty feet in height; trunk thick, solid, ash-coloured; bark blackish, within red; branches many, ash-coloured or greenish.—It is always green in Malabar, and bears flowers and fruit in August and November.

Cynomorium; a genus of the class Monœcia, order Monandria.—Generic Character. *Male flowers*, disposed in an imbricated ament with the female ones. *Calix*: ament erect, club-shaped, on every side covered with floscules; perianth proper, four-leaved; leaflets three, clavate, and the fourth inferior one larger, very obtuse, channelled. *Corolla*: none. *Stamina*: filamenta single, firm, straight, longer than the calicine scale; antheræ twin. *Female Flowers*, mixed with the males in the same plant, and scarce remote from them. *Calix*: ament common with the males; perianth proper superior; leaflets four, club-shaped, tuberculated, equal, permanent. *Corolla*: none. *Pistil*: germen ovate, inferior; style single, erect, firm, spreading, length of the calicine scale; stigma obtuse. *Pericarp*: none. *Seed*: single, roundish. Essential Character. *Male*. *Calix*: an imbricate ament. *Corolla*: none. *Female*. *Calix*: in the same ament. *Corrolla*: none. *Style*: one. *Seed*: one, roundish.—The species are,

1. Cynomorium Coccineum. Stipe scaly; ament cylindrical; scales imbricate, ovate, retuse. This is a fungiform plant, the whole consisting of a long, thick, radical spadix, growing upon the roots of trees in salt-marshes under water. Stem commonly half a foot long, upright, solid, tough, as thick as the finger.—Native of Barbary, on the coast, at the roots of Lentiscus, Myrtle, &c. and Sicily, Malta, Cadiz, &c. on the Halimus, or Portulaca Marina, &c.

2. Cynomorium Jamaicense. Stipe scaly; ament elongated; scales imbricate, halved, rhomboidal. It grows in beds, and rises generally to the height of three, four, or five inches, but is commonly smallest towards the bottom. At first it is rather thickly covered with scales of the figure of a heart, which fall off gradually as it rises, and expose the body

of the plant, closely beset with little transparent denticles, intermixed with a few tubular trifid flowers that jet above the level of the surface. The stem is succulent and fleshy, and all the parts astringent.—It is seldom met with but in the most shady inland woods; and is a native of Jamaica.

3. Cyaomorium Cayanense. Stipe naked; ament subglobular; scales roundish, peltate.—Native of Cayenne.

Cynosurus; a genus of the class Triandria, order Digynia. —Generic Character. *Calix:* receptacle common unilateral, often leafy; involucre in some one-leafed, lateral; glume many-flowered, two-valved; valves linear, acuminate, equal. *Corolla:* two-valved; the outer concave, longer; the inner flat, awnless; nectary two-leaved; leaflets ovate-acute, gibbous at the base. *Stamina:* filamenta three, capillary; antheræ oblong. *Pistil:* germen turbinate; styles two, villose, reflex; stigmas simple. *Pericarp:* none; corolla closely coating over the seed, and not gaping. *Seed:* single, oblong, acuminate to each end. Essential Character. *Calix:* two-valved, many-flowered. *Receptacle:* proper unilateral, leafy.—Several species of this genus are natives of the West Indies, and more of the East Indies. Few of them are known in Europe, otherwise than by specimens or descriptions. They must be propagated by seeds brought from their native places, and kept in the bark-stove. Those from the Cape of Good Hope, &c. are of course preserved in the dry-stove. For the culture of the European sorts, particularly the first, see *Grass.*——The species are,

1. Cynosurus Cristatus; *Crested Dog's-tail Grass.* Bractes pinnatifid; root perennial; culms from one to two feet in height, erect, strict, having three or four joints, smooth, and even; leaves narrow, flat, smooth on both sides, scarcely rough at the edge; spike obtuse, stiff, and straight.—It is common in dry pastures, flowering in July and August, and is called *Bent-grass*, in common with many others; and in Scotland, *Windle-straw Grass.* Most modern writers, echoing Stillingfleet, have celebrated this grass as excellent for sheep. Mr. Curtis justly thinks less favourably of it, and considers it as greatly inferior to many other grasses. It predominates on sheep-downs, and in many parks, but is late and unproductive. Mr. Ray sets down a variety of this species, which he calls *Square-crested Grass*, because the spike has four rows of flowers: it was found at Notley in Essex.

2. Cynosurus Echinatus; *Rough Dog's-tail Grass.* Bractes pinnate, chaffy, awned; raceme glomerate, pointing one way; bractes only on the outside of the flowers, alternately pinnate, one-flowered; the rays ending in an awn. Annual. —Native of Europe, and the Levant. Found near Sandwich, and in a sandy part of the island of Jersey; flowering in July. Of this grass, Villars remarks, that it is incorrectly named *echinate*, for the spike is rather lanuginous than beset with prickles; he adds, that it is sometimes very tall among the corn, but that on a rock he has seen it only two or three inches high.

3. Cynosurus Lima; *Imbricate Dog's-tail Grass.* Spike facing one way; the inner glume of the calix lying below the spikelets. Scarcely a span in height; leaf small, the sheath swelling a little; spike closely imbricate, oblong, composed of sessile flowers, compressed, and keeled, directed one way, in a double row; culms slender, upright; seed oblong, sharp at both ends.—It is annual; flowers in England during July and August; and in May in Spain, of which country it is a native.

4. Cynosurus Durus; *Rigid Dog's-tail Grass.* Spicules one-ranked, alternate, sessile, rigid, obtuse, pressed close; culms few, scarcely a palm in height, procumbent; leaves even; florets compressed, awnless; flowering-spike straight, stiff. The plant when adult is entirely of a brown bay-colour. Annual; flowering in May, June, and July.—Native of the southern parts of Europe; in Carniola, Switzerland, the Palatinate, Silesia, and other parts of Germany.

5. Cynosurus Sphærocephalus; *Round-headed Cynosurus.* Bractes entire; spikes globular. The spike resembles a head of garlic; spikelets imbricate every way, and subsessile; calix two or three flowered; glumes nearly equal, at first longer than the corolla, but afterwards shorter, blue, with white edges, ending in a sort of crest, and ciliate on the middle of the back. There is a variety, with white flowers in large heads.—Native of the Alps.

6. Cynosurus Cœruleus; *Blue Dog's-tail Grass.* Bractes entire; spikes subovate. Culms oblique, surrounded at the base with a bundle of root-leaves, inclosed in a whitish-brown wrinkled skin, giving the appearance of a branched root; above bare of leaves; florets on short peduncles, purplish, livid, or brownish white, from half an inch to an inch in length; calix mostly two-flowered, sometimes just longer, and sometimes just shorter than the florets; edges and keel bearded; germen reddish brown; seed hairy. This flowers the earliest of all our grasses, and would well deserve to be extensively cultivated, if it were not for its low growth.—Native of Europe, in mountainous and boggy pastures; in the north of England, upon the highest limestone rocks, as Ingleborough in Yorkshire, &c.

7. Cynosurus Uniolæ. Without bractes: spike turned one way; spikelets in two rows, alternate, pressed close, ovate, keeled, oblique. A very smooth grass.—Native of the Cape of Good Hope.

8. Cynosurus Coracanus; *Thick-spiked Dog's-tail Grass* Spike digitate, incurved; calix compressed, erect; leaves nearly opposite. Annual: culms four feet high, covered with leaf stalks; spikes four or six, terminating, (sometimes one below,) striated, almost erect, the length of the finger, growing broader as they ripen, often bent in; flowers ovate, oblong, compressed, awnless; seeds nearly globular, large, in four rows, swelling, naked.—Native of India and Japan, where it is cultivated for the eatable seeds. It flowers from July to September.

9. Cynosurus Ægyptius; *Creeping Dog's-tail Grass.* Spikes digitate, obtuse, in fours, spreading very much, mucronate; stem creeping; leaves opposite. Culm six to nine inches long, ascending, bent at the joints, leafy; leaves two or three lines broad, rough at the edges.—Annual; flowering from July to September; and a native of Asia, Africa, and America.

10. Cynosurus Indicus: *Indian Dog's-tail Grass.* Spikes digitate, linear; culm compressed, declined, knotty at the base; leaves alternate. Culm slender, almost upright, reddish, sometimes creeping, leafy; leaves many, small, stiff; spikes heaped, linear, four or six, from horizontal spreading, from a thick base growing gradually more slender to the top, floriferous at bottom; valves of the calix acute; the inner longer, ciliate, lanuginose.—It flowers in August, is annual, and a native of both Indies, Japan, and the Society Isles.

11. Cynosurus Virgatus; *Fine-spiked Dog's-tail Grass.* Panicle with simple branches; flowers sessile, six together, the last barren, the lowest sometimes awned. Height two feet and a half, with a spreading panicle at the top, generally composed of many delicate, simple, slender spikes.—It is perennial, flowering from July to August; and a native of Jamaica.

12. Cynosurus Domingensis. Panicle with simple branches; spikelets subsessile, six-flowered; all the flowers awned; root

perennial; culms several, erect, from two to three feet high, round, smooth, shining, slender, jointed, leafy, frequently putting out a single branch from one of the lower joints, otherwise quite simple. It flowers and seeds in the stove during the whole year.—Native of St. Domingo.

13. Cynosurus Aureus; *Golden-spiked Dog's-tail Grass.* Panicles with barren, pendulous, ternate spikelets; flowers awned. Annual.—Native of the south of Europe, among stones and rocks; and of the Levant; flowering in June and July.

14. Cynosurus Erucæformis; *Linear-spiked Dog's-tail Grass.* Spike compound; spikelets scattered, the fruit-bearing ones erect; calices one and two-flowered; glumes obtuse, boat-shaped; keel obtuse; corollas acuminate.—It is annual, flowers in July, and is a native of Russia and Hudson's Bay.

15. Cynosurus Retroflexus. Spike compound; spikelets aggregate; calices two-flowered, awned; corollas awnless. Culms round, smooth; leaves awl-shaped, a span long, smooth; flowers on one side of the rachis, compressed, smooth.—Native of the East Indies.

16. Cynosurus Filiformis. Spike solitary, distich; calices awl-shaped, three-flowered; barren florets awnless. Culms creeping, branched, filiform, compressed at bottom; internodes an inch long; spike an inch long, linear; flowers small, alternate, compressed, smooth; awn a little longer than the calix.—Native of the East Indies.

17. Cynosurus Monostachyos. Spike terminating; calices awl-shaped, awnless, subtriflorous; florets awned, one-sided. Culm upright, a foot and a half high, smooth; leaves awl-shaped narrow; spike solitary, a span long; flowers alternate, imbricate on the inner side, smooth.—Native of the East Indies.

18. Cynosurus Penicillatus. Spikes digitate; calices four-flowered, awned at the back; outer petals of the hermaphrodite awned, with bearded pencils. Culm round, upright, very finely streaked, pubescent at top; spikes in threes, but sometimes solitary, on very short pedicils, bearded at the base, four or five inches long, upright, sometimes a little recurved at the end; flowers from the inner side only.—Native of the East Indies.

19. Cynosurus Paspaloides. Spikes digitate; calices two-flowered, subglobular; outer valve of the calix awned; corollas awnless. Culm very simple, almost leafless, a foot high; spikes five, sessile, an inch and a half long, and more woolly at the base, linear, narrow, ferruginous, shining.—Observed by Bulow at the Cape of Good Hope.

20. Cynosurus Floccifolius. Spikes linear, straight; leaves doubled together, alternately bearded on the edge; sheaths not ciliate; leaves not hairy. It differs from all the other species, in having all the single leaves folded together, and alternately bearded.—Native of Egypt.

Cyperus; (Greater Galengale) a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spike imbricate two ways; scales ovate, keeled, flat, inflected, separating the flowers. *Corolla:* none. *Stamina:* filamenta three, very short; antheræ oblong, furrowed. *Pistil:* germen very small; style filiform, very long; stigmas three, capillary. *Pericarp:* none. *Seed:* single, three-sided, acuminate, destitute of villus. Essential Character. *Glumes:* chaffy, imbricate, in two rows. *Corolla:* none. *Seeds:* one, naked.—Most of these plants are natives of the East or West Indies, and will therefore require the protection of the bark-stove.——The species are,

**With a round Culm.*

1. Cyperus Articulatus; *Jointed-stalked Cyperus.* Culm naked, jointed. Root tuberous, red, having a very grateful smell, like that of Calamus Aromaticus; stalk three feet high, smooth, with very strong and frequent transverse partitions, or membranes. At the top several brown chaffy panicles, made up of small long spikes.—It is a native of the rills of the Savannah, beyond Two-mile Wood, in Jamaica; and of Egypt, on the banks of the Nile. This, if planted in a warm situation, will thrive in the open air.

2. Cyperus Minimus; *Least Cyperus.* Culm naked; spikes under the tip. Roots composed of many capillary brown fibres, whence arise many small narrow leaves, an inch long, and reddish underneath.—Native of Jamaica and Brazil. The roots of this should be planted in pots, and sheltered in winter.

3. Cyperus Lateralis; *Lateral-spiked Cyperus.* Culm roundish, naked; spike lateral, sessile. Culms the length of a needle, many, bristle-form, not stiff. Annual.—Native of the Cape of Good Hope.

4. Cyperus Monti. Culm round; umbel superdecompound; leaves even on the keel. Perennial—Native of India; lately found wild in Italy.

5. Cyperus Tenellus. Culm naked, setaceous; spikes solitary, and twin sessile. Culm not a finger's length, the thickness of a horse-hair; spikes below the top of the culm, compressed, ancipitate, ovate, even, with ten or twelve scales.—Native of the Cape of Good Hope.

** *With a three-cornered Culm.*

6. Cyperus Monostachyos; *Single-spiked Cyperus.* Culm naked; spike simple, ovate, terminating; scales mucronate. Root-leaves numerous, linear, very narrow, even, loose, a span in length; culm filiform, weak, scarcely a foot high.—Native of the East and West Indies.

7. Cyperus Lævigatus. Culm naked; head two-leaved; flowers levigated. Culms even, two feet high; leaves two, stiff, convolute, subulate. Perennial.—Native of Coromandel in the East Indies.

8. Cyperus Haspan. Culm leafy; umbel superdecompound; spikelets umbellate, sessile. Culm a foot high, lax, yellowish, striated, tender. Perennial.—Native of the East Indies, Ceylon, and the Cape of Good Hope.

9. Cyperus Longus; *Sweet Cyperus,* or *English Galingale* Culm leafy; umbel leafy, superdecompound; peduncles naked; spikes alternate. Root long, odoriferous; peduncles sometimes twelve, umbelled; the rays gradually shortening to the middle; the outer one half a foot in length; spikelets corymbed, slender, acuminate, chesnut-coloured. The root is agreeably aromatic to the smell, warm and bitter to the taste; and although disregarded by modern practitioners, it is probably not inferior to some of the more costly medicines imported from abroad. The roots of Cyperus are attenuants, and deobstruents, promote urine and the menses, are good stomachics, and serviceable in the first stages of the dropsy. Perennial; flowering in July.—Native of France, Germany, Italy, Sicily, and Carniola, in bogs, marshes, and ditches. It has been found in the isle of Purbeck in Dorsetshire, and near St. David's in Wales. This, and the 11th species, may be propagated by dividing the roots in spring.

10. Cyperus Esculentus. Culm naked; umbel leafy; tubers of the roots ovate; zones imbricate. Roots fibrous, with small round tubers or bulbs hanging from them, of the size of peas or beans: stems about eighteen inches high. The radical tubers taste like sweet filberts, and are sold in the markets of Italy and the Levant. Perennial. Native of Montpellier, Italy, Sicily, and the Levant.

11. Cyperus Rotundus. Culm almost naked; umbel decompound; spikes alternate, linear. Culm scarcely a foot

high, having four alternate leaves at bottom. The round tuberous knobs attached to the roots, have a similar fragrance to the ninth species, and are used in Greece to keep insects from clothes.—Native of Arabia, India, Ceylon, and Japan.

12. Cyperus Squarrosus. Culm naked; umbel leafy, glomerate; spikes striated, squarrose. Culms several, one or two inches high, filiform, three-sided; leaves linear, bristle-shaped, longer than the culm, embracing the base of it with purple sheaths, glaucous when young, when old ferruginous. —Native of Tranquebar, and the Cape of Good Hope.

13. Cyperus Difformis. Culm naked; umbel two-leaved, simple, trifid; spikes cuspidate, the middle one sessile. Culm three-sided, flaccid, very weak, a foot high, having two linear soft leaves, two inches long, of a brownish green colour, above the base, in other parts naked.—Native of India.

14. Cyperus Iria. Culm half naked; umbel leafy; peduncles unequal, subumbellate; floscules distinct. Peduncles in the umbel very many, umbelliferous at top; umbel of three or four rays, alternately bearing spikelets, of three-cornered and very obtuse grains, covered with a scarcely discernible chaff, and little distant from each other: it is an elegant plant. —Native of India, China, and Japan.

15. Cyperus Elatus. Culms naked; umbel leafy, superdecompound; spikes a finger's length, imbricate; spikelets subulate. This is a large plant, with an even culm; umbel unequal.—Native of the East Indies.

16. Cyperus Glomeratus. Culm naked; umbels decompound, simple, leafy; pedicels spiked in a double row. Supposed to be a variety of the preceding.—Native of Italy.

17. Cyperus Glaber. Culm naked, even; umbel three-leaved; flowers glomerate, the lower brachiate; leaves smooth. Culm a palm in height: root-leaves erect, wholly smooth, the length of the culm; flowers ovate, compressed, imbricate, in two rows, growing brown by age.—Annual: found in wet places about Verona and Piedmont.

18. Cyperus Elegans. Culm naked; umbel leafy; peduncles naked, proliferous; spikes crowded, with spreading points. Root-leaves from two to three feet and a half in length; stalk two feet and a half high, with two or three leaves on the top, one whereof is a foot long.—Native of the sea marshes in Jamaica, also of the island of Santa Cruz.

19. Cyperus Odoratus. Culm naked; umbel decompound, simply leafy; pedicels spiked in a double row. Root long, roundish, frequently jointed, reddish on the outside, very odoriferous, creeping, and making a large tuft, whence rise many leaves with a prominent sharp cutting keel.—It is found by river-sides in Jamaica and most of the Caribbee islands; as well as in Surinam, and the Society Isles.

20. Cyperus Compressus. Culm naked; universal umbel three-leaved; glumes mucronate with the sides, membranaceous. This species is distinguished by its green panicle and spikes, by its mucronate glumes, not spreading, but the side-edges membranaceous.—Native of Jamaica, Virginia, and Malabar: it is generally found in sandy pastures.

21. Cyperus Flavescens; *Yellow Cyperus.* Culm naked; umbel three-leaved; peduncles simple, unequal; spikes crowded, lanceolate. Fibres of the root loaded with little tubers; culms obtusely three-cornered, smooth, from an inch to a hand and a span in height; root-leaves spreading, smooth, keeled, two or three inches long, mucronate; besides these there are two or three under the umbel of unequal lengths, narrower than the others, and longer than the umbel. It is biennial, flowering from July to September.—Native of France, Germany, Switzerland, Carniola, and Piedmont.

22. Cyperus Fuscus; *Brown Cyperus.* Culm naked; umbel trifid; peduncles branched, unequal; spikes crowded, linear. It scarcely differs apparently from the foregoing, in having narrower brown spikelets, and the leaves more scabrous. Root annual; culms a span in height, smooth, with two or three leaves at the base, which are keeled, smooth, and the length of the culm. It flowers from July to September.—Native of Denmark, France, Germany, Switzerland, Carniola, Piedmont, and Egypt.

23. Cyperus Pumilus. Culm naked; umbel two-leaved, compound; spikelets alternate, digitate, lanceolate; glumes mucronate. Culm about three inches high, with a few leaves at bottom; involucres three-leaved, unequal.—Native of the East Indies.

24. Cyperus Triflorus. Culm naked; umbel three-spiked, the middle one sessile; spikelets even. Culms even, a foot high.—Perennial; and a native of the East Indies.

25. Cyperus Strigosus. Culm naked; umbel simple; spikelets linear, very much crowded, horizontal. Root roundish; culm striated, smooth, sheathed wih leaves at the bottom, a foot high; leaves channelled, entire, smooth, shorter than the culm.—Native of marshes in Japan, Virginia, and Barbadoes.

26. Cyperus Ligularis. Spikelets of the umbel capitate, oblong, sessile; involucres very long, serrate, and rough. Leaves many, three feet long, nearly an inch broad at bottom, ending in a point, and making a large tuft; stalks as thick as the finger, three feet high; seeds brownish-red, and shining. —Native of Barbadoes, near Bridge Town; and also of Guinea, in Africa.

27. Cyperus Papyrus; *Paper Cyperus,* or *Egyptian Papyrus.* Culm naked; umbel longer than the involucres; involucels three-leaved, setaceous, longer; spikelets in threes. The stem is many feet in height, terminated by a very large and compound umbel of innumerable flowers; root large and creeping; leaves sword-shaped, sheathing the lower part of the stem.—Native of Egypt, Syria, Calabria, Sicily; and found, according to Strabo, in the lake Thrasimene, near Perugia. Papyrus was called *biblus* by the Grecians; in Egypt it had the name of *el berdi;* and is said to be known in Syria by the name of *babeer,* which very nearly approaches to the sound of papyrus and paper. The general figure of this plant, as Pliny has correctly stated, resembles a thyrsus; the head is composed of many small grassy filamenta, each about a foot long; about the middle, each of these filamenta parts into four, and in the point or partition are four branches of flowers; the head of this is not unlike an ear of wheat in form, but in fact is only a chaffy, silky, soft husk; these heads, or flowers, grow upon the same stalk alternately, and are not opposite to, or on the same line with, each other at the bottom. Pliny says it has no seed: the seed is indeed very small, and by its elevated situation, and the thickness of the head of the flower, requires the extraordinary covering which protects it from the violent hold the wind must have upon it. For the same reason the bottom of the filamenta, composing the head, are sheathed in four concave leaves, which keep them close together, and prevent injury from the wind getting in between them. The stalk is of a vivid green, and of a triangular form; it has but one root, which is large and strong; Pliny says, as thick as a man's arm; which it probably was when the plant was fifteen feet high, but the whole length of the stalk, including the head, being little more than ten feet in the plants we now find, they are proportionably smaller: in the middle of this long root arises the stalk at right angles, the whole inverted having the figure of a T. From each side of the large root proceed smaller elastic roots or fibres in a direction perpendicular to it, and which, like the strings of a tent, steady it, and fix it to the earth at bottom: about two feet or little more of the lower part of the stalk is

clothed with long, hollow sword-shaped leaves, covering each other like scales, and fortifying the foot of the plant; they are of a dusky brown or yellow colour. It grows in the lakes of Ethiopia and Egypt; in the river Jordan, between Paneas and the lake of Tiberias; and at the confluence of the Tigris and Euphrates; but was not probably imported into Greece until the use of it, as manufactured into paper, was first known. It does not grow in the midst of the Nile, but in the calishes or places into which that river overflows, and is stagnant: the head is too heavy, the stalk too slender, tall, and feeble, and the root too short and weak, to resist the violent pressure of wind and current in an open plain country, and a deep rapid river. The Papyrus seems to have come down from Ethiopia at a very early period, and to have been used in Upper Egypt immediately after the discontinuance of hieroglyphics. According to Varro, it did not come into general use in Greece till after the conquest of Egypt by Alexander: yet it is plain from Anacreon, Alcæus, Æschylus, and the comic poets, that it was known in their time. Plato and Aristotle speak of it, and so do Herodotus and Theophrastus; we also know that it was anciently in use among the Ionians, who probably brought it in very early days directly from Egypt: Numa, who lived three centuries before Alexander, is said to have left a number of books written on Papyrus. The ancients divided this plant into three parts: the top, with the thyrse of flowers, adorned the temples, and crowned the statues of their gods; and Agesilaus, the Spartan king, preferred this crown before any other, on account of its simplicity. Antigonus made use of nothing else but the stalk, for ropes and cables to his fleets, before the use of spartum became known, which, though very little better, still serves that purpose in small ships on the coast of Provence to this day. The top of the Papyrus was likewise used for caulking the vessels, by forcing it into the seams, and afterwards covering it with pitch. Pliny tells us, that the whole plant together was used for making boats, a piece of the Acacia-tree being put in the bottom to serve as a keel, and this is still the only boat used by the Abyssinians, who call it *tancoa*. Probably the junks of the Red Sea, said to be made of leather, were first built with Papyrus, and covered with skins. The bottom, root, or woody part of this plant, before it turned hard, was chewed for the sweet juice contained in it; indeed the Abyssinians still chew it, as well as the root of the Indian corn, and every species of Cyperus. Herodotus states, that about a cubit of the lower part of the stalk was roasted over the fire and eaten. On account of the great scarcity of wood in Egypt, this lower part was likewise used in making cups, moulds, and other utensils, as also for boards or covers to their hooks. Paper was prepared from it in the following manner: the thick part of the stalk being cut in half, the pellicle between the pith and the bark, or perhaps the two pellicles, were stripped off, and divided by an iron instrument, which probably was sharp-pointed, but did not cut at the edges; this was squared at the sides, so as to be like a riband, then laid upon a smooth table or dresser after being cut into the lengths required for each leaf: these stripes or ribands were lapped over each other by a very thin border, and then pieces of the same kind were laid transversely, the length of these last answering to the breadth of the first; a weight was then laid on them while moist, and they were thus left to dry in the sun. It was supposed that the water of the Nile had a gummy quality in it; but this is without foundation, as the saccharine juice of the plants causes the adhesion of the stripes, and the water merely serves to dissolve and diffuse that juice. Paper, says the Abbé Rochon, is manufactured in Madagascar from the Papyrus, which the natives call *sanga-sanga*. They pull off with great dexterity the inner bark, divide it into very thin filamenta, which they moisten with water, and, having laid them across each other in various directions, press them well down; they are then boiled in a strong lye of ashes, and afterwards pounded in a strong wooden mortar till they are reduced to a paste: this paste is washed and drenched with water, upon a frame made of bamboos in the form of a grate. When this operation is finished, the leaves are spread out to dry in the sun, and are glazed with a decoction of rice-water. This paper is of a yellowish colour, but when it is well glazed does not imbibe the ink. The pens used by these islanders are made of the bamboo; their ink, from a decoction in boiling water of the bark of a tree which they call *arandrato*: this ink is not so black as the European, but more shining. As however, the Abbé Rochon unfortunately calls the Papyrus Nilotica *a tree*, we cannot judge with certainty from what materials the Madagascar paper is really made.

28. Cyperus Spathaceus. Culm clothed with sheaths of leaves; peduncles pinnate, lateral. Size of the Sugar-cane.—Perennial: native of Virginia, and the Cape.

29. Cyperus Alternifolius. Culm naked, alternately leafy at the end; peduncles lateral, proliferous. Culms a foot high; leaves at the top crowded, ensiform, half a foot long, even, roughish at the edge; a small subulate bracte from each axil. It flowers in February and March.—Native of the island of Madagascar. Perennial.

30. Cyperus Denudatus, Involucre scarcely any. Culm two feet high, with one sheath in the middle of it; umbel compound, not much expanded.—Native of the Cape.

31. Cyperus Distans. Culm naked; umbel leafy, superdecompound; spikes alternate, filiform; floscules distant. Root tuberous; culm two feet high, three-sided, striated, yellowish; leaves alternate, lanceolate, keeled, reflex, glaucous, investing the lower half of the culm with their sheaths.—Native of Malabar.

32. Cyperus Pannonicus; *Dwarf Cyperus*. Culm obscurely three-cornered, prostrate; spikes about four together, sessile. Root annual; the whole plant smooth and shining; culms in a very thick tuft, from half an inch to six inches in length, leafless scales membranaceous, roundish, blunt, pale with green streaks; seeds pale bay, smooth.—Native of Hungary. Annual; flowering in July and August.

*** *New Species.*

33. Cyperus Viscosus; *Clammy Cyperus*. Culm three-sided, clammy; leaves rough, triangular at the tip. Perennial; flowering from May till August.—Native of Jamaica.

34. Cyperus Pygmæus. Culm round; umbel compound, involucred; spikes lanceolate; glumes mucronate. Root-leaves filiform, twice as long as the culm, which is striated, and scarcely an inch and half in height; umbel with five or six umbellulate peduncles; involucre four-leaved, three times as long as the umbel.—Native of the sands of Tranquebar.

35. Cyperus Arenarius. Culm compressed, naked; spikes of the head glomerate, sessile; involucre one or two-leaved. Roots jointed, creeping, from which proceed bunches of leaves sheathed at the base; leaves filiform, naked, from three to six inches long, compressed, striated, channelled on one side, yellowish-green.—Native of loose sands in the East Indies.

36. Cyperus Capitatus. Culm subangular, striated, leafy in the middle; head terminating, three-leaved; spikes sessile.—Culm four inches long, compressed, with a leaf or two at the base, and a bunch of leaves in the middle; glumes imbricate, scariose, ending in a recurved daggered point somewhat awned.—Probably a native of the East Indies.

37. Cyperus Stoloniferus. Culm naked, three-cornered; umbel compound, involucred; spikelets lanceolate. Root bulbous; leaves narrow, linear, complicate, a hand or half a foot in length; culm a span in height; involucre one or two-leaved, the longer an inch and half in length, the shorter half an inch long: besides these there is another leaf or two still shorter; they are all subulate and striated.—Native of Tranquebar in the East Indies.

38. Cyperus Pangorei. Culm three-cornered, leafy at the base; involucre three-leaved; universal umbel decompound; partial ones subtrifid. Culm two feet and a half high.—Native of Tranquebar.

39. Cyperus Cinnamomeus. Culm three-cornered; leafy; umbel consisting of spikelets in a head, peduncled, and sessile; involuere five-leaved, serrulate-scabrous. Root annual; culms three feet high, solitary, leafy at the base, naked above; leaves longer than the culm, nearly half an inch broad, plaited, with an unarmed keel; heads ovate, compound, cinnamon-coloured.—Native place unknown.

40. Cyperus Setaceus. Culm setaceous, striated, angular, naked; spike terminating, with about four flowers, and naked. Culms in bunches, three or four inches long, very slender; leaves none; glume purplish; style trifid; seed whitish, turbinate, somewhat wrinkled; the angles rise above the seed with a truncated dagger point.—Frequently found in the neighbourhood of Calcutta.

41. Cyperus Compactus. Culm round, leafy; umbel decompound; involucre five-leaved; spikelets heaped, subspiral. Culm two feet or more in height; leaves nearly as long as the culm, linear, with purplish sheaths, the edge and keel unarmed, striated; the longest leaf of the involucre a foot and half in length, the shortest three inches, all scabrous about the edge; umbellules three or five rayed.—Native of China.

42. Cyperus Mucronatus. Culm round, naked; spikes lateral, sessile; involucre one-leafed. Culms a foot high, with brown truncate sheaths at the base; one or two root-leaves short and narrow; head composed of a few sessile spikes, placed an inch and half from the end of the culm; involucre scarcely longer than the spikes; scales ovate, acute, convex, whitish.—Native of Visagapatnam in the East Indies.

43. Cyperus Diphyllus. Culm subtriangular, two-leaved; umbel superdecompound; spikelets roundish, subpinnate. Culm six feet high; umbel terminating, four inches long; involucre of many short acute leaves; peduncles compressed; a lanceolate whitish involucel under each partial peduncle; spikelets acute, pale, having about twelve flowers; scales imbricate, ovate, acute, striated.—Native of the East Indies.

44. Cyperus Leucocephalus. Culm setaceous, three-cornered, naked; head sessile; involucre four-leaved, or thereabouts, spreading very much; flowers one-stamined. Root bulbous, oblong; culms six inches high; leaves even, half the length of the culm; head small, snow-white; spikes eight to twelve, sessile, broad, ovate; scales linear, compressed, the lowest long, the upper ones gradually shorter, obtuse, striated; stigmas three, villose; seed long, linear, black.—Native of the East Indies.

45. Cyperus Exaltatus. Culm three-cornered, one-leafed at the base; umbel superdecompound, many-leaved; spikelets linear, peduncled. Culm five feet high, striated; root-leaf nearly three feet long, flat, striated, rough about the edge; umbel more than a foot high, fastigiate; involucre many-leaved, the longest leaf two feet in length, the others decreasing to an inch, all rough about the edge; umbellules many-rayed, the rays unequally divided and compounded; involucels unequal in number, short, filiform; spikelets compressed, ferruginous on the sides, having twenty flowers in them; there are two minute scales at the base of the pedicels; scales compressed, acute, keeled; seed white.—Native of Tranquebar in the East Indies.

46. Cyperus Niveus. Culm three-cornered, filiform, naked; umbel terminating, sessile, two-leaved; spikes compressed, lanceolate. Culms a foot and a half in height, striated; root-leaves few, short, narrow; sheath entire, with a short obtuse ligule opposite to the leaf; umbel composed of snow-white spikes, usually sessile; involucre reflex, longer than the head; spikes half an inch in length, with thirty flowers in some; glumes compressed, keeled, striated; seed black, like Buck-wheat.—Native of the East Indies.

47. Cyperus Imbricatus. Culm three-cornered, naked; umbel decompound; rays of the umbellules imbricate; involucre six-leaved, with three leaves very long, and three very short. Umbel unequal, four inches long, some of the umbellules sessile, others on peduncles of three inches and a half in length; no involucels; spikelets convex on both sides, compressed longitudinally in the middle, lanceolate, scarcely two inches long, having from twelve to twenty flowers, yellowish brown and pedicelled; scales imbricate, broad, ovate, acute, with membranaceous edges.—Native of Tranquebar.

48. Cyperus Cruentus. Culm three-cornered, and one-leafed at the base; umbel terminating, two-leaved, very simple. Culm four or five inches high, filiform; leaf linear, shorter than the culm; spikelets from two to ten, lanceolate, sanguineous, brown, two to three lines long; involucre two-leaved, four times as long as the umbel.—Native of Tranquebar.

49. Cyperus Nitens. Culms three-cornered, leafy at the base; umbels almost simple; involucre three-leaved; flowers one-stamined. Culms many, an inch or two in height; leaves two to four, linear, longer than the culm; umbel glomerate, some of the spikes simple, others forming an almost sessile umbellule; the longest leaf of the involucre an inch and half in length, the others gradually shorter; spikelets linear, narrow, shining, whitish, but longitudinally brown in the middle, with the scales diverging at top, and from ten to fourteen flowers; scales ovate, compressed, keeled, striated, hyalinous, with a green keel, obtuse, with an acumen; stamina one; seed ash-coloured.—Native of Tranquebar.

50. Cyperus Flavidus. Culm three-cornered, striated; umbel compound, three-leaved; spikes lanceolate; flowers one-stamined. Culms half a foot in height, one leafed; root leaves in bunches, short, narrow; some spikes of the umbel sessile, others in umbellules; involucre erect, three or four times as long as the umbel, linear; about twenty-six flowers in the spikes; scales scariose, purplish on both sides, separate, narrow.—Native of Tranquebar.

51. *Cyperus Venustus:* 52. *Cyperus Stuppeus:* 53. *Cyperus Linctus.*—Native of the Society Islands.

Cypress, Summer. See *Chenopodium Scoparia.*

Cypripedium; a genus of the class Gynandria, order Diandria.—Generic Character. *Calix:* spathes vague; spadix simple; perianth none. *Corolla:* petals four or five, lanceolate-linear, very long, spreading, erect; nectary within the lower petal, slipper-form, inflated, obtuse, hollow, shorter than the petals, broader; upper lip ovate, flat, inflex, small. *Stamina:* filamenta two, very short, seated on the pistil; antheræ erect, covered by the upper lip of the nectary. *Pistil:* germen long, twisted, inferior; style very short, growing to the upper lip of the nectary; stigma obscure. *Pericarp:* capsule obovate, obtusely three-cornered, with three sutures, under which it gapes in the corners, three-valved, one-celled. *Seeds:* numerous, very small; receptacle linear, growing lengthwise to each valve of the pericarp.

Essential Character. *Nectary:* ventricose, inflated, hollow.—Every plant of this genus is difficult to preserve in gardens: they must be planted in a mixture of bog-earth with much loam, in a shady moist situation, where they may have the morning sun only; they must be procured from the places where they naturally grow, for they cannot be propagated in gardens. The roots should be seldom removed, for transplanting them prevents their flowering. The American sorts require a little shelter in severe weather.——The species are,

1. Cypripedium Calceolus; *Common Lady's Slipper.* Roots fibrous; leaves ovate-lanceolate on the stem; petals acuminate; root composed of many fleshy black fibres, spreading obliquely near the surface, the fleshy part retaining the mark of the stalk produced the former year, a new root being annually formed on the side of the old one; stalks two, three, or more, in proportion to the strength of the root, nine, ten, or twelve inches high, and a little hairy; leaves from three to near four inches long, and near two inches broad at their base, of a deep green, and ending in acute points: four or five of these leaves are placed alternately along the stalk: in the bosom of the upper leaf is enclosed the flower-bud, supported by a slender peduncle, which generally turns a little on one side, and advances above the sheath before the flower opens; the corolla has four narrow petals of a dark purple colour, placed in the form of a cross, and spreading wide open: in the centre the nectary is situated, shaped like a wooden shoe, of a pale yellow colour, with a few broken streaks; the opening is covered with two ears, the upper one tender, white, and spotted with purple, the lower thick, and of an herbaceous colour. The lower leaves sheathe, the upper embrace the stem, they are marked with seven or nine principal parallel nerves, and numerous intermediate ones, fringed with short hairs on both sides. There is a variety which rises with a stalk nearly a foot and half high, which has longer and smoother leaves than the European sort, and is a native of Virginia, and other parts of America; where there is also another variety found, which is of the same height as the former, but has the leaves of an oblong oval form, and is called the *moccassin flower.* The old English name of this plant was *Our Lady's shoe* or *slipper*, from the Latin *calceolus Domina Mariæ*, or *Marianus*; and it is the same in the other European languages; in German, *Mariens-chuh*; in French, *sabot de la Vierge*, or *soulier de Notre Dame*; in Italian, *pontoffala*, or *scarpa della Madonna*, &c.—It is a native of Lapland, Sweden, Switzerland, Savoy, Piedmont, Germany, Hungary, Poland, &c. In the woods and thickets of the north of England, it is rarely found. Parkinson and Ray remarked its growing in Helk's wood, Lancashire, and near Ingleborough in Yorkshire; but Mr. Woodward has sought there for it in vain, a gardener of Ingleton having eradicated every plant for sale. Mr. Miller found it in the park of Borough Hall in Lancashire. Found also about Clapton and Ingleton, in the neighbourhood of Kilnsey, and about Kilnsey Crag, in Yorkshire; and near Castle Eden-dene in the county of Durham. It flowers at the end of May, and the stalks decay to the root in autumn, new ones rising in the following spring. —It succeeds very well in a pot, set under a hedge, where it has the morning sun only, and will last thus for many years; the roots will spread so as to fill the pot, and the plant may be propagated by parting the roots, but it must be done with caution. The gardeners, says Dr. Stokes, might make the botanists amends for rooting out these rare wild plants in their natural places of growth, and at the same time enrich themselves, if they would prove by experiment that one at least of the orchis tribe may be raised from seed.

2. Cypripedium Bulbosom; *Bulbous Lady's Slipper.* Bulb roundish; leaf roundish at the root. Root a bulb, throwing out a few thick fibres from its lower part, and invested with a semitransparent, acute, erect membrane, rising far above its top; leaf radical, solitary, petioled, oval, somewhat pointed, entire, ribbed, smooth, dark green, spotted with brown, very like the *Dog's-tooth Violet*; stalk three inches high, erect, round, one-flowered, invested with two tubular membranaceous sheaths; bracte solitary, not far from the flower, linear-lanceolate, acute, purplish; flower a little inclined; petals five, all pointing upwards, spreading, lanceolate, acute, three-nerved, purple, three on the outside of the other two; lower lip of the nectary as long as the petals, very large, pendulous, streaked with purple, having a prominent cloven point in the forepart beneath, gaping above, with a spreading, reflex, dependent margin, and bearded in the orifice with a little tuft of yellow hairs; the upper lip shorter than the petals, erect, broad, oval, entire, almost of the same substance and colour with the petals.—Native of Lapland, Russia, Siberia, and Nova Scotia.

3. Cypripedium Japonicum; *Japanese Lady's Slipper.* Leaves on the stem roundish, nearly opposite, nerved. Stem round, erect, villose, a foot high; leaves in the middle of the stem, two, embracing, acute, sinuate-waved, smooth, a hand broad; below the flower, a sessile, solitary, oblong, acute, entire leaflet, scarcely an inch in length; flower terminating, solitary, of the same size as in the common species. —Native of Japan, where it flowers in April and May.

4. Cypripedium Album; *White Lady's Slipper.* Roots fibrous; leaves ovate-lanceolate on the stem; petals obtuse. This species derives its name from the whiteness of its petals. The large nectary is tinged with purple. It is the most magnificent flower of the genus to which it belongs; and hence, Mr. Salisbury justly names it *spectabile*, for there are few flowers, that to such singularity of structure add such elegance and beauty.—It grows spontaneously in the woods, in various parts of North America.

5. Cypripedium Acaule; *Two-leaved Lady's Slipper.* Roots fibrous; leaves oblong at the root. It rarely has more than two radical leaves; a very short flowering stem, compared with the others; a large nectary in proportion to the size of the plant, divided on its upper part throughout its length, so as in a great degree to destroy that shoe or slipper-like form, from which this genus has taken its name.—It flowers with us in May; and is a native of North America.

Cyrilla; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth superior, five-leaved, permanent; leaflets linear-lanceolate, acute, spreading. *Corolla:* one-petalled, funnel-form; tube cylindric, subcompressed, inflated, declined, straight, larger than the calix; border almost equal, inclined, five-parted; parts rounded, revolute, spreading; the three lower more produced. *Stamina:* filamenta four; the two lower longer, filiform; then capillary, incurved, converging, finally spiral, thickened at the base, inserted into the lower margin of the corolla, shorter than the tube; antheræ ovate, two-celled, peltate, distinct before flowering-time, but afterwards united into a square, white. *Pistil:* germen half emerging, conic at top, with a nectareous lid, below turbinate, villose; style filiform, pubescent, becoming bent down, the length of the stamina; stigma two-lobed. *Pericarp:* capsule turbinate, half two-celled; partitions two, extending half way, each ending in a two-parted receptacle. *Seeds:* numerous, small. Essential Character. *Calix:* superior, five-leaved, linear-lanceolate. *Corolla:* declined, funnel-form; tube cylindric, gibbous on its lower edge; throat tricallous; border inclined,

five parted; segments roundish, the three lower more produced; filamenta inserted into the margin of the corolla, incurved, with a fifth barren; antheræ cohering. *Germen:* inferior, half emerging, with a nectareous lid; style bent down; stigma two-lobed. *Capsule:* half two-celled, with two parted receptacles; seeds numerous.——The only known species is,

1. Cyrilla Pulchella. A handsome plant: root branched, fibrose, stoloniferous. The young shoots resemble aments or catkins, are cylindric and closely imbricate, with ovate pubescent scales, thickened at the base, emarginate, and red; stems several, almost upright, branched, round, extremely villose, dusky purple, herbaceous; branches ternate, spreading; stem-leaves in threes, on the branches usually opposite, petioled, ovate or ovate-lanceolate, sharp at both ends, loosely serrate, entire at the base, with nerves prominent below, grooved above, villose on both sides, bright green, beneath paler, and very frequently blood-red; petioles round on one side, on the other flattish, and slightly channelled, one-third of the length of the leaves; flowers resembling those of Ruellia, axillary, solitary, peduncled, inclined, of the most vivid scarlet; peduncles spreading very much, round, villose, red, twice the length of the petioles; calix villose, ending in a turbinate germen, red at the base. It flowers in England at the end of summer and the beginning of autumn.—Native of Jamaica. It must be kept in the bark-stove, and may be propagated by suckers, but never produces seed in England. In the West Indies, where it thrives best in a cool moist gravel mixed with rich mould, it well deserves to be cultivated for its beauty and elegance.

Cyrtanthus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* one-petalled, club-shaped, bent, six-cleft at top; segments ovate-oblong; the three inner blunt, the three outer terminating in a little horn. *Stamina:* filamenta six, fastened to the tube, filiform-subulate, a little shorter than the corolla; antheræ oblong, erect. *Pistil:* germen inferior, ovate, obtusely three-cornered; style filiform; the length of the corolla; stigma trifid. Essential Character. *Corolla:* tubular, club-shaped, crooked, six-cleft; segments ovate, oblong. *Filamenta:* inserted into the tube, converging at top.—These plants may be increased by offsets or seeds, but the former is much the best method; they require the same treatment as other bulbs from the Cape.——The species are,

1. Cyrtanthus Angustifolius; *Narrow-leaved Cyrtanthus.* Leaves obtusely keeled, straight; flowers drooping, narrow, purple, with a bent tube, from which latter circumstance it takes the name. The small glandular hook at the extremity of each alternate segment of the corolla, is deserving of notice.—It flowers from May to July; and is a native of the Cape.

2. Cyrtanthus Obliquus; *Oblique-leaved Cyrtanthus.* Leaves flat, oblique; flowers pendulous. This plant is singular for its oblique long leaves; flowers purple, variegated with orange and green; tube turbinate; border bell-shaped, erect.—It flowers from May to July, and is a native of the Cape.

Cytinus; a genus of the class Gynandria, order Octandria.—Generic Character. *Calix:* perianth one-leafed, tubular, bell-form, permanent; tube cylindric; border patulous, four-parted, somewhat obtuse, coloured. *Corolla:* none. *Stamina:* sixteen; filamenta none; antheræ oblong, growing to the tip of the style under the stigma, oblong, two-valved. *Pistil:* germen inferior, rounded; style cylindric, length almost of the calix; stigma eight-cleft, gibbous, obtuse. *Pericarp:* berry crowned, roundish, coriaceous, eight-celled; seeds numerous, minute, roundish. Essential Character. *Style:* one. *Calix:* four-cleft, superior. *Corolla:* none. *Antheræ:* sixteen, sessile. *Berry:* eight-celled, with many seeds.——The only species is,

1. Cytinus Hypocistis; *Rape of Cistus.* A parasitical plant, growing at the root of the Cistus; leaves sessile, closely imbricate; flowers terminating, heaped; below the flowers are two opposite scales, becoming purple by age. The colour of the flower itself is a dirty yellow. The number of antheræ, and the divisions of the stigma, vary; the number of the antheræ is double the divisions of the stigma.—It is an annual plant, and a native of the county of Nice, Spain, Portugal, and Barbary.

Cytisus; (Trefoil Tree) a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, bell-form, short, obtuse at the base; mouth two-lipped; upper-lip two-cleft, acuminate, lower three-toothed. *Corolla:* papilionaceous; standard ovate, rising upwards, sides reflex; wings the length of the standard, straight, obtuse; keel somewhat bellied, acuminate. *Stamina:* filamenta diadelphous, (single and nine-cleft,) rising upwards; antheræ simple. *Pistil:* germen oblong; style simple, rising upwards; stigma obtuse. *Pericarp:* legume oblong, obtuse, attenuated at the base, stiff. *Seeds:* a few, kidney-form compressed. Essential Character. *Calix:* two-lipped; upper lip two-cleft, lower three-toothed. *Legume:* attenuated at the base.—All the species of Cytisus are shrubs without spines, most of them very fit for ornamental plantations. They are chiefly hardy; the leaves ternate; the flowers, except in the twelfth, yellow, and growing in bunches.——The species are,

1. Cytisis Laburnum; *Laburnum,* anciently called *Beau-trefoil Tree.* Racemes simple, pendulous; leaflets ovate oblong. The common height of the Laburnum is from eight to fifteen feet; but in a good ground, and when planted thick, it will run up much higher; leaves ternate, on long petioles, commonly three together from one point; leaflets quite entire, smooth, and pale green on the upper surface, glaucous, and covered with short appressed hairs on the lower, which has a strong prominent nerve or mid-rib. The flowers come out from the same short spurs with the leaves, in naked, handsome, villose racemes, a span in length; and beyond these, young shoots are produced, which are white, and bear the ternate leaves singly. Each flower hangs from a long pedicel; calix yellowish, small, two-lipped; the upper lip cloven, the lower having three minute teeth; corolla pale yellow; standard broad, emarginate, with dusky spots and dots within at the base; wings longer than the keel, hooked; keel in two parts; staminiferous sheath in one piece, the two upper filamenta standing crosswise; germen smooth; legume from an inch to nearly two inches in length, covered with white appressed hairs, containing from one or two, to six or seven ripe seeds, which are black and shining, several at one or both ends are frequently abortive. There are two varieties of Laburnum: the first broad-leaved, which formerly was more common in the English gardens than it is at present; and the second, narrow-leaved, which having much longer spikes of flowers, makes a finer appearance, and has in a manner supplanted the other from our ornamental plantations. The first, however, grows to be the largest tree, and the wood of it is very hard, of a fine colour, and will polish very well; it approaches nearly to green ebony, and is called *ebony of the Alps* by the French, for the Swiss use it for many kinds of furniture; but in England there are few of these trees that have been suffered to stand long enough to arrive to any considerable size; for as they have only been looked upon as ornamental, the frequent alterations which

most of the gardens in England have undergone, have occasioned their destruction; but in some of the old gardens in Scotland, where they have been permitted to stand, there are large trees of this kind, fit to cut down for the use of the timber. Even where it had been broken and injured, it has been observed to girth more than a yard, at six feet from the ground; and if properly treated, would, of course, have been much larger. It grows fast, and is extremely hardy, and may therefore be well worth propagating upon poor shallow soils, and in exposed situations. The Duke of Queensbury sowed a great quantity of the seeds of this tree, upon the side of the downs, at his seat near Amesbury in Wiltshire, where the situation was very much exposed, and the soil so shallow that few other trees would grow; yet even here, the young trees were twelve feet high in four years' growth, and became a shelter to the other plantations, for which purpose they were designed; but as the hares and rabbits greatly injure these trees by feeding upon the bark in winter, they should be fenced, if possible, from these animals. On this account, however, Mr. Boutcher ingeniously suggests, that the Laburnum is very proper to sow in plantations infested with hares and rabbits, who will not touch any other plant while a twig of Laburnum remains. And although they eat it to the ground in winter, yet it will spring again the next season, and thus constantly supply these mischievous animals, so that *five shillings worth* of Laburnum-seed will effectually secure a whole plantation from their destructive depredations. But the Laburnum is not only useful in preserving more valuable trees; the wood is very strong, and is much used for pegs, wedges, musical instruments, handles of knives, and a variety of furniture. Mr Boutcher informs us, that he had seen a large table and a dozen chairs made of it, which judges of elegant furniture thought the finest they had ever seen. Pliny has remarked, that its wood is the hardest of any, next to Ebony; and Matthiolus speaks of its being used for making the best bows. It chars remarkably well; and, if planted thick to run up tall, would make durable hop-poles. For this purpose, it might be planted in large clumps in parks, where it would be also very ornamental; the branches being generally loaded with long strings of flowers hanging down from every part of them in the month of May. Haller says, it is very bitter, and that the seeds purge and vomit violently. He also remarks that the Latin name *Laburnum* was evidently formed from the Alpine name *l'aubours*. It was formerly called *beau-trefoil*, and *peascod-tree*, in England; but the Latin name has superseded these. The Germans call it *bohnenbaum*; and the French, *cytise des Alpes*, *aubours*, and *faux-ebenier*.—It is a native of Switzerland, Austria, and Provence. It is easily propagated by seeds, which the trees produce in great plenty. If they be sown upon a common bed in March, the plants will appear by the middle or end of April, and will require no other care but to be kept clear from weeds during the following summer; and if the plants be too close together they should be transplanted in the autumn following, either into a nursery, where they may grow a year or two to acquire strength, or into the places where they are designed to remain. Where they are cultivated for timber, it will be the best method to sow their seeds upon the spot where they are intended to grow, because these trees send out long, thick, fleshy roots to a great distance, penetrating even gravel and rocks; and if their roots be cut or broken, it generally retards their growth; therefore, when they are not sown upon the intended spot, they should be transplanted thither young, otherwise they will not grow half so large, as the removing them twice will stop their growth, and cause them to be more productive in flowers: hence all trees intended for timber are much better sown on the ground where they are designed to stand, than if transplanted into it from another place. If the seeds of these trees be permitted to scatter in winter, the plants will rise in abundance in the following spring; so that a few trees will soon supply any person with a sufficient number of the plants.—There is a variety with variegated leaves, which can only be continued by cuttings or layers; the cuttings should be planted in autumn, when the leaves begin to fall; and the plants must have a poor soil, for in good ground they are apt to become plain. The Laburnum however will thrive upon many different soils, and in such situations as few other trees will make any progress in, especially in a poor hungry soil, where, if there be any depth, it will increase surprisingly. Mr. Boutcher recommends the seedling plants to be removed to the nursery in February or March, shortening their roots, which are not injured by cutting them freely when young, and planting them two feet and a half distant from row to row, and a foot asunder in the rows, there to remain during two seasons. Hence they may be removed either in October or February, still reducing the downright roots, and smoothing the extremities of those which spread, pruning off all ill-placed side-branches, but leaving some of the smallest at proper distances. The rows may now be five feet apart, the plants two feet asunder; and here they may remain three or four years: but these directions are more adapted to raising trees for ornamental plantations than for use. If they be designed for poles, they should be kept to smaller distances. The autumn after they are sown, they may be pricked out three or four inches apart, and the following spring to the distance of nine inches or a foot, there to remain three or four years, according to their growth; when they may be removed, being fourteen or sixteen feet high, to the places where they are designed to remain, only shortening the lateral roots, and just topping the tap-root, and they will then run up with few lateral branches, to the height of from twenty to forty feet.

2. Cytisus Nigricans; *Black Cytisus*. Racemes terminating, erect; calices hairy, with minute toothlets; leaflets elliptic, hairy underneath. This shrub seldom exceeds three or four feet high in England; it naturally puts out many lateral branches near the ground, which spread out on every side, forming a low shrubby bush, which is with difficulty raised to a stem. The branches are very slender, and their ends are frequently killed in severe winters. The leaves grow by threes, are equal in size, and of a dark green colour. The branches grow erect, and are terminated by bunches of yellow flowers, about four or five inches in length, and making a fine appearance.—Native of Austria, Hungary, Silesia, and Italy. This, with the third, seventh, ninth, eleventh, twelfth, thirteenth, and seventeenth species, may be propagated by seeds, which should be sown upon a bed of light earth in March, covering them about one-third of an inch with fine screened mould; and in the beginning of May the plants will appear, when they must be carefully weeded, which is all the culture they require till autumn, when it will be very proper to arch the bed over with hoops, that in frosty weather the plants may be covered with mats, to prevent their tender shoots from being killed; for as these young plants are apt to continue growing later in the autumn than those which are become woody, they are much more susceptible of cold; and if some care be not taken to cover them in severe winters, many of them may be entirely destroyed, and others killed to the ground. In the next spring after the danger of hard frost is over, they should be carefully taken up, and planted out at the distance of one foot row from row, and six inches asunder in the rows; they should

be placed in a sheltered situation, and as they do not shoot till late in the spring, they need not be transplanted before the end of March or the beginning of April; and if the season should then prove warm and dry, it will be proper to give the plants some water, to settle the earth to their roots; and if the drought continue, and the waterings are three times repeated at a week's interval from each, it will be of service to the plants. When they have taken new root, they will require no further care, but to keep them constantly clean from weeds: in this nursery, the plants may remain two years, in which time they will have acquired strength enough to be transplanted where they are to remain.

3. Cytisus Wolgaricus; *Winged-leaved Cytisus.* Hoary: racemes simple, erect; flowers pointing the same way; leaves pinnate; leaflets roundish; stipules subulate. This is a very handsome shrub, scarcely growing two feet high. The leaves have from three to nine, but usually six or seven pairs of leaflets, terminated by an odd one; they are smooth above, silvery beneath, and mostly orbiculate. The flowers are large, and of a deep yellow colour, in axillary and terminating racemes, erect on peduncles much longer than the leaves, about ten in number, generally opposite, or nearly so, in pairs, with a small acuminate bracte to each pedicel; calix and pedicels lanuginose, and having reddish glutinous glands scattered over them; seeds large, gray, testaceous, variegated.—Native of Siberia, in the deserts between the Tanais and the Wolga. See the second species.

4. Cytisus Sessilifolius; *Common Cytisus.* Racemes erect; calices with a triple bracte; floral leaves sessile. This rises with a woody stalk, putting out many branches, covered with a brownish bark; leaflets obovate, ternate, on very short petioles; flowers in close short terminating racemes, of a bright yellow colour; legumes short and broad. This shrub rises to the height of seven or eight feet, and becomes very bushy. It is easily known by its smoothness, the uprightness of the stalks and racemes, and particularly by the triple bracte immediately below the flower. Ruminating animals greedily devour the leaves and young branches of this species, while the goat alone will feed upon the Laburnum.—Native of the south of Europe. This is a hardy plant, that will thrive in any situation, and almost in any soil that is not too wet. It is propagated by seeds, which may be sown upon a common bed of light earth in the spring; in autumn the plants may be removed into the nursery, where they may remain two years to acquire strength, and should then be removed to the places where they are designed to grow.

5. Cytisus Cajan; *Pigeon Cytisus,* or *Pigeon Pea.* Racemes axillary, erect; leaflets sublanceolate, tomentose, the middle one on a longer petiole. This rises with a weak shrubby stalk, eight or ten feet high, sending out many side-branches, which grow erect. The flowers come out from the side of the branches, singly or in clusters; they are of a deep yellow colour, and about the size of those of the common Laburnum. The Pigeon-pea is frequently planted in the West India islands, chiefly in rows, as a fence to the sugar plantations, and will thrive on barren lands. The seed is much eaten by poor people and negroes, and is esteemed a wholesome pulse; even the better sort of people in the island of Martinico hold it in estimation, and prefer it to the European pea. In Jamaica it is chiefly used for feeding pigeons; whence its name. The branches, with the ripe seed and leaves, are given to feed horses, cattle, and hogs, which grow very fat upon them.—Native of both Indies, and of Africa, whence they are supposed to have been originally brought to the West Indies, where they are called *Angola-peas,* and *pois d'Angola.* It grows only in hot countries, and cannot be preserved in England, except in the bark-stove. It rises easily from seeds in a hot-bed, and will grow three or four feet high the first year, provided it have proper heat; and in the second year the plants will produce flowers and seeds.

6. Cytisus Hirsutus; *Hairy* or *Evergreen Cytisus.* Peduncles simple, lateral; calices hirsute, trifid, obtuse, ventricose, oblong. This plant has a soft shrubby stalk, dividing into many branches, which grow erect, and frequently rise to the height of eight or ten feet; the stalks, branches, and leaves are very hairy; the leaves are ternate, ovate, and placed closely on the branches; the flowers come out from the side of the stalk, in short racemes; they are of a pale yellow, appearing in June, and are succeeded by long, narrow, hairy legumes, which ripen in September.—Native of the south of Europe and Siberia. This may be propagated in the same manner as has been directed for the second sort; but as it is sometimes killed in severe frosts, it should be planted only on a dry soil, and in a warm situation; it is also very difficult to remove, when grown to any size.

7. Cytisus Capitatus; *Cluster-flowered Cytisus.* Flowers in heads; branches erect, strict, round, villose; leaves ovate-elliptic, villose; bracte linear beneath the calix. It differs from the preceding, in having most of the flowers terminating in a genuine head; the leaves more obtuse and hairy on both sides; the stems scarcely ever a cubit in height, and extremely hirsute. Native of Austria, Carniola, and Silesia. See the second species.

8. Cytisus Austriacus; *Siberian Cytisus.* Flowers in umbels terminating; stem erect; leaflets lanceolate. This has a shrubby stalk, which rises nearly four feet high, dividing into many branches, which, when young, are covered with a green bark; the flowers are produced in close heads at the ends of the branches, having a cluster of leaves under them; they are of a bright yellow colour, appear in the beginning of May, and are sometimes succeeded by short woolly legumes, containing three or four small seeds.—Native of Austria, Hungary, Silesia, Italy, and Siberia. This requires a cold situation, and a strong soil.

9. Cytisus Supinus; *Trailing Cytisus.* Flowers peduncled, about two together; leaves villose; stem decumbent, becoming shrubby. The stems of this are almost wholly procumbent, round, dusky, a little divided: the ends are closely beset with leaves and flowers, which come out together from spreading buds, formed of a few subovate simple bractes; the longer stems are frequently decorated with flowers for a foot in length; two flowers usually proceed from each bud, but sometimes only one, and rarely three or more, on short peduncles. The younger branches, the petioles, peduncles, and leaves, especially underneath, are covered with soft whitish hairs, which are frequently soft, and scarcely visible; flowers erect, deep yellow, but becoming reddish before they decay; seeds several, shining, brown. In the garden it becomes more pubescent, and by age more shrubby, branched, and diffused, rising to four feet in height, with long recurved branches loaded with flowers.—Native of the south of Europe and Siberia. See the second species.

10. Cytisus Proliferus; *Silky Cytisus.* Flowers in lateral umbels; stems erect; leaves elliptic, acute, silky underneath; calices woolly. The stems, but especially the small branches, are almost tomentose; leaves alternate, petioled; peduncles axillary, (four to eight,) equal, one-flowered, a little longer than the petiole, filiform, villose, with two opposite filiform bractes near the flower; corollas large, white. When the flowering is past, a branch grows out in the centre of the peduncles. It flowers in April and May, and is found in the mountain woods of Teneriffe. This, with the fourteenth,

fifteenth, sixteenth, and seventeenth species, will not bear the open air of our climate, but require the protection of a green-house, or dry-stove.

11. Cytisus Argenteus; *Silvery Cytisus.* Flowers generally two together, subsessile; leaves tomentose; stems decumbent; stipules minute. It has herbaceous stalks. The flowers are produced either single, or two, three, or more together, at the ends of the branches. It is a hoary shining plant; the branches towards the root become shrubby, but above they are herbaceous.—Native of the south of France, and Istria. See the second species.

12. Cytisus Purpureus. Flowers peduncled, solitary; leaves smooth; stems decumbent, becoming shrubby; legumes sickled above. This is suffruticose; stems the thickness of a goose-quill, naked, smooth, brownish, pliant, prostrate; from these spring slender, soft, ascending, branched twigs, at first slightly pubescent, but afterwards smooth; leaves scattered, alternate, petioled; leaflets sessile, ovate, sharpish, dark green, quite entire; flowers axillary, solitary, erect, on a short pedicel; calix tinged with purple; corolla large, bright red; standard obcordate, broad, villose, ciliate on the sides at bottom; wings oblong, oval, entire, converging; keel blunt; both that and the wings villose, ciliate at the base.—Native of Carniola, flowering in April and May. See the second species.

13. Cytisus Glaber. Flowers solitary, lateral, subsessile, pendulous; leaves ternate, petioled; leaflets equal, lanceolate, elliptic, whitish about the edge, small, acute; peduncles shorter than the flowers; calix oblong, somewhat bellying, trifid; corolla yellow, rather large.—Native of Austria.

14. Cytisus Græcus. Leaves simple, lanceolate-linear; branches angular. It rises with a woody stalk, six or seven feet high, sending out many angular lateral branches. The flowers are produced in short bunches from the sides of the branches; they are small, yellow, and appear in July and August, but are not succeeded by seeds in England. It is propagated by cuttings, which if planted on a bed of light earth in the beginning of July, and closely covered with a bell or hand glass, shaded from the sun in the middle of the day, will put out roots by the middle or end of September, when they should be carefully taken up, planting each in a separate small pot, carefully watering and shading them until they have taken new root; after which they may be exposed in a sheltered situation until the end of October, when they must be removed into shelter.

15. Cytisus Tener. Leaves simple, lanceolate; branches round. This is an erect shrub, branching very much, three feet high, with a trunk the thickness of a finger, round, and upright; leaves quite entire, subpetioled, pale beneath, somewhat villose on both sides, scarcely half an inch long; flowers few, in terminating racemes on short pedicels, smelling sweet; legumes hirsute; seed few.—Native of Madeira.

16. Cytisus Foliolosus; *Leafy Cytisus.* Racemes terminating, erect; calices villose; segments sickle shaped; leaflets obovate, oblong.—It flowers in July and August; and was found in the Canary Islands.

17. Cytisus Divaricatus; *Clammy Cytisus.* Racemes terminating, erect; calices and legumes ramentaceous, viscid; leaflets oblong; leaves ternate, with ovate oblong leaflets, on short petioles; racemes simple; flowers peduncled, solitary, supported by one or two subulate bractes. Before the corolla opens, the whole is tawny; but when open, the standard about the middle only is of that colour; the rest is then yellow; the calix is also tawny. It flowers in July and August, and is a native of the south of France, Spain, and Madeira. See the second and tenth species.

18. Cytisus Biflorus. *Smooth Cytisus.* Peduncles generally in pairs, lateral; calices oblong, villose, two lipped; upper lip bifid; leaflets oblong, elliptic. It flowers in May and June.—Native country unknown.

DACTYLIS; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume many-flowered, two-valved, collecting the floscules into an ovate-oblong spicule; valves concave, keeled; on one side convex, broader, half ovate; on the other narrow, the inner largest. *Corolla:* two-valved; the lower valve larger, concave, acute, mucronate, or awned, the inner lanceolate, acutely bifid, scarcely shorter than the lower; nectaries two, lanceolate, acuminate, gibbous at the base. *Stamina:* filamenta three, capillary, longer than the corolla; antheræ oblong, two-forked. *Pistil:* germen ovate; styles two, spreading; stigmas feathered. *Pericarp:* none; corolla including the seed, and dropping it. *Seed:* single, oblong, grooved on one side. Essential Character. *Calix:* two-valved, compressed, one valve larger, keeled. For the propagation and culture of this genus, see *Grass.*——The species are,

1. Dactylis Cynosuroides; *American Cock's-foot Grass.* Spikes scattered, numerous; flowers closely imbricate, and pointing one way; culm erect, two feet high, reedy; leaves on the culm six lines broad, longer than the culm, very glossy, scabrous about the edge, bent in, more glaucous on their inner surface; spikes six or more, diverging, chaffy; floscules scabrous behind; calices one-flowered, scabrous on the keel, mucronate, longer than the floscule, sessile, turned one way; pistils villose, very long.—Native of Virginia and Canada: perennial.

2. Dactylis Glomerata; *Rough Cock's-foot Grass.* Panicle turned to one side, glomerate. Root perennial; culms from two to three feet high, ancipital, naked, and rugged at top, having four or five smooth purplish knots or joints, and three leaves with ancipital, villose, or rugged sheaths, sharply keeled; leaves six inches or more in length, and three or four lines broad, spreading, somewhat glaucous, very rugged on both sides, with extremely minute spinules; ligule white, oblong, obtuse, cloven; panicle close, often coloured; peduncles solitary, alternate, angular, stiff, rugged, with a callous tumor at the base, twice and thrice cloven, the lowest sometimes two more, remote, longer, spreading, at length becoming horizontal, and even somewhat reflex; spikelets all turned the same way, subsessile, twin-glomerate, oblong, very obtuse, having two, three, and sometimes four flowers, pressed close, and diverging during florescence; seed dropping. It is a rough coarse grass, and hence has the names of *rough grass* and *hard grass*; as well as that of *orchard grass*, from its flourishing particularly under the shade of trees. No grass is more common than this: it is extremely hardy,

but unproductive: its flourishing under the drip of trees may be a recommendation; but the head is so large, that in heavy rains it is apt to be laid.—It is rather early, flowering from June to August; and should always be cut while young and tender, either for hay or fodder.

3. Dactylis Ciliaris; *Hairy Cock's-foot Grass.* Spike in a head, turned to one side; calices three-flowered; stem creeping. Root filiform, creeping, with long white fibres; culms a palm high, ascending, very simple, even, with one joint; root-leaves involute, filiform, even, the length of the culm; stem-leaf one, even, the length of the head; sheath somewhat bellying; head terminating, ovate, with many sessile flowers; glume of the calix, three-flowered, compressed, mucronate, the length of the corolla, having scattered hairs on the back under the tip.—Native of the Cape.

4. Dactylis Lagopoides. Spikes roundish, pubescent; culm prostrate, branched. Root perennial, fibrous; culms a palm high, several, covered on every side with the sheaths of leaves; leaves spreading, subulate, like spines, contracted at the base narrower than their sheaths; spike glomerate, ovate, pubescent; flowers sessile, many together, pointing nearly one way; calix eight-flowered, but often only four-flowered, nearly equal.—Native of the fields of Malabar.

5. Dactylis Capitata. Spikes in a head, even; culm prostrate, branched. Root perennial; leaves even, three on the culm, which is of the thickness of a fowl's quill, a foot and half in height, and even; panicle in form of a spike, as it were conglomerate, narrower at top, a palm in length, the colour of chaff; flowers always twin, depressed; calix nearly the length of the flower, containing about five flowers.—Found by Sparrmann at the Cape.

6. Dactylis Stricta; *Sea Cock's-foot Grass.* Spikes terminating, usually twin; flowers remote, pressed close; culms and leaves strict. The calix contains one floret only, which has but one style, and the style is longer than the stamina. It is perennial, and flowers from July to September.—Native of the marshes in Essex, and very common on the sea-coast, and also in Portugal.

7. Dactylis Patens; *Spreading Cock's-foot Grass.* Spikes scattered, turned one way, few; flowers closely imbricate; culm, decumbent; leaves spreading very much.—This is a perennial, flowering in August; and a native of North America.

Daffodil. See *Narcissus.*

Daffodil, Sea. See *Pancratium.*

Dahlia; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common double; the outer of several leaves, six or seven, ovato-spatulate, reflexed; inner of one leaf, cup-shaped, in several ovate segments. *Corolla.* compound radiant; florets of the centre perfect, with a tubular, stalked, five-cleft petal; those of the radius fertile, with an ovate three-toothed petal, equal in number to the segments of the calix. *Stamina:* in the perfect florets; filamenta five, broadest at the base inserted into the bottom of the petal; anthera united into a tube. *Pistil:* germen somewhat spatulate, obscurely triangular, notched at the top; style thread-shaped; stigmas somewhat spreading, pubescent. *Seeds:* solitary, shaped like the germen. *Receptacle:* flat, chaffy; the scales large, the middle ones keeled, the rest flat; down none. Essential Character. *Calix:* double, the outer of many leaves. *Corolla:* radiant, its rays equal in number to the segments of the calix, ovate, three-toothed. *Receptacle:* chaffy. *Stigmas:* downy. *Seed-down:* none.

There are several species of Dahlia, all natives of the mountainous parts of the Spanish settlements of South America: their flowers are large and handsome, like those of the Sunflower, but the rays mostly red or purple, like the China Aster, and likewise variable in this respect: the herbage is coarse and rank, with compound leaves.—Mr. Salisbury, who has written a history of this genus, recommends the cultivation of some species in poor gravelly soil, in the open ground, by which means they grow less luxuriantly, and flower earlier and more copiously.

Dais; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* involucre four-leaved, sessile, many flowered; leaflets scariose, erect; perianth none. *Corolla:* one-petalled, funnel-form, longer than the involucre; tube filiform, rude; border five cleft; divisions lanceolate, obtuse. *Stamina:* filamenta ten, inserted into the throat, shorter than the border, the alternate ones shorter; antheræ simple. *Pistil:* germen somewhat oblong, growing on the base of the corolla; style filiform, length of the tube; stigma globose, ascending. *Pericarp:* berry ovate, one-celled. *Seed:* single, ovate. Essential Character. *Involucre:* four-leaved. *Corolla:* four or five-cleft. *Berry:* one-seeded.——The species are,

1. Dais Cotinifolia; *Cotinus-leaved Dais.* Flowers five-cleft, ten-stamined. Leaves opposite, obovate, quite entire, smooth, petioled; flowers in a bunch, aggregate, terminating, pubescent, with a gemmaceous four-valved involucre. The fruit is a small nut, of an ovate acuminate form, with a thin bark over it, and clothed with a permanent corolla; the epidermis is membranaceous, pale, diaphanous, thickening on each side into a prominent whitish edge, easily separating; shell bony, thin, brittle, livid white on the outside, black within, one-celled, and valveless.—Native of the Cape. This ornamental deciduous green-house shrub, has not yet seeded in England, as it does in Holland. The seeds should be sown in pots of light earth in the spring season, and plunged into a good hot-bed: when they have attained a good growth, they must be removed into a larger, and placed in the green-house. It sometimes succeeds by layers and cuttings, if made from young shoots. The difficulty of raising it, enhances its price among the nursery-men.

2. Dais Octandria. Flowers four-cleft, eight-stamined. Leaves opposite, elliptic oblong, acuminate, petioled, even; involucre one or two, terminating, peduncled, shorter than the flowers, which are smooth; stamina placed upon the tube, and longer than the corolla.—Native of the East Indies.

3. Dais Disperma. Flowers eight and ten stamined. Leaves ovate-lanceolate, acuminate, nerveless.—Native of Tongataboo.

Daisy. See *Bellis.*

Daisy, Great, or *Oxeye.* See *Chrysanthemum.*

Daisy, Blue. See *Globularia.*

Dalbergia; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-toothed; teeth bluntish. *Corolla:* papilionaceous; standard large, ascending, cordate-ovate, emarginate, retuse, with a linear claw; wings oblong, straight, obtuse, with a reversed tooth above; keel scarcely shorter than the wings, two-parted at the base, straight, obtuse. *Stamina:* filamenta ten, united in two equal lateral bodies, free at top, ascending; antheræ roundish. *Pistil:* germen oblong, compressed, pedicelled; style subulate, ascending or reflex; stigma simple. *Pericarp:* legume oblong, compressed, flat, pedicelled, not gaping, one-celled. *Seed:* single, or few, remote, kidney-form, compressed. Essential Character. Filamenta two, four-cleft at top. *Fruit:* pedicelled, not opening, leguminose, membranaceous, compressed.——The species are,

1. Dalbergia Lanceolaria. Leaves pinnate; leaflets elliptic, hairy underneath; fruits lanceolate. This is a tree with wand-like, pendulous, hairy branches; leaves alternate, unequally pinnate; leaflets elliptic, alternate, remote, from ten to sixteen, quite entire, waved, smooth underneath, hirsute above, veinless, small; petioles hairy; racemes axillary, hairy, branched; flowers ferruginous; calix rough with hairs; corolla larger than in the second sort. The fruit is a membrane, exactly the figure of a little lance, attenuated at the base, not opening, not divisible into two skins by a knife, the length of a finger or less: in the middle of this membrane, a single, compressed, oval seed is immersed; and when there are two seeds, they are placed longitudinally, at a distance from each other.—Observed by Kœnig in Ceylon and Malabar.

2. Dalbergia Monetaria. Leaves ternate; leaflets smooth, ovate; fruits oval, veinless. This is a shrub; leaflets petioled, quite entire, veined, acuminate, alternate; peduncles several, axillary, spiked, directed one way, toothed at bottom, where the flowers have fallen; flowers extremely minute, white; calix blunt, with five small equal teeth; filamenta two, lateral, equal, four-cleft at top, with a third, which is single, below the germen, hence there are nine filamenta; antheræ nine, globular, twin; style filiform, erect; stigma headed. The fruit is of an oval form, like a piece of coin, compressed, cartilaginous within, one-celled, deciduous, not opening; seed single, compressed, kidney-form. The root when cut yields a purple juice; the wood is red, and yields a resin resembling Dragon's-blood.—Native of wet parts of Surinam.

Dalechampia; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Involucre*: common exterior smaller; leaflets four, lanceolate, spreading: interior very large; leaflets two, heart-shaped, three-cleft, converging. For the *male flowers*, a foot-stalked umbel, simple, ten-flowered, shorter than the interior involucre. *Calix*: involucel two-leaved, erect, blunt; leaflets somewhat three-lobed; scales numerous, obovate, pressed in an imbricate manner to the exterior side of the involucel, and of the same length with it; perianth proper five-leaved, footstalked; leaflets ovate, acute, deciduous. *Corolla*: none. *Stamina*: filamenta very many, growing together into a column longer than the calix; antheræ roundish. In the *females*, three florets within the same common involucre, approximate to the inferior side. *Calix*: involucel three-leaved; leaflets emarginate, small; perianth proper, inferior; leaflets eleven, linear, toothed, acute, converging, permanent. *Corolla*: none. *Pistil*: germen roundish, shorter than the perianth; style filiform, ascending, length of the males: stigma somewhat headed, perforated. *Pericarp*: capsule roundish, three-berried, three-celled; cells two-valved. *Seeds*: solitary, globose. Essential Character. Outer common involucre with four leaflets, inner with two trifid leaves. *Male*: umbellule ten-flowered; involucel two-leaved, with numerous chaffs; proper perianth five-leaved. *Corolla*: none; filamenta very many, connate. *Females*: floscules three; involucel three-leaved; proper perianth with eleven leaflets. *Corolla*: none; style filiform. *Capsule*: tricoccous.—These plants are propagated by seeds, sown early in the spring on a hot-bed, transplanted into small pots when three inches high, plunged into a bark-bed, and frequently watered; they should be afterwards removed into larger pots, and placed at the back of the bark-stove, where they may have an espalier or trellis to run up on. They seldom continue more than two years.——The species are,

1. Dalechampia Colorata; *Coloured Dalechampia*. Leaves quite entire. This resembles the second species, and the leaves are three-lobed, but less deeply cut, and not serrate; the involucre is more oblong, resembling a petal, or coloured, not cordate at the base, or green. Found in New Granada, by Mutis.

2. Dalechampia Scandens; *Climbing Dalechampia*. Leaves trifid, serrate. Stem branched, climbing, hairy, the hairs standing out; leaves alternate, petioled, remote, cordate, three-lobed, much veined, wrinkled, pubescent; flowers axillary, green, on long stalks; bractes large, three-cleft, serrated, inclosing the flowers and seeds. (Miller has a variety, native of Jamaica, having a smooth fruit, with a hispid calix.)—It flowers in June and July; and is a native of the West Indies.

Damasonium; a genus of the class Hexandria, order Hexagynia.——Generic Character. *Calix*: spathe one-leafed, oblong, five-winged; wings waved, two running down into the petiole; mouth five-toothed; teeth sharp, membranaceous at the edge; perianth one-leafed, three parted, superior; leaflets lanceolate, blunt, surrounded by a membranaceous edge, spreading. *Corolla*: petals three, roundish; waved, spreading, longer than the perianth. *Stamina*: filamenta six, very short; antheræ linear, erect, blunt, emarginate at the base, shorter than the corolla. *Pistil*: germen oblong, inferior; styles six, linear, emarginate, erect, longer than the stamina; stigmas, villose hairs on the side of the styles. *Pericarp*: berry oblong, ten-celled, crowned by the calix; seeds very many, oblong, small. Essential Character. *Spathe*: one-leafed. *Perianth*: one-leafed, three-parted. *Petals*: three. *Berry*: ten-celled, inferior.——The only known species is,

1. Damasonium Alismoides Leaves heart-shaped, nerved, floating, unarmed; scape naked, quadrangular, one-flowered. There are only six stamina in the flower, with six bifid styles.—Native of the East Indies, Malabar, Ceylon, &c.

Dame's Violet. See *Hesperis*.

Dandelion. See *Leontodon*.

Danewort. See *Sambucus*.

Daphne; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix*: none. *Corolla*: one-petalled, funnel-form, withering, including the stamina; tube cylindric, imperforate, longer than the border; border four-cleft; divisions ovate, acute, flat, spreading. *Stamina*: filamenta eight, short, inserted into the tube, the alternate ones lower; antheræ roundish, erect, two-celled. *Pistil*: germen ovate; style very short; stigma headed, depressed, flat. *Pericarp*: berry roundish, one-celled. *Seed*: single, roundish, fleshy. Essential Character. *Calix*: none. *Corolla*: four-cleft, corollaceous, withering, including the stamina. *Berry*: one-seeded.——The species are,

* *Flowers lateral.*

1. Daphne Mezercum; *Mezereon*. Flowers sessile, in threes on the stem; leaves lanceolate, deciduous. It is a shrub growing in gardens, to the height of five or six feet, with a strong woody stalk, putting out many woody branches on every side, so as to form a regular head; the flowers come out before the leaves very early in the spring, in clusters surrounding the shoots of the former year. The leaves are smooth, about two inches long, and three quarters of an inch broad in the middle, placed without order. In its wild state it is only from one to two feet in height, and the branches then are not numerous, they are very flexible; the leaves are entire, and of a pale green. The fruit is a superior berried drupe, first green, then red, of an ovate-globular form, with a thin succulent pulp, and a crustaceous, thin, brittle, black, shining shell; it is, however, commonly called a berry. There are two principal varieties of the Mezereon; one with a white

flower, succeeded by yellow berries; the other with peach-coloured flowers and red fruit; the latter has sometimes flowers of a much deeper red. There is also a variety with variegated leaves; the flowers of which appear in February and March, and even in January, when the season is mild; the berries will be ripe in June, if they be not previously devoured by birds. Villars mentions another variety, with the leaves a little villose, or having small hairs at their base, and the flowers four together: he remarks, that the parts of fructification are so perfectly formed the year before the flowers unfold themselves, that the character may be easily determined by the naked eye.—Mezereon is a native of Lapland, Sweden, Denmark, Germany, Switzerland, France, Carniola, Savoy, Piedmont, and great Britain. Mr. Miller is the first who declared it to be a native of our island, namely, near Andover in Hampshire; since that it has been found at Laxfield, in Suffolk; in Selborn-hanger, Hants; and frequently observed in the beech-woods of Buckinghamshire. As it has escaped all our old herbarists, and even the indefatigable Ray and his immediate successors; and birds are remarkably fond of the berries, there is reason to suspect that they may have disseminated this beautiful shrub; unless we can suppose that it remained unnoticed, on account of its flowering before the time at which the herbarists sally out upon their vernal excursions. Gerarde informs us, that he had plenty thereof for his garden from Elbing in Poland: he calls it German Olive-spurge, or Spurge-olive, Spurge-flax, and Dwarf-bay, and says that the Dutch call it *Mezereon*. Parkinson calls it Dwarf-bay, or Flowering-spurge: the Germans have named it *kellerhals, kellerbere, kellerkraut*, &c. the Dutch, *peperboompje*; the Danes, *kielderhals*; the Swedes, *kiællerhals*; the French, *laureole gentille* or *femelle, bois gentil, bois joli*; the Italians, *laureola femina, dafnoide, camelea, calmolea, biondella*; the Spaniards, *laureola hembra*; the Portuguese, *loireola femea*, or *mezereo major*; and the Russians, *woltschje-luke*. The branches afford a good yellow dye.—The whole of this vegetable is extremely acrid, especially when fresh, and, if retained in the mouth, excites great heat and inflammation, particularly of the throat and fauces: the berries, when swallowed, prove a powerful poison, not only to man, but to many quadrupeds. A woman gave only twelve of the berries to her daughter, who laboured under a quartan ague, and she, after vomiting a good deal of blood, expired immediately. Both the bark and the berries of Mezereon, in different forms, have been long used externally in cases of obstinate ulcers, and ill-conditioned sores. In France, the bark is used as an application to the skin, which, under certain circumstances, produces a serous discharge without blistering, and is thus rendered very useful in chronic cases of a local nature, answering the purpose of what is called a perpetual blister, while it occasions less pain and inconvenience. In England, the Mezereon has been principally employed in syphilitic cases; and in this way, Dr. Donald Monro was the first who testified its efficacy in the successful use of the Lisbon diet-drink. Several cases were afterwards published by Dr. Russel, then physician to St. Thomas's hospital, fully establishing the utility of the bark of Mezereon, in venereal nodes. In the above cases, the decoction of the root was made use of, but it has been found necessary in some cases to join with it a solution of sublimate. Dr. Cullen informs us, that Dr. Home has not only found the decoction of Mezereon to cure schirrhous tumours, which remain after the lues venerea, and after the use of mercury, but that it has also healed them when proceeding from other causes. The considerable and long-continued heat and irritation that is produced in the throat when Mezereon is chewed, induced Dr. Withering to give it in a case of difficulty of swallowing, apparently the effect of a paralytic affection: the patient was directed to chew a thin slice of the root as often as she could bear to do it, and in about two months she recovered her power of swallowing: she had suffered the above complaint upwards of three years, and was greatly reduced, being totally unable to swallow solids, and liquids but very imperfectly. An ointment prepared from the bark or the berries has been found serviceable to sore ulcers. A decoction made of a drachm of the bark of the root, in three pints of water till one pint is wasted, and this quantity taken daily for a considerable time together, has been found very efficacious in resolving and dispersing venereal swellings and excrescences. Dr. Russel prescribes two drachms of the Mezereon and half an ounce of Liquorice-root, boiled with three pints of water to a quart: four to eight ounces of this decoction to be given four times a day. The bark of the root, says Hill, or the inner bark of the branches, is to be used, but it requires caution in the administration, and must only be given to persons of robust constitutions, and even to them very sparingly, for if it be given in too large a dose, or at all to a weakly person, it will cause vomiting and bloody stools; but to the robust it acts only as a brisk purge, and is excellent in dropsies and other stubborn disorders; a light infusion is the safest and most efficacious mode of giving it.—Mezereon is propagated by seeds, which should be sown on a border exposed to the east, soon after the berries become ripe; for if they be not sown till the spring following, they often miscarry, and always remain a year in the ground before the plants appear; whereas those which are sown in August will grow the following spring, so that a year is saved; and these never fail. When the plants come up, they will require no other care, but to keep them clean from weeds; and if the plants be not too close together, they may continue in the seed-bed to have the growth of two summers, especially if they do not make great progress the first year; then at Michaelmas, when the leaves are shedding, they should be carefully taken up, so as not to break or bruise their roots, and planted into a nursery, about sixteen inches row from row, and eight or nine inches asunder in the rows. In this nursery they may remain two years, by which time they will be fit to remove to the places where they are designed to remain for good. The best season to transplant these trees is in autumn, for as these plants begin to vegetate very early in the spring, it is hazardous to transplant them in that season. They grow best in a light, dry, sandy earth, but become mossy, and make little progress, in cold wet lands, so that upon such soils they are small, and produce but few flowers. Notwithstanding the berries of this tree are so very acrid as to burn the mouth and throat of those who may incautiously taste them, yet the birds greedily devour them as soon as they begin to ripen; so that unless the shrubs be covered with nets to preserve the berries, they will all be destroyed before they are fit to gather. The Mezereon is a very ornamental shrub in gardens, flowering before others, very early in the spring; and when there are plenty of them growing together, perfuming the air to a considerable distance.

2. Daphne Thymelæa. Flowers sessile, axillary; leaves lanceolate; stems very simple. This plant rises to the height of three or four feet, with a single stalk, covered with a light-coloured bark; the flowers come out in clusters on the sides of the stalk, and being of an herbaceous colour, make but little appearance. They come forth early in the spring, and are succeeded by small berries, which are yellowish when ripe.—Native of Spain, Italy, and the south of France. Vahl found it in great abundance, on the confines of New Castile. This species, together with the fifth and twelfth, are hardy

and will live through the winter, in England in the open air provided they are placed in a dry soil and a warm situation. They should be planted on a very warm dry border, where, if there be a foundation of lime-rubbish or chalk under the upper surface of the ground, the plants will thrive better, and continue much longer, than in better ground; and all the culture they require, is to keep the place clear from weeds, for the less the ground is stirred near the roots, the better the plants will thrive; for they grow naturally on poor shallow land, and out of crevices in rocks, and therefore the nearer the soil approaches to this, the more likely the plants are to succeed.

3. Daphne Pubescens. Flowers sessile, aggregate; leaves lanceolate-linear; stem pubescent, simple; leaves alternate, remote, almost naked, annual, submucronate; flowers axillary, narrow, five, or fewer, with a filiform pubescent tube, shorter than the leaves.—Found by Jacquin in Austria.

4. Daphne Villosa. Flowers sessile, solitary; leaves lanceolate, flat, ciliate, hairy, crowded. This is a shrub with alternate branches; leaves like those of Knotgrass, scarcely petioled, with white remote hairs on both sides, fewer on the upper surface, and more towards the edges; in the axils are very many rudiments of branchlets, whence it is as it were verticilled; flowers narrow, small, shorter than the leaves.—Observed by Alstroemer in Spain and Portugal.

5. Daphne Tartonraira; *Silvery-leaved Daphne* or *Tartonraira*. Flowers sessile, aggregate, lateral, imbricate with scales at the base; leaves obovate, nerved, silky. This is a long shrubby plant, which sends out several weak stalks from the root, about a foot long, and spreading about irregularly; these seldom become woody in England, but are tough and stringy, covered with a light bark; the leaves are small, very soft, white, and shining like satin, and sit pretty close to the stalks; between these, white flowers come out in thick clusters; they are commonly two or three together, very seldom solitary, bell-shaped, silky on the outside, but yellowish within, imbricated at the base with four or more ovate keeled scales.—Native of the south of France. See the second species.

6. Daphne Alpina; *Alpine Daphne*. Flowers sessile, aggregate, leaves lanceolate, somewhat obtuse, tomentose underneath. This species rises about three feet high; the flowers come out in clusters from the sides of the branches early in the spring, and are succeeded by small roundish berries, which turn red when ripe; the root fixes itself deeply in the crevices of the rocks; the little stems are shrubby and upright, scarcely a palm in height, as it were brachiate, leafy, and flowering at the top; leaves lanceolate or obovate, usually emarginate hoary with hairs when viewed with a glass, as are also the calices and fruits; the younger leaves appear hirsute to the naked eye, but afterwards appear bald, unless to the magnifier.—Native of the south of France, and of the mountains near Geneva, Austria, and Italy. This sort is a beautiful sweet shrub, and deserves a place in gardens as much as any of those we cultivate for ornament. Both this and the eleventh species may have a cooler situation than the second species; if these be sown where they can only have the morning sun, they will thrive better than in a warmer situation, and the ground near the roots of these should not be disturbed; therefore in the choice of the situation, there should be regard had to this, not to sow them near other plants which may require transplanting, or to have the ground dug and loosened. The seeds of these plants coming from distant countries, rarely arrive here time enough to sow in autumn; so that when they are sown in the spring, the plants do not appear till the succeeding spring; and have sometimes remained even till a second spring in the ground: but as this may be too long for many people to leave the ground undisturbed, they had better put the seeds into small pots of earth, and bury them in the ground the first summer, and take them up in autumn, and sow them where they are to stand; by this method the seeds will be forwarded so as to vegetate in the following spring. They are both very difficult to keep in gardens, because they will not bear to be transplanted: they are as hardy as the common Mezereon, and are not in danger of being hurt by the frost in England, but have always died upon being removed, though they have been transplanted at different seasons and with the greatest care; and even when plants of all sizes, from the youngest seedling to the oldest plants have been tried. Those therefore who desire to have these plants in their gardens, must procure their seeds from the countries where they naturally grow, which should be sown as soon as they arrive in the place where they are designed to remain.

7. Daphne Laureola; *Spurge-Laurel*. Racemes axillary, five flowered; leaves lanceolate smooth. This is a low evergreen shrub, rising with several stalks to the height of two or three feet, dividing at top into several branches: the leaves come out irregularly on every side, sit pretty close to the branches, are thick, smooth, and of a lucid green; among these, towards the upper part of the stalks, come out the flowers in small clusters, they are of a yellowish green, and appear soon after Christmas, if the season be not very severe: they are succeeded by oval berries, which are green till June, when they ripen, turn black, and soon afterwards fall off. The flowers are of a dull colour, with an unpleasant scent, and they appear at a gloomy season.—It is a native of Britain, France, Switzerland, Austria, and Carniola. Gerarde did not know that it grows wild in England, although it is common enough in our woods and hedges; and, notwithstanding Linneus's censure, the Spurge-Laurel is a shrub of some value, on account of the lucid green of its leaves, which continuing all the year, render it ornamental in winter, but particularly because it flourishes under trees, and is therefore very proper to fill up spaces in plantations.—Very happy effects have been produced by the use of this plant in rheumatic fevers; it is a rough purgative, and an efficacious medicine in worm-cases, but requires some caution in the administration, and might be productive of dangerous consequences in unskilful hands. The whole plant has the same qualities, but the bark of the root appears to be the strongest, and should never be given in a dose of more than ten grains. An infusion of the leaves is a good medicine for those of robust constitutions, who are subject to dropsical complaints; it operates by vomit and stool, but so roughly that few constitutions can bear it; dried and reduced to powder, the leaves are useful in the venereal disease. Some other species of this genus possess nearly similar powers with the Mezereon and Spurge-Laurel, and are used in similar cases; but, like the former, require caution in their use, and should not be trusted to inexperienced hands. The plants may be easily obtained from the woods, and is propagated by seeds, layers, or cuttings.

8. Daphne Pontica. Peduncles two-flowered; leaves lanceolate-ovate; stem about two feet high, branched sometimes from the very bottom, about three lines in thickness, very pliable, covered with a grey bark; leaves towards the top without order, of the figure and consistence of those of the Lemon, the largest four inches long, and two wide, pointed at each end, smooth, bright green, and shining, having a thick mid-rib underneath. At the end of April, young shoots, terminated by new leaves, push from the extremities of the

stems and branches, among which spring the flowers commonly in pairs, on a short peduncle. The corolla is of a greenish yellow, inclining to lemon colour, and has a sweetish smell, which is soon lost.—It flowers in autumn, and is a native of Pontus and Siberia.

9. Daphne Dioica; *Diocous Spurge Laurel.* Flowers axillary, twin; leaves linear-lanceolate. This is a shrub, a foot in height, stiff, and branched, with a corky bark; branches alternate, erect, stiff, roughened by the scars of fallen leaves; leaves crowded, so as almost to be imbricate, very smooth, resembling those of Myrtle, four lines long, and hardly a line broad, not ciliate; flowers sessile, always two together, one flowering later than the other, dicœous; corolla yellowish white, or pale sulphur colour, with a bellying tube. —Native of the Pyrenees.

** *Flowers terminating.*

10. Daphne Indica; *Chinese Daphne.* Head peduncled; leaves opposite, oblong-ovate, smooth. A small shrub; leaves commonly acute, quite entire, petioled; peduncle very short, from six to eight sessile flowers at top.—Native of China near Canton, but probably from Nankin, since it is commonly called the Nankin shrub.

11. Daphne Cneorum; *Trailing Daphne.* Flowers in bunches, sessile; leaves lanceolate, naked, mucronate. It is a very humble shrub, seldom more than one foot high; stems branched; leaves narrow, lanceolate, placed without order. The branches are terminated by small clusters of purple flowers, which stand erect. The tube of the corolla is longer and narrower than in the Mezereon. The flowers emit a pleasant odour, and appear early in the spring.—Native of France, Germany, Switzerland, Austria, Monte Baldo, the Pyrenees, and Hungary. See the sixth species.

12. Daphne Gnidium; *Flax-leaved Daphne.* Panicle terminating; leaves linear-lanceolate, acuminate. It rises with a shrubby stalk, two feet high, dividing into small branches, terminated by panicles of flowers, which are much smaller than those of the Mezereon, having swelling tubes, contracted at the mouth, and appearing in June. The stems spread on the ground; the leaves are annual, and smooth; the flowers heaped, surrounded with leaves, sweet-smelling, red above. It flowers twice a year. Gerarde calls it *Spurge flax*, or *Mountain Widow-wayle.* Parkinson names it *Spurge Olive.*—Native of the south of France, Spain, and Italy. See the second species.

13. Daphne Squarrosa; *Square Daphne.* Flowers peduncled; leaves scattered, linear, spreading, mucronate. It rises to the height of five or six feet, dividing at top into several erect branches, covered with a white bark, and terminated by woolly heads, out of which come the flowers in small clusters; they are white, have oblong tubes, and the segments of the border are obtuse and spreading.—Native of the Cape. It requires a good green-house to preserve it, and is very difficult to keep in our gardens.

14. Daphne Oleoides; *Oily Daphne.* Flowers twin, sessile; leaves elliptic, lanceolate, smooth; stem rather shrubby, compound.—Native of the Levant. This and the three following species, require the protection of a green-house to preserve them in England.

15. Daphne Fœtida; *Stinking Daphne.* Smooth: flowers heaped, sessile; leaves opposite, petioled, ovate, oblong, acute.—Native of the Society Isles. It is not certain whether this be different from Daphne Indica.

16. Daphne Rotundifolia; *Round-leaved Daphne.* Hirsute: flowers heaped, sessile; leaves opposite, elliptic, subpetioled, obtuse, smooth; branches tomentose, hoary.—Native of Tongataboo or Namoka in the South Seas.

17. Daphne Odora; *Sweet-smelling Daphne.* Head subsessile, many-flowered; leaves scattered, oblong-lanceolate, smooth. Stem becoming shrubby, dichotomous, smooth, naked, erect; branches like the stem, from divaricating erect; leaves at the top of the last branches approximating, sessile, acute, quite entire, spreading, bent back at the tip, deep green on the upper surface, with a groove along the middle, paler underneath, unequal, thick, evergreen, an inch in length; flowers about eleven; corolla smooth; tube purple; filamenta inserted below the mouth; antheræ oblong, four, included, and four standing out; seed ovate, smooth. —Native of Japan, where it flowers in February; and also of China, where it is cultivated on account of the grateful odour of its white flowers, which, in England, appear from December to March. It must be protected by a green-house; though hardly enough to bear our climate, it scarcely ever flowers in the open ground.

*** *New Species.*

18. Daphne Pendula. Heads lateral, peduncled, involucred, nodding; leaves lanceolate-elliptic, alternate, smooth. A tree or shrub, with alternate round branches, leafy at the end, covered with a smooth brown outer bark, and very filamentous, silky, white inner bark, as in most of the other species; leaves on short petioles, acute, quite entire, veined, paler underneath, deciduous; the primordial ones minute, like stipules, silky on the back, and abortive; flowers in solitary heads, from the axils of the leaves of the former year. Found by Thunberg in the island of Java. It is a stove plant, and must be treated in the same manner as Coffee. See *Coffea.*

19. Daphne Altaica. Flowers in bundles, terminating, sessile; leaves oblong-ovate, smooth. Stems straight, slender, covered with an even testaceous bark; the lower branches are short, flowering, hairy next the flowers; the upper ones, which continue the growth of the shrub, are smooth. The leaves are alternate, quite entire, drawn to a point at the base, sessile; on the flowering twigs oblong-ovate, smaller, growing up to the flowers; on the barren branches more oblong, very like the leaves of Mezereon, and emulating their consistence. Flowers mostly five together, collected into a head, without any bractes or stipules; corolla white, with a longish tube, swelling at the base, pubescent, with many hairs, and a spreading border, with lanceolate smooth segments; antheræ in a double row in the tube on very short filamenta; germen subglobular, with an obtuse stigma.—This elegant shrub was discovered by Patrin on the Altaic Alps.

20. Daphne Triflora. Flowers sessile, axillary, heaped; calices three-flowered; leaves lanceolate, scattered. Stem three feet high, simple, with ascending branches; leaves quite entire, smooth, on short petioles; flowers yellowish. —Native of China, in the suburbs of Canton.

21. Daphne Cannabina. Umbels terminating; leaves lanceolate, opposite. This is a tree, ten feet high, with ascending branches, and a very tough bark, like that of Hemp; leaves ovate-lanceolate, quite entire, smooth; flowers yellow, in subterminating umbels; corolla salver-shaped, with a long tube, and a small border, with ovate segments; berry ovate, red, small.—Native of the woods of Cochin-china. An excellent writing paper is made from the bark, prepared like hemp. Shapeless, heavy, brown, resinous, woody fragments, resembling the wood of Aloe, and having somewhat of its smell in the fire, are frequently found within the trunk of this tree near the root. The bark and root may be medicinally used in dropsical complaints, without incurring any of those ill effects which are too often produced by the other species.

22. Daphne Colina; *Neapolitan Mezereon.* Flowers in bundles, terminating, sessile; leaves obovate, obtuse, very smooth on the upper surface, villose on the lower. Stems three feet high, much branched; the branches often forked; bark tough, wrinkled, void of down or hair, except on the younger branches; leaves evergreen, alternate, on short footstalks, a little revolute on the edge, having a silky down underneath.—Native of the low hills in the south of Italy. It covers the hills and fields on the banks of the Vulturnus, as Furze does on commons in England; and, since it thrives here like the Myrtle, becomes a valuable addition to our shrubs.

23. Daphne Lagetto; *Lace-bark Daphne.* Spikes panicled, terminating; leaves ovate, acute. This is a tree the wood of which is white; leaves about four inches long, and two and a half broad, broadest near the base, having one middle and several transverse ribs, of a yellowish green colour, shining, thick and smooth. The outer bark is smooth, light brown, or gray and striated; the inner is solid and white, of a very fine texture, tough, and divisible into several coats or layers, which may be drawn out into thin webs resembling lace, and have been worn instead of it. King Charles II. had a cravat of it, which was presented to him by Sir Thomas Lynch, then governor of Jamaica; where it is principally used for rope-making, but would undoubtedly make fine paper, if properly prepared.—Native of Jamaica, where it is called *Lagetto*, or *Lace-bark Tree*; and of Hispaniola, where it is known by the name of *bois dentelle.* It is a stove plant, and must be treated in the same manner as the Coffee shrub.

24. Daphne Tinifolia. Racemes compound, erect; flowers terminating, crowded; leaves oblong. It rises with a woody stalk to the height of twenty feet, dividing into many branches, covered with a gray rough bark. The leaves of this tree are about two inches long, and one inch broad, rounded at the top, and entire, on very short footstalks. —Native of Jamaica. It is a stove plant, and must be treated like Coffee. See *Coffea.*

25. Daphne Occidentalis. Peduncles axillary; flowers terminating, in umbellets, dicœous; leaves alternate, lanceolate, smooth.—Native of Jamaica. It is a stove plant, and requires the same propagation and culture as Coffee.

26. Daphne Vermiculata. Flowers sessile, lateral, solitary, smooth; leaves linear-lanceolate, villose. This is an humble, stiff, and very branching shrub; branches purple, warted, villose at top; leaves sessile, crowded, thick, obtuse; flowers axillary, opposite, shorter than the leaf.—Native of the kingdom of Arragon in Spain.

27. Daphne Sericea. Flowers aggregate, terminating, sessile; leaves lanceolate, villose underneath; segments of the corolla obtuse. It is a very branching shrub; branches round, brown, villose at top; leaves towards the ends of the branchlets crowded, sessile, lanceolate, elliptic, veinless, quite entire, acute, smooth above, villose underneath; flowers purple, five.—Native of Candia and Naples.

28. Daphne Buxifolia. Flowers aggregate, sessile, terminating; leaves oblong, very blunt, villose underneath. This shrub has round, villose, naked branches; leaves towards the ends of the branchlets approximating, sessile, a little narrower at the base, rounded at the end, the younger ones villose on both sides, the rest only underneath, veinless; flowers six; tube of the corolla villose, silky on the outside, gibbose at the base; segments oblong, obtuse. It differs from the foregoing in the form of the leaves, and the whiteness of the corolla.—Native of the Levant.

Darnel Grass. See *Lolium.*

Date Plum. See *Diospyrus.*

Date Tree. See *Phœnix.*

Datisca; a genus of the class Dicœcia, order Dodecandria.—Generic Character. *Male. Calix:* perianth five-leaved; leaflets linear, acute, equal. *Corolla:* none. *Stamina:* filamenta scarcely any; antheræ about fifteen, oblong, many times longer than the calix, obtuse. *Female. Calix:* perianth two-toothed, the third tooth wanting, erect, very small, superior, permanent. *Corolla:* none. *Pistil:* germen oblong, inferior, longer than the calix: styles three, two-parted, short; stigmas simple, oblong, shaggy, length of the germen. *Pericarp:* capsule oblong, triangular, three-valved, three-horned, one-celled. *Seeds:* numerous, small, adhering longitudinally in three to five directions to the capsule. Essential Character. *Male. Calix:* five-leaved. *Corolla:* none. Antheræ: sessile, long, fifteen. *Female. Calix:* two-toothed. *Corolla:* none. *Styles:* three. *Capsule:* triangular, three-horned, one-celled, pervious, many-seeded, inferior.—These plants should be propagated by parting the roots, which may be performed in autumn, when the stalks decay; but they must not be parted too small. They may be planted in any open beds, where they are not under the drip of trees, and will require no other culture but to keep them clean from weeds. They may also be propagated by seeds; but these should be taken from such plants as grow in the neighbourhood of male plants, or they will not succeed; and if the seeds be not sown in autumn, they seldom grow the first year. When the seeding plants appear, they will require no other care than to be kept clean from weeds till autumn, when they may be transplanted whither they are to grow.——The species are,

1. Datisca Cannabina; *Smooth-stalked Bastard Hemp.* Stem even. This plant has a perennial root, from which rise several herbaceous stalks, about four feet high, with pinnate leaves placed alternately, each composed of three pairs of leaflets, terminated by an odd one; these are two inches long, and half an inch broad, ending in acute points, deeply serrate, and of a light green. The flowers come out in long loose spikes from the upper part of the stalks, at the axils, but having no petals make a poor appearance: the antheræ of the male flowers being pretty long, and of a bright yellow colour, are most visible at a distance. It flowers in June or July, and the seeds ripen in September. —Native of Candia or Crete.

2. Datisca Hirta; *Rough-stalked Bastard Hemp.* Stem hirsute, larger. The stem rough on every side with hairs that stand out; leaflets larger, more alternate, more decurrent, and confluent at the base.—Found in Pennsylvania. This is as hardy as the first species, but requires a shady situation, and a moister soil.

Datura; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, oblong, tubular, bellied, five-cornered, five-toothed, horizontally deciduous near the base, the remaining circular part permanent. *Corolla:* one-petalled, funnel-form; tube cylindric, almost longer than the calix; border erect, expanding, five-cornered, five-plaited, almost entire, with five acuminate teeth. *Stamina:* filamenta five, subulate, length of the calix; antheræ oblong, compressed, obtuse. *Pistil:* germen ovate; style filiform, straight; stigma thickish, obtuse, two-plaited. *Pericarp:* capsule somewhat ovate, two-celled, four-valved, seated on the base of the calix; receptacles convex, large, dotted, affixed to the dissepiment. *Seeds:* numerous, kidney-form. Essential Character. *Corolla:* funnel-form, plaited. *Calix:* tubular, angular, deciduous. *Capsule:* four-valved.—Most of the plants of this genus have a strong aromatic smell, are natives of hot countries, and therefore require a stove or glass-case.—The species are,

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 434.

DAPHNE LAUREOLA — *Spurge Laurel.*

P. 437.

DATURA STRAMONIUM — *Common Thornapple.*

1. Datura Ferox; *Rough Thornapple.* Pericarps thorny, erect, ovate; the upper thorns very large, and convergent. It seldom rises more than a foot and a half high, spreading out into many branches. Fruit round, armed with very strong sharp thorns: seeds black when ripe. Annual; flowering from July to September; and a native of China. This, and the fourth and fifth species, may be raised by sowing the seeds upon a gentle hot-bed in the spring, and treating them afterwards in the same manner as the Marvel of Peru, and other hardier kinds of annuals, transplanting them into the full ground in the latter end of May: they will flower in July; and if some of the plants be placed in a glass case, will produce ripe seed in autumn.

2. Datura Stramonium; *Common Thornapple.* Pericarps thorny, erect, ovate; leaves ovate, smooth. Stem from one to six feet in height, according to the soil, but seldom more than two feet, round, smooth, dividing into many strong irregular branches, which are hollow, and covered with a fine down; leaves from the forking of the stem and branches, single, scarcely six inches long, petioled, pointed, deep green on the upper surface, paler beneath, and on the edges, with strong ribs or nerves, unequally sinuated, and toothed about the edge, extending farther down the petiole on one side than on the other; flowers single from the axils, on short pedunceles, upright; calix pale green; corolla white; seeds blackish. At night the leaves, particularly the upper ones, rise up and inclose the flowers: these appear from July to September.—Gerarde says, the Thornapple was brought in seed from Constantinople. Mr. Miller thinks it was probably first introduced from Italy or Spain. It is, however, now become so common about London and other towns, as to appear like a native plant, there being few gardens or dunghills without it in summer. That it is a native of America, we have however, the most undoubted proof; for in the earth brought with plants from various parts of that extensive country, we are sure to have the Thornapple come up. Kalm says, that it grows about all the villages, and that it and the Phytolacca are the worst weeds that infest that continent. Our old writers call it *Thorny-apple of Peru.* Gerarde declares that he first "dispersed the seeds through this island, and that he made great use of it in chirurgerie as well in burnings and scaldings, as also in virulent and maligne ulcers, apostemes, and such like."—An ointment prepared from the leaves gives ease in external inflammations and hæmorrhoids, being cooling and repelling. The leaves, stalks, and apple of this plant, when smoked, has been found efficacious in asthmatic and consumptive cases. The Edinburgh College direct an extract from the leaves, which has been given with great advantage for convulsions and epilepsies, in doses from two to sixteen grains a day. These and the seeds, when internally given, are liable to bring on delirium, tremors, swelling, itching, eruption, and inflammation on the skin. Baron Stoerck informs us, that the juice pressed out of the fresh plant, and inspissated to an extract, has been given in doses from half a grain to the amount of a drachm every twenty-four hours, in epileptic disorders, convulsions, and madness, and proved to be a medicine of singular efficacy in those deplorable maladies, several persons being cured by it, whose disorders were both violent and of long standing. Hill observes, that the leaves are used externally by the country people, who lay them upon burns and inflammations; but this is not always safe. The root and seeds are of a sleeping nature, and ought not to be taken internally; opium itself being considerably less dangerous. The whole of this plant is powerfully narcotic and poisonous.—This species is well adapted to the large borders of pleasure-grounds, where it will have a good effect, mixed with others of similar growth: it is easily propagated; for it is together with the next species, very hardy, and if only permitted to seed, will furnish a supply of plants for several years to come, for the seeds will lie long in the ground, and when turned up to the air, soon begin to vegetate.

3. Datura Tatula; *Blue Thornapple.* Pericarps thorny, erect, ovate; leaves cordate, smoothed, toothed. This resembles the common sort, but is twice the size; stems purplish, with white dots, divided at an acute angle, smooth, and even; corollas pale blue; leaves more finely toothed, and, if they be flatted, cordate.

4. Datura Fastuosa; *Purple Thornapple.* Pericarps tubercled, nodding, globular; leaves ovate, angular. This rises with a finely polished purple stock, four feet high, dividing into several branches; leaves large, smooth sinuated, on pretty long footstalks. The flowers are produced at the divisions of the branches; they have large swelling tubes, which spread very broad at the top, their brims having ten angles each, ending in a long slender point; they are of a beautiful purple on their outside, and a satiny white within; some of them are single, others have two or three flowers, standing one within another, and some are double, having four or five petals within each other, of equal length, so as to appear a full flower at the brim: they have an agreeable odour at first, but if long smelt to, becomes less so, and are narcotic. —Native of Egypt, and the East Indies. For its propagation and culture, see the first species.

5. Datura Metel; *Hairy Thornapple.* Pericarps thorny, nodding, globular; leaves cordate, almost entire, pubescent. It has a strong stem, three feet high, divided into many woolly branches. The flowers have long tubes, which extend beyond the bifid calix; they then spread out very broad, where the brim is divided into ten obtuse angles, and are of a pure white above, but the tubes have a tincture of green within; they are succeeded by roundish fruit, closely covered with thorns.—Native of Asia, Africa, and the Canary Islands. See the first species.

6. Datura Arborea; *Tree Thornapple.* Pericarps smooth, unarmed, nodding; stem arboreous. It rises to the height of twelve or fourteen feet, with a woody stalk, dividing into several branches; leaves oblique, six inches long, two inches and a half broad in their widest part, growing narrower at each end, downy, on long footstalks, which stand nearer to one side than the other. The flowers come out at the divisions of the branches; they have a loose tubular calix, nearly four inches long, which opens at the top on one side like a spathe; the tube of the flower is narrow; but above, it swells very large, nearly six inches in length, then spreads open at the brim, where it is divided into five angles, which terminate in very long points; they are white, with some longitudinal stripes of a pale yellow on their outside; and are succeeded by round smooth capsules, filled with kidney-shaped seeds.— Native of South America; and one of the greatest ornaments to the gardens of Chili, where the inhabitants propagate it with great care. When the flowers are fully blown, they make a fine appearance; and a single tree will perfume the air of a large garden. This and the seventh species are both too tender to endure the open air of our climate, and must be sheltered in the stove.

7. Datura Lævis. Pericarps smooth, unarmed, erect; leaves smooth; stem fistular, herbaceous; corollas white. —Native of Africa; flowering from July to September.

8. Datura Innoxia. Pericarps ovate, nodding, set with harmless spines; leaves cordate, pubescent. This species rises three or four feet high, with a purplish stem, dividing

into several strong branches; leaves oblong, heart-shaped. Stems, branches, and leaves, covered with soft hairs. The flowers come out at the divisions of the stalk and branches, standing erect; they are large, white, and are succeeded by oval fruit, covered with long, soft, innocuous spines, and opening within in four cells, full of brown seeds.—Native of Vera Cruz. In favourable seasons, this will rise in the spring, from scattered seeds; and when the summer proves warm, will flower, and even perfect its seeds.

Daucus; a genus of the class Pentandria, order Digynia. —Generic Character. *Calix:* umbel universal manifold, flowering, flat, fruiting concave-converging; partial manifold, similar. *Involucre:* universal many-leaved, length of the umbel; leaflets linear, pinnatifid; partial more simple, length of the umbellule. *Perianth:* proper, scarce manifest. *Corolla:* universal difform, somewhat rayed; floscules of the disk abortive; proper of five petals, inflex-hearted, the exterior ones larger. *Stamina:* filamenta five, capillary; antheræ simple. *Pistil:* germen inferior, small; styles two, reflex; stigmas obtuse. *Pericarp:* none; fruit ovate, often hispid on every side, with stiff hairs, bipartile. *Seeds:* two, somewhat ovate, on one side convex, hispid, on the other flat. Essential Character. *Corolla:* subradiate, all hermaphrodite. *Fruit:* hispid with hairs; according to Gærtner, muricate with prickles, forming longitudinal crests.—The species are,

1. Daucus Carota; *Wild Carrot*, or *Bird's Nest*. Seeds hispid; petioles nerved underneath. In its wild state, the common Carrot has a slender, hard, whitish, or brownish fusiform root; stem upright, grooved, hispid, two feet high, with alternate branches, which are commonly from seven to nine or ten inches long, have one leaf on them, except the primary or terminating one, which is naked, and a single umbel of flowers at top. The flowers are white, those in the middle sometimes tinged with purple, and fertile; but those in the circumference, which are irregular and larger than the others, are frequently either neuter, or have pistils only. The fruit is spheroidal, composed of two plano-convex seeds, on the back of which are four membranaceous narrow crests, pectinated with linear-setaceous, innocuous, flexible teeth; and between these, three raised nerves, having very minute prickles on them along each side, bowing outwards; the belly is flat or slightly concave, marked with obscure longitudinal streaks.—It is common in pastures, on balks and headlands; and is a biennial, flowering from June till August. Carrot seeds have been recommended as a powerful diuretic, and an infusion of them has been found to give relief in fits of the gravel and stone. They have a slight aromatic smell, and a warm pungent taste. They communicate an agreeable flavour to malt liquour, if infused in it while working in the vat, and render it an useful drink in scorbutic disorders. They have not only been used as diuretics, and in the stone and gravel, but to disperse wind in the stomach; and, as they operate very powerfully by urine, they are excellent in obstructions of the viscera, in the jaundice, suppressions of the menses, and in the beginning of dropsies. A poultice made of the roots, has been found to mitigate the pain of foul cancerous ulcers, and remove the intolerable stench. Mr. Miller informs us that the shops are supplied with old seeds of the garden Carrot, instead of fresh seeds of the wild plant. This is one of the many ways in which efficacious medicines are brought into disrepute; but the remedy consists in every person's gathering wild Carrot seeds fresh for himself.—He informs us, that he cultivated the wild Carrot for many years, but could never get the seeds which were sown in the spring to grow, but that part of the seeds which he sowed in autumn came up well. These plants he treated in the same manner as the garden Carrot, but could not in the least improve the root, for they invariably continued to be small, sticky, and of a hot biting taste; from whence he inconclusively infers, that the wild Carrot and the garden Carrot are specifically different. This conclusion, however, is not to be admitted; for the improvement has probably been the effect of accident, or of time and care in a warmer climate; and the uncultivated plants, if left to themselves in a dry undunged soil, would probably relapse into their primitive state. Mr. Ray observed a variety of the wild Carrot on the sea-shore near Dover, with leaves of a dark green and glossy colour. Dr. Stokes adds, that in a specimen from the coast of Cornwall, the leaflets are remarkably broad, and but slightly cut. Moles are so fond of the roots, that Carrots are a proper bait to ensnare them with; but garden Carrots answer best for that purpose, as well as for destroying crickets, being made into a paste with powdered arsenic and wheat-meal. The females of this *polished* age will smile at the simplicity of ancient times, when they are informed, that the autumnal beauty of Carrot leaves allured many *gentlewomen* formerly oftentimes to stick them in their hats or heads, or pin them on their arms, instead of feathers.——The *Garden Carrot* is three feet high in its flowering state, and differs but little from the wild one, except in the largeness and succulency of the plant, and particularly of the root, which, with its superior size, usually takes a tincture of yellow, in different shades, as far as a deep orange, and becomes of a softer texture, without any of that acrimony and aromatic flavour, which are found in the wild root. There are several varieties, differing in the colour of their roots, as white, yellow, orange, and dark red or purple, which variations may be perpetuated by simply observing not to mix them together in the same garden. In London, the orange Carrot is most generally esteemed. Mr. Miller conceives the red or purple Carrot to be a distinct sort; it is much more tender than the others, insomuch that the roots were all destroyed by the first frosts in autumn: the seeds were sent from Aleppo, and the roots were smaller than the common sort, and purple, like a deep-coloured radish, very tender and sweet, with leaves more finely cut and less hairy than those of the common Carrot.—*Propagation and Culture.* The Carrot is commonly cultivated in gardens for the kitchen: they are propagated at two or three different seasons, and sometimes oftener, where people are fond of young Carrots. The first season for sowing the seeds is soon after Christmas, when the weather is open; they should be sown in warm borders, near walls, pales, or hedges, but not close to them, which would draw them up weak, and prevent them from producing any tolerable roots; they delight in a warm, light, sandy soil, which should be dug pretty deep, that the roots may be better run down, for if they meet with any obstruction, they are very apt to grow forked, and shoot out lateral roots, especially where the ground is too much dunged in the same year that the seeds are sown, which will also cause them to be worm-eaten: it is best therefore to dung the ground intended for Carrots the year before they are sown, that the manure may be consumed and mixed with the earth; but in such places where there has not been ground so prepared the year before, and there may be a necessity for dunging it in the same year that the Carrots are sown, the dung should be well rotted, and thinly scattered over the ground; while in digging it into the ground, care should be taken to distribute it equally, and not to bury it in heaps, which would stop the roots of the Carrots in their downright growth, and cause them to be short and forky. Where the ground is inclined to binding, too much trouble cannot be taken to break and divide the parts; hence in digging land for Carrots, large

spits should never be taken, but thin ones that the clods may be well broken, which if not attended to by the master himself, is very seldom properly performed by workmen. The ground, when thus dug, must be laid level; or, when it is raked over after the seeds are sown, part of them will be too deeply buried, and others will run the risk of being drawn up into heaps, which will compel the plants to come up in bunches, while large plots of ground will be left unoccupied; all of which should always be carefully avoided. The seeds have a great quantity of small forked hairs upon their borders, by which they adhere so closely, that it is difficult to sow them so as to prevent them from coming up in patches; they should therefore be rubbed well through both hands, whereby the seed will be separated before it is sown: a calm day should be chosen to sow it in, for it is impossible to sow it equal when the wind blows, as the seeds being very light will be blown into heaps. As soon as it is sown, the ground should be trodden pretty closely with the feet, that the seed may be buried, and then the surface may be raked to make it level. When the plants are come up, and have got four leaves, the ground should be hoed with a small hoe about three inches wide, cutting down all young weeds, and separating the plants to four inches' distance each way, that they may acquire strength; and, in about a month or five weeks after, when the weeds begin to grow again, the ground should be hoed over a second time, in which two Carrots ought not to be left close to each other, but should be separated to a greater distance, cutting down every weed, but slightly stirring the surface of the ground in every place, the better to prevent young weeds from springing, as well as to facilitate the growth of the young Carrots: in about a month or five weeks afterwards, they must be hoed a third time, and the weeds removed as before. The Carrots should now be cut out to the distance they are to remain, which must be proportioned to the size at which it is intended they should arrive: if they be intended for drawing young, five or six inches asunder will be sufficient, but if to grow large before they are pulled up, they should be left eight or ten inches every way apart; the weeds must also be again removed, as they will greatly retard the Carrots, if suffered to grow among them. The second season for sowing is in February, on warm banks situated near the shelter of a wall, pale, or hedge; but those which are intended for the open large quarters should not be sown before the beginning of March, nor any later than the end of that month, for those sown in April or May will run up to seed before their roots have any bulk, especially if the weather should prove hot and dry. In July you may sow again for an autumnal crop, and at the end of August some more to stand for the winter, by which method you will have early Carrots in March, before the spring sowing will be fit to draw; but these are seldom so well tasted, and are often very tough and sticky: however, as young Carrots are generally expected early in the spring, most people sow some at this season; but these should be sown upon warm borders and dry land, otherwise they are seldom good. If the winter should prove very severe, it will be proper to cover the young Carrots with pease-haulm, the haulm of Asparagus, or some such light covering, to prevent the frost from destroying the roots; but if in very hard winters all the Carrots should be killed, a hot-bed may be made early in the spring, to sow some, which will be fit for use long before any that are sown in the full ground; these beds, however, should be earthed fifteen or sixteen inches deep, that the roots may have a proper depth of soil to run down. If these beds be lined with hot dung twice, at such times when their heat begins to decline, it will greatly forward the growth of the Carrots, but great care should also be taken to avoid drawing the plants up too weak: these may be allowed to grow closer together than those sown in the full ground, because they will be drawn up for use when very young. Many persons mix several other sorts of seeds, as Leek, Onion, Parsnep, Radish, amongst their Carrots, and others plant Beans; but none of these methods are good, for if there be a full crop of one of these plants, there can be no room for any thing else amongst them; so that what is got by one is lost by another. It is not only more sightly, but actually better for the plants of each kind to be sown separate; for by this means the ground will be clear when the crop is gone, to sow or plant any thing else; but when three or four kinds are mixed together, the ground is seldom at liberty before the succeeding spring; besides where tall-growing plants are introduced among the Carrots, they are apt to make them grow more in top than root. The covetousness of some gardeners will not permit them to cut out their Carrots to a proper distance when they hoe them, so that by leaving them too close they draw each other up weak, and never recover their strength when so drawn, as those do which are properly thinned at the first hoeing; therefore where the Carrots are designed to have large roots, they must never stand too close, nor should they have any other crop mixed with them.—*Culture in the Field.*

It is only of late years that the Carrot has been cultivated for cattle in the fields, although it has been long cultivated in gardens for the table. Even now there are not many parts of England where field-culture is practised; which is much to be regretted, for where the soil is suitable, there is scarcely any root yet known which more deserves the attention of the farmer. One acre of Carrots, if well planted, will fatten a greater number of sheep or bullocks than three acres of turnips, and the flesh of the animals will at the same time be firmer and better tasted. Horses are extremely fond of them; and there cannot be a better food for hogs. They have been cultivated in parks for feeding the deer, and have been found an excellent resource in hard winters, when great numbers of deer must otherwise have perished through the scarcity of other food, and when even those which have survived without them have been so much reduced as not to recover their flesh during the following summer; while those fed upon Carrots have been kept in good condition all the winter, and upon the growth of the grass in the spring have been fat early in the season; which is an important advantage wherever the grass is generally backward in its growth. There is also a material advantage in the cultivation of this root beyond that of the Turnip, because the crop is not so liable to fail; for as the Carrots are sown in the spring, the plants generally come up well; and unless the months of June and July turn out very unfavourable, there is no danger of the crop succeeding; whereas Turnips are frequently destroyed by the flies at their first coming up, and in dry autumns they are attacked by Caterpillars, which in a short time devour whole fields, while the Carrots remain unmolested by these vermin. Carrots have other advantages over Turnips, besides the principal one already mentioned, of their being better adapted to that sort of soil which best suits them both; they are less liable to be damaged by frost, are not subject to the same distempers and accidents, and last till April, the season of great difficulty, when farmers frequently know not what to provide for their stock, especially sheep; being also a spring crop, if the plant fail, the seed only is lost, and the land is in perfect order for Turnips at midsummer; or if scattered plants only be produced, the intervals may be filled by sowing Turnips or planting Cabbages. Carrots are also an excellent preparation for Barley in sands and sandy loams, that are not foul

with quick or spear grass, for in such lands the hoeing for Carrots increases rather than destroys the quick, by hacking it in pieces. No crop, when such lands are clean, can be better for them than Carrots; because it admits no summer ploughing whatever, and is put on one earth given with a trench-plough in March, so that as much tenacity is given to these naturally loose soils as possible: the crop may be left late in the ground, and if the soil be very sandy, a crop of Buck-wheat may follow, for which any degree of cleaning from quick may be given if required. Every farmer therefore, who has a stock of cattle or sheep, if he have land proper for the purpose, which must be light, and of a proper depth to admit of the roots running down, should always have a supply of these roots. In preparing the land for Carrots, if it have never been in tillage before, it should be ploughed early in autumn, and then across again before winter, laying it up in high ridges to mellow by the frost; and if the ground be poor, some rotten dung should be spread over it in winter, and ploughed in at the beginning of February. The ground should be ploughed again in March to receive the seeds; to perform which, some employ two ploughs, one following the other in the same furrow, so that the ground is loosened a foot and a half deep; others have men with spades following the plough in the furrows, turning up a spit of earth from the bottom, which they lay upon the top, levelling it smooth, and breaking the clods; the latter method is attended with a little more expense, but is much preferable to the former, because the clods are better broken, and the surface left more even. If the land should have been in tillage before, it will require but three ploughings: the first just before winter, when it should be laid in high ridges, for the reasons before given; the second cross-ploughing should be in February, after which, if it be well harrowed to break the clods, it will be very beneficial; the last time must be in March, to receive the seeds as above directed. If great clods of earth remain unbroken after this third ploughing, it will be necessary to harrow it well before the seeds be sown. One pound and a half of seeds will be sufficient for an acre of land, but as they are apt to adhere together, it renders them more difficult to sow even than most other sorts, therefore some mix a quantity of dry sand with their seeds, rubbing them well together, so as to separate the Carrot seed from each other, which is a very judicious method; after the seeds are sown, they must be gently harrowed in to bury them; and when the plants come up, they should be hoed in the manner before directed.—The field-culture of Carrots is best carried on in a tract of Suffolk, called from the nature of its soil the *Sandlings*; it is a triangle formed by Woodbridge, Bawdsey Cliff, and Orford, at the three angles. They sow five pounds of seed to the acre, on a double furrow about fourteen inches deep; the time of sowing is about Lady-day, and they begin to hoe at Whitsuntide; they give three hoeings in all, which cost from fifteen to eighteen shillings an acre, sometimes more. Ten loads, of forty bushels each, topped clean, on an acre, in good land, is reckoned to be a middling crop: they feed with them from before Christmas, and continue sometimes till Whitsuntide, taking them up, and housing them in the latter part of the season, to have the land clear for Barley-sowing. The time of sowing among the Sandy-field gardeners, is the first week in March; some sow in the middle, and others again at the end of March, but the time must in some measure be regulated by the season, and the convenience of the farmer. The time of sowing is by some extended from the beginning of February till the end of April; but this is too wide a range, if it can be avoided. New seed will appear a week sooner than the old; and the crop depends very much upon the quality of the seed. Mr. Miller recommends only a pound and a half of seed to be sown on an acre, which is certainly too little; on the other hand, in the Sandlings we have seen that they sow five, eight, ten, and some even twelve pounds, which is generally a waste of seed. The common rule for the first hoeing is seven weeks after the seed is sown, or generally at the beginning of May; and the second at the middle of June, or somewhat later, according to the state of the crop. The usual produce on poor lands is 200, and on good land 400 bushels per acre; we have had accounts of 250, 300, 312, 326, 340, 352, 368, 400, 460, 482, and even 640, and 700 bushels produced from an acre; but let the husbandman always beware of calculating upon great crops, which are commonly produced on a small scale, or on very rich land, or by extraordinary tillage and manuring, or by some unusually fortunate and unforeseen circumstances. Several methods are prescribed for preserving Carrots during winter: it is the practice in the Sandlings to take up the Carrots as they are wanted, only keeping a store beforehand in case of frost; but this way of proceeding in some years leaves many to rot upon the ground. Soon after Michaelmas, in dry weather, they may be taken up with a common dung-fork, and piled up, or stacked in a corner of the field in the following manner: lay a platform of earth six inches above the level, two feet and a half wide, and of a length proportioned to the quantity of the crop, suppose from ten to twenty yards; on this earth scatter a light layer of straw, upon which place a row of Carrots, with their tops on, and turned outwards; the tails lapping over one another, so that the width covered with Carrots be about two feet; top the small roots, and lay them in the middle crosswise, to keep the two sides from parting, by pressing the weight more on the centre; on every two or three rows scatter a little straw, and thus continue to build up about four feet high; then cover the tops carefully with dry straw, and lay some sedge or other coarse material over all, by way of thatch; then begin another line parallel to the first, just leaving room to pass between them, and so continuing until the whole crop is taken up; fill the alleys with dry straw, and guard the outside with bundles of straw staked down, or set fast with hurdles, to prevent the wind from removing the straw and covering. Other persons take up their Carrots during some dry days in October, put them directly into small upright cocks of ten bushels each, entirely covered with the tops cut off, and being thus dried, carry them into a barn or shed, throwing some straw over them, but taking care not to pack them too close. Another way is, to leave them in cocks well covered over with straw or fern till they are quite dry, and then cover them with earth, beaten smooth with a spade: some twist off the tops with the hand, and others take off an inch of the roots to keep them from sprouting: but these attentions can only be bestowed on small crops. If they be barrelled up with very dry sand, after being previously well dried, they may be preserved a considerable time at sea.—Long experience has confirmed what Mr. Miller asserts, that they are a hearty food for sheep, cattle, horses, hogs, and deer, particularly for horses: they may also be applied to feeding hounds and pointers when boiled, and mixed with milk and barley-meal. A very good spirit may also be distilled from Carrots, and the refuse will be excellent for feeding hogs. One ton eight stone, after being exposed a few days to dry, weighed 160 stone, and measured forty-two bushels; after being washed, topped, and tailed, they lost eleven stone in weight, and seven bushels in measure. From this quantity fifty gallons were distilled, which were rectified, and twelve gallons of unexceptionable spirit were

obtained. The refuse weighed forty-eight stone, and the wash from the still measured 112 gallons, so that the refuse greatly exceeds that of an acre of Barley: and an acre of Carrots, allowing the produce to be twenty tons, will yield 240 gallons of spirit, which is considerably more than can be obtained from five quarters of Barley. But the produce of an acre ought not to be estimated at more than from ten to fourteen tons; and therefore the quantity of spirit extracted from an acre of Carrots will not exceed 168 gallons. Carrot-seed has been for many years raised at Weathersfield in Essex, perhaps because it possesses two soils best adapted to this culture; rich sand to raise the Carrots the first year, and strong loam for the year of seeding. The preparation of the soil consists in making it very fine by repeated ploughings and harrowings; usually three or four earths are given; and twenty pounds of seed per acre (apparently too great a quantity) are sown in April: they hand-hoe twice, setting the plants out seven inches asunder. At Michaelmas they dig up, cut off the tops to the length of an inch, and pack up the roots in barns with straw, taking care that they are dry enough when laid up. Securing them is a work of some difficulty, for the air must be admitted, and the frost at the same time excluded. The crops are large; a good produce is three bushels on a rod, but four have been known. For replanting in the spring, they choose a piece of fresh land, if there be any on the farm; if not, such as is in good heart, but they never manure it: the preparation is, to throw two three-feet ridges together in a dry season, in February or March; cut the top end of the Carrots off, to the amount of one-third of the root, and plant a double row upon each ridge, at three feet between the plants, and two feet row from row, in a quincunx order, so that the plants of one row may be ranged against the spaces of the other: they are twice hoed, and twice earthed up, the second time very high. The heads are cut off when quite dry, as they ripen, by women, and being laid on pack-cloths, are thrashed and dressed by men.

The other species are,—2. Daucus Mauritanicus; *Fine-leaved Carrot.* Biennial.—3. Daucus Visnaga; *Spanish Carrot*, or *Pick-tooth.* Annual. The rays which sustain the umbel, being long and stiff, are used by the Spaniards and others, for picking their teeth: when they have served this purpose, they are chewed, and thus are supposed to be of service in cleansing and fastening the teeth; however this may be, they have a pleasant aromatic taste in the mouth.—4. Daucus Gingidium; *Shining-leaved Carrot.* Annual.—5. Daucus Muricatus; *Prickly-seeded Carrot.* Daucus Maritimus. A maritime variety of the last-mentioned species.—6. Daucus Lucidus; *Shining Carrot.* Biennial.—7. Daucus Hispanicus; *Viscous Carrot.* Biennial.——These are all natives of the south of Europe and Barbary; and flower from June to August.

Day Lily. See *Hemerocallis.*

Deadly Carrot. See *Thapsia.*

Deadly Nightshade. See *Atropa.*

Deadnettle. See *Galeopsis* and *Lamium.*

Decumaria; a genus of the class Dodecandria, order Monogynia; or, according to the *Hortus Kewensis*, of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth superior, with about ten leaves, very small; leaflets ovate, coloured, acute, reflex. *Corolla:* petals ten, lanceolate, obtuse, equal, disposed in a single circle, expanding. *Stamina:* filamenta from sixteen to twenty-five, filiform, length of the corolla; antheræ twin, depressed. *Pistil:* germen top-shaped, inferior; style cylindric, shorter than the corolla; stigma gibbose, lobed with about ten little swellings. *Pericarp:* capsule eight-celled, many-seeded. *Seeds:* solitary. Essential Character. *Calix:* eight to twelve leaved, superior. *Petals:* eight to twelve. *Capsule:* eight-celled, with many seeds.——The only known species is,

1. Decumaria Barbara; *Climbing Decumaria.* A shrub, whose stem clinging by means of fibres to the trunks and branches of trees, climbs to a great height; leaves opposite, petioled, leathery, veined, towards the base remotely serrate; no stipules; buds pubescent; panicle corymbed, terminating; flowers like those of the lime-tree, whitish, and very sweet-scented.—Native of Carolina.

Delima; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, obtuse, equal, permanent. *Corolla:* none. *Stamina:* filamenta numerous, capillary, nearly equal to the calix; antheræ roundish. *Pistil:* germen superior, somewhat ovate; style cylindric, length of the flower; stigma simple, permanent. *Pericarp:* berry larger than the calix, ovate, acuminate, two-valved; capsule coriaceous, one-celled *Seeds:* two, arilled. Essential Character. *Calix:* five-leaved. *Corolla:* none. *Berry:* with two seeds.——The only known species is,

1. Delima Sarmentosa. A tree, with scabrous leaves, resembling those of Beech; flowers peduncled, loosely panicled, both axillary and terminating; fruit a coriaceous swelling capsule, ending in an incurved beak, very smooth, of a yellow bay colour, opening on one side only by a longitudinal cleft; seeds two, globular, crooked next the base, berried, red, becoming blackish when ripe, fixed to the bottom of the capsules; their aril is incomplete, spongy, membranaceous, snow-white, torn at the edge, scarcely covering the lower half of the seed.—The leaves, being very thick and rugged, are used by the inhabitants of Ceylon, where it naturally grows, for polishing; and hence they name it *koroswael*, or *karossawael*, from *korossa*, to smooth or polish.

Delphinium: a genus of the class Polyandria, order Trigynia.—Generic Character. *Calix:* none. *Corolla:* petals five, unequal, disposed in a circle, of which the uppermost in some is more obtuse than the rest in front, and is extended behind into a tubular, straight, long, obtuse horn, and the rest ovate-lanceolate, spreading, nearly equal; nectary two-cleft, seated in front within the circle of petals on the upper part, behind stretched out, involved within the tube of the uppermost petal. *Stamina:* filamenta very many, (fifteen or thirty) subulate, wider at the base, very small, inclined towards the upper petal; antheræ erect, small. *Pistil:* germen three or one, ovate, ending in styles the length of the stamina; stigmas simple, reflex. *Pericarp:* capsules as many, ovate-subulate, straight, one-valved, gaping inwards. *Seeds:* very many, cornered. Essential Character. *Calix:* none. *Petals:* five. *Nectary:* cloven, produced into a horn behind. *Siliques:* three or one.—These are mostly specious hardy annuals or perennials; the lower leaves digitate or palmate, the upper less divided, and sometimes even entire; the flowers are in loose spikes or panicles at the ends of the stem and branches, of various colours, chiefly blue, never yellow.——The species are,

* *Unicapsular.*

1. Delphinium Consolida; *Branching Larkspur.* Nectaries one-leafed; stem subdivided. Root annual; stalk upright, a foot high or more, round, pubescent, divided into alternate dividing branches; leaves alternate, the lower ones on petioles half an inch long, the upper ones sessile or nearly so; corolla blue, varying to purple, pink, and white, and in gardens to striped, and many different shades of colour. In English, it is called *Wild* or *Corn Lark's-spur, Lark's-claw*, and

Lark's-toes; in French, *pied d'allouette;* in German, *ritter-sporn;* in Danish and Swedish, *ridderspore;* in Italian, *speronella;* and in Spanish, *espuela de caballero.* It grows wild in the corn-fields in Germany, France, Switzerland, Carniola, Italy, and Spain; it was observed by Sherard in Swaffham-fields, Cambridgeshire, and found there by professor John Martin in 1730, and has been seen in abundance in most of the open fields round Cambridge, with pink, purple, and white flowers, ever since the year 1752. The expressed juice of the petals, with the addition of a little alum, makes a good blue ink. The seeds are acrid and poisonous.—Meyrick informs us, that a decoction of the leaves is good for the bleeding piles; stopping the hæmorrhage, and cooling the body at the same time, contrary to most of the other restringent medicines. A conserve made with the flowers is an excellent medicine for children, who, from a redundancy of acrid humours in the intestines, are subject to violent purgings. Hill also prescribes the juice of the flower, and an infusion of the whole plant, against the colic, and pains in the bowels.—The first, second, third, fourth, and fifth species, (which are annuals,) are propagated by seeds, which must be sown where the plants are designed to remain, for they do not bear transplanting well, especially when they are not removed while very young. Those seeds which are sown in autumn, produce the strongest plants and most double flowers, and ripen their seeds better than those which are sown in the spring, as they come earlier to flower; but to obtain a succession of these flowers, there should be some seed sown in the spring. When they are sown upon the borders of the flower-garden for ornament, they should be in patches of about a foot in diameter, in the middle of the borders, at proper distances; in each of these patches may be scattered ten or a dozen seeds, covering them over about a quarter of an inch with earth, and in the spring the plants may be thinned, leaving about five or six of the upright sort in each patch to stand for flowering, but of the branching sort not more than three or four, because they occupy so much more room. The plants will now require nothing farther, except careful weeding; and when they begin to flower, should be supported by flower-sticks, to prevent their being broken by the wind, especially if they be in an unsheltered situation. If the seeds be well chosen, there will be very few ordinary flowers among them; and if different coloured flowers spring up in each patch, they will make a pleasing variety; but the upright sort should never be mixed in the same patches with the branching, because they do not flower at the same time. But in order to preserve the two sorts fine, without degenerating to single or bad colours, there should be a bed of each sort sown in autumn, in some separate part of the garden, where the plants should be properly thinned, and kept clean from weeds till they begin to show their flowers; they should then be carefully looked over every other day, to pull out all those plants whose flowers are not very double, nor of good colours, for if these be permitted to stand among the others till their farina has impregnated them, it will certainly cause them to degenerate: hence those persons who are contented with only marking their good flowers for seed, and suffer the others to stand for seed among them, will always find themselves disappointed in the goodness of their flowers the following season: therefore those who propose to have these flowers in pefection, should never gather the seeds of such as grew in the borders of the flower-garden, because there it will be almost impossible to preserve them so true, as when they are in beds of a distance from all other kinds. When the seed-vessels turn brown, they must be carefully watched, to gather them before they open and discharge their seeds; because those which are situated on the lower part of the stalk, will open long before the others on the upper part are ripe; hence the pods ought to be gathered as they ripen, and not suffered to stand till the stalks are pulled up, which is often practised. Those pods which are situated on the lower part of the stalks, are much preferable to such as grow near the top, for which reason those who are very curious in the choice of their seeds, crop off the upper part of the spikes of flowers, and never suffer them to seed. As these plants are so very hardy, and require so little care in their culture, they deserve a place in every good garden; and during their continuance in flower, there are few plants which make a better appearance.

2. Delphinium Ajacis; *Upright Larkspur.* Nectaries one-leafed; stem simple. The stalk is eighteen inches and more in height, and seldom branched; leaves finely divided, commonly by threes, on broad petioles; segments linear, quite entire, channelled above; spike of flowers erect and more dense than the preceding; commonly only one capsule or silique. This species affords a great variety of colours in both the single and double flowers, some of which are very large and numerous, in close spikes, making a fine appearance from the end of June until August.—Native country unknown. See the preceding species.

3. Delphinium Aconiti. Nectaries one-leafed, with four teeth in front; branchlets one-flowered. Stem a foot high, panicled, branching, hoary, pubescent; leaves pedate, multifid, linear, becoming hoary; the upper ones only three-parted; flowers terminating, solitary, peduncled, small, livid, variegated within with purple and green.—Annual: Native of the Dardanelles. See the first species.

** *Tricapsular.*

4. Delphinium Ambiguum; *Doubtful Larkspur.* Nectaries one-leafed; corollas six-petalled; leaves many-parted. Corollas blue, with a green outside; stalk three feet high or more; the branches come out horizontally at first, but afterwards turn up so as to make an acute angle with the stalk; the leaves are long, and finely divided; the flowers also are placed thinner in the spikes than those of the upright sort, are large, and some of them very double and of various colours. It flowers later than the Upright Larkspur.—Native of Barbary. See the first species.

5. Delphinium Peregrinum; *Broad-leaved Annual Larkspur.* Nectaries two leaved; corollas nine-petalled; leaves many-parted, obtuse. This has a very branching stalk, about two feet high; the lower leaves are divided into many broad obtuse segments, but those which are upon the stalks are generally single; the flowers grow scatteringly towards the upper part of the branches, are small, and of a deep blue colour; they are succeeded by very small seed-vessels, which are single or double, rarely three together.—Native of the south of Europe and the Levant. See the first species.

6. Delphinium Grandiflorum; *Great-flowered Larkspur.* Nectaries two-leaved, with entire lips; flowers usually solitary; leaves compound-linear, many-parted: they are of a light green above, and hoary beneath. It has a perennial root, which puts out two or three branching stalks every spring, rising a foot and a half high. The flowers come out towards the upper part of the stalks singly, each on a long naked peduncle; they are large, and of a fine azure colour, appearing in June and July, and ripening seed in autumn.—Native of Siberia. The sixth, seventh, eighth, ninth, and tenth, (which are perennials) are propagated by seed, which, if sown in autumn, will more certainly succeed than those which are sown in the spring; when the plants come up, they should be weeded and thinned; in the following autumn they must be

planted where they are to remain: they will flower in the following summer, and the roots continuing to increase in magnitude for many years, will produce a great number of flower-stalks.

7. Delphinium Intermedium; *Palmated Bee Larkspur.* Nectaries two-leaved, with ovate cloven lips and ovate divisions; leaves three-parted, with trifid gashed divisions. Root perennial, with annual stems growing to the height of six or seven feet; leaves broad, divided into five or seven parts, cut into many narrow segments towards the top; flowers in long spikes, terminating; corollas of a fine blue colour.—Native of Silesia. See the sixth species.

8. Delphinium Elatum; *Common Bee Larkspur.* Nectaries two-leaved, with ovate emarginate lips, and very short unequal divisions; leaves subpeltate, three-parted, with multifid divisions. It is six feet high; root perennial; leaves slightly villose, becoming smooth by age, half five-lobed, petioled; lobes acute, often half three-lobed, sharply serrate; spikes of flowers very long and handsome; peduncles one-flowered, languinose; corollas deep blue, with a wrinkled spur. It flowers from June to September, and is a native of Switzerland and Siberia. See the sixth species.

9. Delphinium Exaltatum; *American Larkspur.* Nectaries two-leaved, with oblong cloven lips and lanceolate equal divisions; leaves three-parted, with trifid divisions. Root perennial; stem upright, five or six feet high, branching; lower leaves large, divided into three lobes to the petiole, and these cut on their borders into acute segments; they are a little hairy, and of a grayish colour, standing upon pretty long petioles; stem-leaves smaller, and not so deeply divided; the principal stalk is terminated by a long loose spike of flowers; the flowers are not much larger than those of the common Larkspur, and are of a pale blue colour. The bearded nectary has, at first sight, the appearance of a large fly in the tube of the flower. It flowers at the end of June or beginning of July, and in cool seasons there is frequently a succession of flowers till the end of August.—Native of most parts of North America, where it occasions great disorders in the cattle that feed upon the leaves. See the sixth species.

10. Delphinium Puniceum; *Scarlet-flowered Larkspur.* Lips of the nectary two-parted, hairy; horn straight; leaves many-parted; no calicine bractes. It differs from all the other sorts in the dusky red colour of the flowers. Perennial.—Native of Siberia. See the tenth species.

11. Delphinium Staphisagria; *Palmated Larkspur, Staves-acre,* or *Lousewort.* Nectaries four-leaved, shorter than the petal; leaves palmate, with the lobes obtuse. This is an annual plant, rising with a strong hairy stalk about two feet high; leaves hairy, composed of five or seven oblong lobes, which have frequently one or two acute indentures on their sides; the flowers form a loose spike at the upper part of the stalk, each on a short peduncle, and are of a pale blue or purple colour. A variety with leaves veined with white, differs in having the leaf gashed, seven-parted, the divisions acuminate, the horn or spur of the corolla not obscure, but the length of the pedicel. The common people use the powder of the seed to kill lice; whence it is named *Lousewort.*—The seeds are kept by druggists, and have been given in small doses against rheumatic and venereal disorders; they vomit and purge, and that in so rough a manner, that it is not safe to take them internally; when chewed in the mouth, they excite a very large discharge of watery humours from adjacent parts, and frequently prove serviceable in disorders of the head; but are chiefly used to destroy the lice with which children's heads are generally infested, and the seeds, coarsely powdered and strewed among the hair, never fails to remove them.—The seeds of this sort should be sown where the plants are designed to remain, and require no other treatment than the common Larkspur.

Dentaria; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate-oblong, converging from parallel, obtuse, deciduous. *Corolla:* four-petalled, cruciform.—*Petals:* roundish, obtuse, scarcely emarginate, flat, ending in claws the length of the calix. *Stamina:* filamenta six, subulate, length of the calix, of which two are shorter; antheræ cordate-oblong, erect. *Pistil:* germen oblong, length of the stamina; style very short, thick; stigma obtuse, emarginate. *Pericarp:* silique long, columnar two-celled, two-valved, bursting open elastically, with the valves rolled back; dissepiment a little longer than the valves. *Seeds:* many, somewhat ovate. Essential Character.. *Silique:* bursting elastically, with the valves rolled back. *Stigma:* emarginate. *Calix:* converging lengthwise.—These plants are propagated by seeds, or parting their roots: the seeds should be sown in autumn, soon after they are ripe, in a light sandy soil, and a shady situation; in the spring the plants may be taken up where they grow too close, and transplanted out into the same kind of soil and situation, where, after they have taken root, they will require no farther care, but to keep them clear from weeds; in the second year they produce their flowers, and sometimes perfect their seeds. The best time for transplanting the roots is in October, when they should be planted in a moist soil and a shady situation; for they will not live in a dry soil, or when they are exposed to the sun. The bulbs produced on the stalks of the second sort, if planted, will grow, and produce other plants.—The species are,

1. Dentaria Enneaphylla; *Nine-leaved Toothwort.* Leaves three together, ternate, serrated, without any glands between the leaflets. Root perennial, white, toothed, long, of a pleasant taste; stem a foot, or a foot and a half in height, branched, round, and smooth; leaflets lanceolate, serrate, acuminate, smooth; flowers from three peduncles, forming a panicle or raceme, erect, fascicled; calix pale green or yellowish; petals reddish yellow, or yellowish red: most of the upper flowers are abortive. Gerarde calls it *Coral-toothed Violet.*—It flowers in April and May, and is a native of the woods of Hungary, Austria, Silesia, &c.

2. Dentaria Bulbifera; *Bulbiferous Toothwort,* or *Coral-wort.* Lower leaves pinnate; upper simple. Stem simple; corollas flesh-coloured. The scaly bulbs in the axils of the upper leaves falling off, take root, and propagate new plants, so that it rarely produces seed. Root perennial; petals purple, white, or reddish. It flowers in April and May. Gerarde calls it the *Toothed,* or *Dog-toothed Violet.*—Native of Germany, Carniola, Piedmont, and England, in moist woods and shady places. It is but rare in England, having only been observed in Highreed and Foxholes woods, near Mayfield, Sussex; in Old Park wood, near Harefield; and between Beaconsfield and Wycomb, Bucks.

3. Dentaria Pinnata; *Seven-leaved Toothwort.* All the leaves pinnate: lower leaves with seven, and the upper with five leaflets. It may be fairly separated from the fourth species, there being a permanent difference in the leaves, although they agree in the flowers.—Native of Switzerland, the south of France, and Silesia, Mount Jura, and Saleya.

4. Dentaria Pentaphylla; *Five-leaved Toothwort.* Leaves digitate. This rises with a strong stalk, a foot and a half high, with a leaf at each joint, composed of five lobes, four

inches long, and nearly two broad in the widest part, ending in acute points, and deeply serrate; the flowers which are small and of a bluish colour, grow in loose spikes at the top of the stalks. Ray observed this plant in abundance on Mount Jura.—Native of Switzerland, Savoy, the south of France, Carniola, and Silesia.

Dentella; a genus of the class Pentandria, order Monogynia.——Generic Character. *Calix:* perianth five-parted, superior; segments subulate. *Corolla:* one-petalled, funnel-form, longer than the calix; tube gradually widening into a five-cleft spreading border; segments acute, three-toothed; the middle toothlet more produced. *Stamina:* filamenta five, short, awl-shaped, inserted at the base of the tube; antheræ oblong. *Pistil:* germen roundish, inferior, villose; style cylindric, short, thickish; stigmas two, thicker than the style, longer, spreading. *Pericarp:* capsule globular, crowned by the calix, two-celled. *Seeds:* very many, ovate. Essential Character. *Corolla:* tubular, five-cleft, with three-toothed segments. *Calix:* five-parted. *Stigmas:* two. *Capsule:* globular, inferior, two-celled, many-seeded.——The only known species is,

1. Dentella Repens.—A native of various parts of the East Indies, and of New Caledonia. It is considered as a weed in the gardens of Amboyna.

Devil-in-a-Bush. See *Nigella.*

Devil's-Bit. See *Scabiosa.*

Devil's-Guts. See *Cuscuta.*

Deutzia; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, somewhat bell-form, one-third of the length of the corolla, tomentose, five-cleft, seldom six-cleft; divisions ovate, obtuse, erect. *Corolla:* five-petalled, seldom six-petalled; petals inserted on the outside of the edge of the germen, oblong, obtuse, entire, white. *Stamina:* filamenta ten, placed without the edge of the germen, linear, filiform at the tip, below the tip emarginate, trifid, white, the length of the corolla, alternately somewhat shorter; antheræ globular, twin. *Pistil:* germen superior, like a wreath, concave in the middle; styles three, seldom four, filiform; a little longer than the corolla; stigmas simple, club-shaped. *Pericarp:* capsule globular, truncate, perforated, somewhat three-cornered, callous, scabrous, three-awned with the permanent bases of the pistils, three-valved, three-celled, seldom four-celled, the size of a pepper-corn, ash-coloured, gaping at the base. *Seeds:* several in each cell. Essential Character. *Calix:* one-leafed. *Capsule:* three-celled. *Filamenta* three-cusped. ——The only species hitherto discovered is,

1. Deutzia Scabra. A tree, about the height of a man, and very much branched; branches alternate, round, even, purplish; branchlets villose, scabrous, spreading; leaves opposite, petioled, ovate, acuminate, serrate, veined and wrinkled, scabrous with hairs in stars, spreading, an inch or more in length; flowers on the outer branchlets in compound panicles, on alternate pedicels; peduncles and pedicels angular, tomentose, and scabrous.—It flowers in May and June, and is a native of Japan, where the leaves are used by joiners in smoothing and polishing.

Dewberry. See *Rubus.*

Dialium; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals five, equal, sessile, elliptic, obtuse, deciduous. *Stamina:* filamenta two, conic, very short, situated nt the upper side of the receptacle; antheræ oblong, obtuse, as if of two conjoined. *Pistil:* germen superior, ovate; style subulate, declined, length of the stamina; stigma simple, ascending towards the tip of the antheræ. *Pericarp:* legume, internally pulpy. Essential Character. *Calix:* none. *Corolla:* five-petalled. *Stamina:* at the upper side of the receptacle.——The only known species of this genus is,

1. Dialium Indum. A tree with alternate pinnate leaves, having seven ovate, oblong, acuminate, petioled, even leaflets, a hand in length; flowers panicled, nodding.—Native of the East Indies.

Dianthera; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, tubular; divisions lanceolate, equal, length of the tube, permanent. *Corolla:* one-petalled, ringent; tube short; upper lip flattish, reflex, cloven, very obtuse; lower lip three-parted; divisions oblong, equal, obtuse, distant, the middle one wider. *Stamina:* filamenta two, filiform, shorter than the corolla, growing to the back of it, length of the upper lip; antheræ on each filamenta double, oblong, the one a little higher. *Pistil:* germen oblong; style filiform, length of the stamina; stigma obtuse. *Pericarp:* capsule two-valved, two-celled, compressed above and below, but alternately, with boat-like valves, bursting asunder with an elastic nail. *Seeds:* solitary, in form of a lens. Essential Character. *Corolla:* ringent. *Capsule:* two-celled, bursting with an elastic nail. *Stamina:* each a pair of alternate antheræ.—All these plants, except the first species, being natives of the East or West Indies, and other hot countries, must be preserved in the bark-stove. ——The species are,

1. Dianthera Americana. Spikes solitary, alternate. It is a low herbaceous plant, with a perennial root, which sends out several weak stalks about four inches long; the leaves are roundish, hairy, sessile, of a dark green colour, and an aromatic odour; the flowers are produced from the side of the stalks in small spikes, and are in shape and colour very like those of Clinopodium. They come out at the end of July, but rarely produce seeds in England.—Native of Virginia and other parts of North America. This plant is very difficult to preserve in England; for although it be hardy enough to endure the open air, yet it is very subject to rot in winter; and if it be placed under shelter, is apt to draw up weak, and soon after to decay.

2. Dianthera Comata. Spikes filiform, verticilled, the lower umbelled. Stem herbaceous, a foot high, somewhat branched and erect, angular, jointed, smooth; the joints swelling. According to Brown, it generally rises to the height of two or three feet, and is plentifully furnished with slender subdivided branches near the top; seeds two in each cell.—Native of the low lands of Jamaica, where it is called *balsam herb.*

3. Dianthera Japonica. Peduncle axillary, solitary, sustaining from two to four flowers; bractes oblong, ciliate. Root annual; stem herbaceous, erect, six-cornered, very finely villose, kneed, swelling above the knee, but little branched, a foot in height; corolla purple, a little longer than the bractes, with a curved cylindric tube.—Native of Nagasaki in Japan; flowering in August.

4. Dianthera Cœrulea. Umbel fascicled, sessile, quite simple.—Native of Botany Island, near New Caledonia.

5. Dianthera Clavata. Panicle subumbelled, compound; peduncles dilated at the end.—Native of the Society Islands.

6. Dianthera Paniculata. Panicles axillary; leaves lanceolate, tomentose. A shrub, five feet high, with an erect stalk and brachiate branches; leaves quite entire, opposite; segments of the calix filiform; corolla white, with a long slender tube.—Native of Cochin-China.

7. Dianthera Punctata. Stem herbaceous; spikes termi-

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

DIANTHUS.

Published by Henry Fisher Caxton London 1823

nating; leaves lanceolate-ovate, acuminate; antheræ awnless. Stem erect, roundish, even, jointed; joints three inches long, narrowed at bottom; branchlets axillary, filiform, the length of the joints; flowers in whorls, two or three on each side, on very short pedicels and small, the lower ones more remote; bractes lanceolate, acuminate, a line in length; corolla twice as long as the calix, smooth on the outside, the throat dotted with violet.

8. Dianthera Sulcata. Stem herbaceous, grooved; leaves cordate-ovate; spikes terminating; lower antheræ awned. Stem erect, angular, six-grooved, pubescent, jointed; the internodes two or three inches long, and the joints swelling; leaves opposite, obtuse, scarcely crenate, somewhat rugged along the nerves, a little villose, paler underneath, an inch and half long, with alternate veins; petioles the length of the leaves; corolla villose on the outside, white, veined with purple; lower lip three-lobed; the lobes oblong, obtuse, equal.—Native of Arabia Felix.

9. Dianthera Flava. Suffruticose: leaves elliptic-lanceolate; spikes terminating; lower antheræ awned. Stem shrubby, roundish, the thickness of a goose-quill; branches obscurely quadrangular, subpubescent, scored with a line along the sides; the internodes an inch long; the joints swelling; leaves opposite, quite entire, thinly hairy, twice as long as the internodes, with alternate veins, on short petioles.

10. Dianthera Debilis. Stem shrubby; spikes solitary, imbricate, axillary, and terminating; bractes ovate, ciliate. Branches obscurely quadrangular, four-grooved, with hairs pointing backwards; leaves opposite, lanceolate, narrowed at the base into a very short petiole, quite entire, bluntish, veinless, having four parallel villose nerves underneath, and being only half the length of the internodes.

11. Dianthera Violacea. Stem shrubby; spikes terminating, imbricate; bractes lanceolate, ciliate; flowers bicalicled. Branches powdered and villose, obscurely quadrangular; the angles scarcely scored with a line; the internodes an inch and half long; leaves opposite, lower oblong, upper lanceolate, rounded at the base, quite entire, smooth, bright green, veinless nearly the length of the internodes, on short petioles; spike cylindric, half an inch long, on a very slender peduncle.

12. Dianthera Bicaliculata. Flowers panicled, bicalicled; panicles dichotomous. Stem herbaceous; leaves opposite, ovate, acuminate, quite entire, petioled, panicled, axillary; pedicels bifid, often trifid; corolla purple, bilabiate, divided; antheræ divaricated. It is annual; and flowers here in August.—Native of the East Indies and Arabia Felix.

Dianthus; a genus of the class Decandria, order Digynia.—Generic Character. *Calix*: perianth cylindric, tubular, striated, permanent, five-toothed at the mouth, surrounded at the base with four scales, of which the two opposite are lower. *Corolla*: petals five; claws length of the calix, narrow, inserted into the receptacle; border flat; the plates outwardly wider, obtuse, crenate. *Stamina*: filamenta ten, subulate, length of the calix, with spreading tips: antheræ oval, oblong, compressed, incumbent. *Pistil*: germen oval; styles two, subulate, longer than the stamina; stigmas bent back, acuminate. *Pericarp*: capsule cylindric, covered, one-celled, gaping open at top four ways. *Seeds*: a great many, compressed, roundish; receptacle free, four-cornered, shorter by half than the pericarp. Essential Character. *Calix*: cylindric, one-leafed, with four scales at the base. *Petals*: five, with claws. *Capsule*: cylindric, one-celled.—These beautiful plants are chiefly herbaceous; some few, however, are suffruticose. Most of them are hardy and perennial, or biennial; some of the smaller wild sorts only are annual.——The species are,

* *Flowers aggregate.*

1. Dianthus Barbatus; *Bearded Pink*, commonly called *Sweet-william*. Flowers in bundles; calicine scales ovate-subulate, equal to the tube in length; leaves lanceolate. It has a perennial fusiform root; stem upright, jointed, smooth, a foot and half high, branched; leaves soft, veined, connate, from half an inch to almost an inch broad in the widest part, bright green; bundles of flowers compact, umbelled, sessile; petals serrate when wild, red, either plain or spotted with white, smaller than in many of the genus. The variations of colour are numerous, and might have been more so if this species had attracted the same minute attention as the Pink and Carnation. The principal varieties are, 1. Broad-leaved Sweet-william; 2. Narrow-leaved, or Sweet-john: each of these have the flowers one single and two double. The principal variations of colour are, 1. deep red; 2. pale red, rose-coloured, flesh-coloured; 3. purple, inclining to blue; 4. purple and white; 5. white-spotted; 6. red with white borders, and purple with white borders; 7. pure white, with all the intermediate shades of the above colours, both single and double. The broad-leaved, with very double flowers of a deep purple, inclining to blue, bursting the calix, is not so much esteemed. The double-rose Sweet-william, with flowers of a fine deep rose-colour, and smelling sweet, is much valued, for it does not burst. The mule, or Fairchild's Sweet-william, is one of the narrow-leaved sorts; it is supposed to have been produced from the seeds of a Carnation, impregnated by a Sweet-william; the flowers are of a brighter red than either of the former, and have an agreeable odour, but their bunches are not quite so large.—Native of Germany and Carniola. Some of the single flowers have very rich colours, which frequently vary in those of the same bunch; there are others with fine variegated flowers, and others whose middles are of a soft red bordered with white, which are called Painted Ladies; but whoever is desirous of preserving any of these varieties in perfection, should particularly mark the best flowers of each, and permit no other to stand near them, lest their farina should impregnate them. That which is called the Painted-lady Sweet-william, is a very beautiful variety; the stalks of this do not rise so high as most of the others; the bunches of flowers are larger, and produced more in the form of an umbel; the flowers standing equal in height, make a better appearance: there are others whose stalks rise three feet high, and the flowers of a very deep red or scarlet colour. These all flower at the same time as the Carnations, which reduces their value, as they have no scent. They must be renewed annually, to retain them in perfection. The single sorts are generally propagated by seeds, which must be sown in the latter end of March or the beginning of April, in a bed of light earth, and in June they will be fit to transplant out; at which time prepare some beds ready for them, and set them at six inches' distance every way: in these beds they may remain till Michaelmas, and ought then to be transplanted into the borders of the pleasure-garden or wilderness. They will flower the next year in June, and perfect their seed in August. The seeds should be saved from the best-coloured flowers for a supply. They may also be propagated by slipping their roots at Michaelmas; but this is seldom practised, because seedling roots always blow the strongest, and produce new varieties. Double Sweet-williams are propagated by cuttings, (or, as the florists term them, pipings) or layers, like Pinks and Carnations; they love a middling soil, not too light, nor too heavy or stiff, nor too much dunged, which very often occasions their rotting. They continue flowering a long time, and are extremely beautiful, especially the mule, which produces two full blooms of

flowers, one in June and the other in July; it is very subject to canker and rot, especially if planted in a soil too wet or dry, or if watered with sharp spring water.

2. Dianthus Carthusianorum: *Carthusian Pink.* Flowers subaggregate; calicine scales ovate, awned, shorter than the tube; leaves linear, three-nerved. This differs from the foregoing sort, in having the leaves narrower by half, stiffer, and marked with three principal nerves, not one only, as in that. The stem is a little scabrous, not perfectly smooth as in the former; the petals are distant and villose, not smooth, on their upper surface. In a fertile soil there will be fifteen flowers on a stem; in a barren soil fewer, and sometimes only one: this, therefore, is an intermediate species between the aggregate and one-flowered *Dianthi.* There are sometimes seven calicine scales. The petals are of a deep-red colour, ovate, and five-toothed. It does not flower till July.—Native of Germany, Switzerland, and Italy.

3. Dianthus Atrorubeus; *Red Pink.* Flowers aggregate; calicine scales ovate, awned, shorter than the tube; leaves connate, striated. Height from two to three feet; leaves smooth, flat, lanceolate, erect. The head of flowers at the end of the stem is formed in this manner: a pair of elliptic leaves emitting a long awn, has two short peduncles rising from it on each side; hence the stem, rising a little higher, has three other very short peduncles, each bearing three flowers; petals scarlet, rhomb-shaped, with few unequal teeth.—It has hardly any smell; is perennial; and a native of Piedmont, in dry hilly places by the sides of woods.

4. Dianthus Ferrugineus; *Rusty Pink.* Flowers aggregate; petals bifid; segments three-toothed. This species very much resembles the third; but the stem is narrower, and the leaves are more grassy and keeled. It has the entire habit of Sweet-william; the flower-stems are upright, and about a foot and half high; the leaves are somewhat like those of Carnations, but of a darker green; the bundles of flowers are close; some of the corollas yellow, and others of a rusty iron colour, in different bundles, and sometimes even in the same bundle. They flower in July; but when the weather proves cool and moist, there will be a succession of flowers till the end of September. The roots will abide two or three years, but the young plants of the second year produce the most flowers.—Native of Italy and Spain.

5. Dianthus Armeria; *Deptford Pink.* Flowers in bundles; calicine scales lanceolate, villose, equal to the tube in length. Root annual; stems erect, a foot or a foot and half in height, round, pubescent, roughish, swelling at the joints, towards the upper part a branch comes forth at each joint, terminated with a small bundle of from two to four flowers; leaves linear-lanceolate, connate, bright green, erect, entire, pubescent on both sides and roughish, three-nerved, three inches long, and two lines broad; claws of the petals long; border purple, dotted with red and white, smooth, except that they are slightly hairy towards the throat, obtuse and finely notched at the end, acuminate, with one or two teeth; antheræ violet-coloured; stigmas red, purple, flexuose, pubescent. It flowers in July and August.—Native of Gothland, Denmark, Upper and Lower Silesia, the Palatinate, and other parts of Germany, France, Switzerland, Italy, Spain, and England. From having been found in a meadow near Deptford, it obtained the name of *Deptford Pink*; and is met with in Charlton-wood, and other parts of Kent; near Croydon, between Dorking and Mickleham, Dulwich, Oak-of-honour Hill, and Streatham, in Surry; in Norfolk; about Pershore and Eckington, in Worcestershire; near Ketley in Shropshire; and at Clarkson-leap, near Worcester. It is also found near Reading in Berkshire; near Caversham; on the road from Harefield to Chalfont St. Peter's; in a little wood near Highgate; and in Tuddington-fields.

6. Dianthus Japonicus; *Japan Pink.* Flowers in bundles; calicine scales acute, ciliate, shorter than the tube. Stem decumbent at base, then erect, round, even, smooth, simple, or very rarely divided at top, a foot in height; leaves opposite, petioled, ovate, acute, entire, smooth, nerveless, erect, an inch in length, the upper ones smaller; petioles broad, stem-clasping; flowers terminating, fastigiate; calix the length of the tube of the corolla, striated, smooth; calicle ovate at the base, then lanceolate, acuminate, keeled, half the length of the calix; corolla crenate.—Native of Japan.

7. Dianthus Prolifer; *Proliferous Pink.* Flowers in heads; calicine scales ovate, obtuse, awnless, exceeding the tube in length. Root annual; stem usually single, erect, decumbent only at bottom, very smooth, swelling at the joints, a span or a foot high, sometimes more; flowers in a crowded head on the summit of the stalks, three or four together, surrounded by large scaly bractes nearly hiding them; they open one at a time, the uppermost first, rising up from the bractes, when they fade, drying up and withdrawing again, so that they are a considerable time in flowering; corollas small, slightly bifid, not crenate, red or rose-coloured, sometimes varying to white; they expand about eight in the morning, and close about one in the afternoon. It flowers in July and August; and is known by the name of Childing Sweet-william or Childing Pink.—Native of Denmark, Germany, France, Switzerland, Carniola, Italy, Sicily, Spain, and England. With us it is rare, in sandy pastures, and has been observed at Selsey Island in Sussex; near Norwich, on Landridge-Hill, at Hanley Castle, in Worcestershire; and between Hampton Court and Tuddington.

** *Flowers solitary, several on the same stem.*

8. Dianthus Diminutus; *Small Pink.* Calicine scales eight, longer than the flower. This seems evidently to be a mere variety of the preceding species: Linnæus affirms it to be the daughter of the Childing Pink. It is a very diminutive plant, seldom rising six inches high, terminated by a single flower, of a pale-red colour: the leaves are short and narrow, and grow in close heads. Annual.—Native of Germany and Switzerland.

9. Dianthus Caryophillus; *Clove Pink,* and *Common Carnation.* Calicine scales subrhombed, very short; petals crenate, beardless. This species, so well known by the gardener in its improved state, is thus described by Haller in a state of nature: Root large, woody, branched; stem a foot or eighteen inches high, decumbent at bottom, jointed, branched; leaves glaucous, smooth, linear, a line in breadth; every branch is terminated by one, two, or three flowers; the petals have long claws, which are green, with a rose-coloured border. This flower has a pleasant smell, but not the spicy odour of the garden plant. It grows on rocks, walls, and in dry soils. This fine flower, which has long been deservedly esteemed, both for its superior beauty and rich spicy odour, must have been unknown to the ancients in its cultivated improvement; otherwise it would have been described by the naturalists, and sung by the poets, as well as its rival the Rose. Carnations and Pinks have, however, been cultivated from time immemorial in Europe, and were among the few favourite flowers of our remote ancestors. Parkinson recites nineteen sorts of Carnations, and thirty of Gillyflowers. Though these have been supplanted by modern flowers, and the florists are daily producing new ones, yet it may not be unacceptable to the curious, to recite the names of those which were in favour almost two centuries ago.—*Carnations.*

Gray, red, and blue hulo; grimelo, or prince; white, or delicate; French; grand, or great Harwich, or old English; chrystall or chrystalline; red chrystall; fragrant; striped savadge; blush and red savadge; Oxford; king's or ordinary Bristow; greatest Granado; grand pere; cambersine; great Lombard red.—*Gillyflowers.* Lusty gallant, or Westminster; Bristol blue; Bristol blush; red Dover; light, or white Dover; fair maid of Kent, or ruffling Robin; queen's dainty; Brazil; Granado; Turkey; Poole; light or pale pageant; sad pageant; Bradshaw's dainty lady; best white; London white; Stamell; purple; gredeline; blue; blush; John Wittie his great tawny; divers other tawnies; many sorts of blushes; some varieties of reds; striped tawny; marbled tawny; Master Tuggie's princess; flaked, feathered, and speckled tawny; Master Tuggie his Rose Gilliflower. This Master Tuggie appears to have been the most famous man of his time for the cultivation of those fine flowers; and Johnson, referring to the work of his friend Parkinson, says, "if they require any further satisfaction, let them, at the time of the year, repair to the garden of Mistress Tuggie, the wife of my lately deceased friend Mr. Ralph Tuggie, in Westminster, which, in the excellency and variety of these delights, exceedeth all that I have ever seen."—Modern florists distinguish the Carnation into *four* classes. First, *flakes*, of two colours only, and their stripes large, going quite through the leaves. Second, *bizarrs*, with flowers striped or variegated with three or four different colours, in irregular spots and stripes. Third, *piquettes* or *piquettées*, having a white ground, and spotted or pounced with scarlet, red, purple, or other colours. Fourth, *painted ladies*, which have the petals of a red or purple colour on the upper side, and are white underneath. Of each class there are numerous varieties, but chiefly of the third, which some years ago was in most esteem with the florists; but of late years the flakes have been in greater request. To enumerate the varieties would be useless, as they are not permanent, and every country produces new flowers almost every year, which, though at first raising they may be greatly valued, in two or three years become so common as to be of little worth, especially if they prove defective in any one property; and are turned out to make room for new comers. For the variety of pompous names, we refer, therefore, to the lists published yearly by florists and nurserymen, who either raise these flowers from seeds, or import them from abroad. The following are what the florists call the good properties of a Carnation: 1. The stem of the flower should be strong, and able to support the weight of the flower without hanging down; 2. the petals should be long, broad, and stiff, and pretty easy to expand, or, as the florists term it, should make free flowers; 3. the middle of the flower should not advance too high above the other parts; 4. the colours should be bright, and equally marked all over the flower; 5. the flower should be very full of petals, so as to render it, when blown, very thick in the middle, and the outside perfectly round. To this we may add, that the stem should not only be strong, but straight, and not less than thirty, or more than forty-five inches high. The flower should be at least three inches in diameter, and the petals well formed, neither so many as to appear crowded, nor so few as to appear thin. The lower or outer circle of petals, commonly called the guard-leaves, should be particularly substantial, rise perpendicularly about half an inch above the calix, and then turn off gracefully in a horizontal direction, supporting the interior petals, which should decrease gradually in size as they approach the centre, which should be well filled with them; all the petals ought to be regularly disposed, and lie over each other in such a manner as their respective and united beauties may meet the eye all together; they should be nearly flat, or at most have a small degree of inflection at the broad end; their edges should be perfectly entire, without notch, fringe, or indenture: the calix should at least be an inch in length, and sufficiently strong at top to keep the bases of the petals in a close and circular body: the colours ought to be distinct, and the stripes regular, narrowing gradually to the claw of the petal, and there ending in a fine point: almost one half of each petal should be of a clear white, free from spots.—*Pinks* do not seem to have been much noticed by our ancestors; and it is only within the present century, and particularly of late years, that they have been so much improved and varied as to be highly valued by the florists; the principal varieties are the damask, white shock, pheasant's eye, common red, Cob's, Dobson's, white Cob, and Bat's. The old man's head, and painted lady Pinks, rather belong to the Carnation. The damask Pink is the first of the double sorts in flower; it has but a short stalk, and the flower is not very large, nor so double as many others; the colour is of a pale purple, inclining to red, but the scent is very sweet. The next which flowers is the white shock, which was so called from the whiteness of its flowers, and the borders of the petals being much jagged and fringed; but the scent of it is not so agreeable as of some others. After this appear all the varieties of pheasant's eye, of which new varieties are frequently raised, which are either titled from the persons who raised them, or the place where they were raised; some of these have very large double flowers, but those which burst their pods are not so generally esteemed. The Cob Pink comes out next, the stalks of which are much taller than any of the former; the flowers are very double, and of a bright red colour, and as it has the most agreeable scent of all the sorts, it well deserves a place in every good garden. The old man's head, and the painted lady, do not flower till July, coming out at the same season with the Carnation, to which they are more nearly allied than to the Pink: the first, when it is in its proper colours, is purple and white, striped and spotted, but this frequently is of one plain colour, which is purple, and will continue flowering till stopped by the autumnal frost: it has an agreeable scent, for which it is esteemed; while the painted lady is chiefly admired for the liveliness of its colour, being neither so sweet nor of so long continuance as the other. The times of flowering for the Pinks is from the latter end of May till the middle of July; and that sort of Pink which is called Bats will frequently flower again in autumn.—*Propagation and Culture of Carnations.* Having obtained some good seeds, prepare a proportionable number of pots or boxes, filled with fresh earth mixed with rotten cow-dung, incorporated well together: then sow the seeds, but not too thickly, in them, covering them with about a quarter of an inch of the same kind of light earth, placing the pots or boxes so as to receive the morning sun till eleven o'clock, observing also to refresh the earth with water as often as it may require. In about a month's time the plants will come up, and, if kept clear from weeds, and duly watered, will be fit for transplanting about the end of July; at which time prepare some beds of the same sort of earth as they were sown in, in an open airy situation, in which plant them about three inches square, observing to water and shade them until they have taken new root, taking care to keep them clear from weeds; in these beds they may remain till the end of August, by which time they will have grown so large, as almost to meet each other; then prepare some more beds of the like good earth, in quantity proportionable to the flowers you

have raised, in which plant them at six inches' distance each way, and not above four rows in each bed, for the more conveniently laying such of them as may prove worth preserving, for in these beds they should remain to flower; the alleys between these beds should be two feet wide, to afford room for passing between and clearing them. If the season should prove very dry, they ought not to be transplanted till there is some rain, so that in some years it may happen to be the middle or end of September, before there may be wet enough to moisten the ground for this purpose; but if there be time enough for the plants to strike root before the frost commences, that will be sufficient. If the winter should prove severe, the beds must be arched over with hoops, that they may be covered with mats, otherwise many of the plants may be destroyed, for the good flowers are not so hardy as the ordinary ones. They will only require weeding, and to be supported by sticks to prevent their breaking when they shoot up their stalks to flower: they ought to be attentively looked after as soon as they begin to blow, to ascertain which of them promise to be good flowers, as all the layers should be laid down upon them. Those which are well marked, and blow whole without breaking their pods, should be reserved to plant in borders, in order to secure seed; and those which burst their pods, and seem to have good properties, should be planted in pots, to try what their flowers will be when managed according to art, for until the second year no one can pronounce what the value of a flower will be. Having chosen such flowers as promise well for the large sort, mark them separately for pots, and the round whole-blowing flowers for borders: pull up all single or ill-coloured flowers, to allow the rest more air and room. When these have been laid at a proper season, as soon as they have taken root, which will be some time in August, they should be taken off and planted out; those that blow large, in pots, and the others in borders. The whole-blowing flowers have been latterly much more esteemed than those large flowers which burst their pods, but especially those round flowers which have broad stripes of beautiful colours and round rose-leaves, of which kind there have been a great variety introduced from France within these few years; but as the French flowers are extremely apt to degenerate into plain colours, and are much tenderer than the English, less prices are now given than for some years past: from the present taste for the whole-blowing flake flowers, many of the old varieties have been revived, and large prices paid for such as some years before were sold for one shilling a dozen, or even less; so variable is the taste, so capricious the fancy, of the florists. To propagate these plants by *layers*, (the best time for doing which is in June,) strip off the leaves from the lower part of the shoot intended to be laid, making choice of a strong joint about the middle part of the shoot, not too near the heart of it, nor yet in the hard part next to the old plant; then with a small knife make a slit in the middle of the shoot from the joint upwards, half way to the other joint, or more, according to their distance; then with your knife cut the tops of the leaves, and remove the swelling part of the joint where the slit is made, so that the part slit may be shaped like a tongue; for if that outward skin be left on, it would prevent their pushing out roots; then having loosened the earth about the plant, and, if necessary, raised it with fresh mould that it may be level with the shoot intended to be laid down, lest by the ground being too low, by forcing down the shoot you should split it off; then make a hole in the earth with your finger, just where the shoot is to come, and bend it with your finger and thumb gently into the earth, observing to keep the top as upright as possible, that the slit may be open, and being provided with forked sticks for that purpose, thrust one of them into the ground, so that the forked part may take hold of the layer, in order to keep it down in its proper place; then gently cover the shank of the layer with the same sort of earth, giving it a gentle watering to settle the earth about it, which should be repeated as often as is necessary to promote their rooting. They will have taken root in about five or six weeks afterwards; and may then be transplanted into earth proper for them, which should have been previously prepared in the following manner: Select some good upland pasture, or a common that is of a hazel earth, or light sandy loam; dig eight inches deep from the surface, taking all the turf, and laying the whole in a heap to rot and mellow for one year: this heap must be turned once a month to sweeten, and ought then to have about a third part of rotten cow-dung, or rotten dung from a Cucumber or Melon bed, well mixed with it six or eight months before it be used, the better to incorporate their parts. They should be removed from the pots or beds, with balls of earth about their roots, in the beginning of autumn, into small pots, to have shelter during the winter. In the middle or latter end of February, if the season be good, you must transplant these layers into pots for their bloom; the pots should be full eight inches over at the top, and should have the holes stopped with oyster-shells or pot-sherds, to draw off the water; these pots should be filled about half way with the same good compost as was before directed: the plants should then be shaken out of the small pots with all the earth about their roots, and you must take off some of the earth round the outside of the ball, and from the surface removing the fibres of the roots on the outside of the ball of earth, plant one good plant exactly in the middle of each pot, but neither so low as to bury the leaves of the plant, nor so high that the shank may rise above the rim of the pot, which must now be filled up with the before-mentioned earth, closing it gently to the plant with your hands, and giving it a little water in dry weather, to settle the earth about it, and placing it afterwards where it may be sheltered from the north wind, and watered as the season may require: here they are to remain till the middle of April, when a stage of boards should be prepared to set the pots on. This stage should be so ordered that the plants may have little cisterns of water round their pots, to prevent insects, particularly the earwig, from attacking the flowers in bloom: as those insects never fail to destroy the petals of the flowers, which are very tempting to them on account of their sweetness. But since the making of these stages is somewhat expensive, and not very easy to be understood by such as have never seen them, we shall here describe a very simple one, which will answer the purpose as well as any other. First, prepare some common flat pans about sixteen inches over, and three deep; place these two and two opposite to each other, about two feet distance, and at every eight feet lengthways two of these pans; in each of these whelm a flower-pot (which should be about six inches over at the top), upside-down, and lay a flat piece of timber about two feet and a half long, and three inches thick across, from pot to pot, till you have finished the whole length of your stage; then lay your planks lengthways upon these timbers, which will hold two rows of plants in the pots, of the size ordered for Carnations; and when you have set your pots upon the stage, fill the flat pans with water, replenishing them whenever it decreases, which will effectually guard the flowers against insects. The stage should be placed in a situation open to the south-east, but defended from the west winds, which would probably blow the plants down, being particularly violent at the season in which the flowers begin to appear.

The stage indeed should be defended by trees, at some distance, from the wind of every point; but care ought to be taken that the trees be not too near. In the middle of April the layers will begin to shoot up for flower, when some square deal sticks, about four feet and a half long, which should be thicker toward the bottom, and planed off taper at the top, should be carefully stuck into the pots as near to the plants as possible without injuring them; then fasten the spindle to the stick with a slender piece of bass-mat, to prevent its being broken; repeating this as the plant advances in height, observing also to pull off all side-spindles as they are produced, never suffering more than two spindles to remain upon one root, nor above one when you wish the flower to blow exceeding large. Towards the beginning of June, the flowers will have attained their greatest height, and their pods begin to swell, and some of the earliest begin to open on one side; observe therefore to open it in two other places at equal angles, which must be done as soon as you perceive the pod break, otherwise your flower will run out on one side, and be in a short time past recovering so as to make a complete flower, and in a few days after the flower begins to open, you must cover them up with glasses, which are made for that purpose, in the following manner: Upon the top of the glass, exactly in the centre, is a tin collar or socket, about three-fourths of an inch square, for the flower-stick to come through; to this socket are soldered eight slips of lead at equal distances, which are about six inches and a half long, and spread open at the bottom about four inches asunder; into these slips of lead are fastened slips of glass, cut according to the distances of the lead, which when they are fixed in, are bordered round the bottom with another slip of lead quite round, so that the glass has eight angles, with the socket in the middle, and spread open at the bottom, about eleven inches wide. When the flowers are open enough to be covered with these glasses, make a hole through your flower-stick, exactly to the height of the under part of the pod, through which put a piece of small wire about six inches long, making a ring at one end of the wire to contain the pod, into which ring fix the stem of the flower; then cut off all the tyings of bass, and thrust the stem of the flower so far from the stick, as may give convenient room for the flower to expand without pressing against the stick, to which distance you may fix it by turning your wire so as not to draw back through the hole; then make another hole through the stick, at a convenient distance above the flower, through which put a piece of wire, an inch and a half long, which is to support the glasses from sliding down upon the flowers; and be sure to observe that the glasses are not placed so high as to admit the sun and rain under them to the flowers, nor so low as to scorch their leaves with the heat. At this time also, or a few days after, as you shall judge necessary, cut some stiff paper, cards, or some such thing, into collars about four inches over, and exactly round, cutting a hole in the middle of it about three-fourths of an inch in diameter, for the bottom of the flower to be let through; then place these collars about them to support the petals of the flower from hanging down, this collar should be placed withinside the calix of the flower, and should be supported thereby: then observe daily what progress the flowers make, and if one side come out faster than the other, turn the pot round with that side towards the sun, and shade the glasses with cabbage leaves in very hot weather during the heat of the day, to prevent their being scorched or forced out too soon; and when the middle pod begins to rise, take out the calix thereof with a pair of nippers made for that purpose, but this should not be done too soon, lest the middle part of the flower should advance too high above the sides, which will greatly diminish its beauty: you must also observe whether there be more leaves in the flower than can be properly expanded in the space allotted to it, and if that be the case, put out some of the lowermost to spread, drawing out and expanding the others at the same time; and when the flowers are fully blown, if you cut them off, put on a fresh collar of stiff paper, which should be cut exactly to the size of the flower, that it may support the petals to their full width, but not to be seen wider than the flower in any part: when this is put on, draw out the widest leaves to form the outside of the flower, which although they should be in the middle, yet by moving the other leaves, they may be drawn down, and then the next longest leaves upon them again, that the whole flower may appear equally globular, without any hollow parts: in the doing of this some florists are so curious as to render an indifferent flower very handsome; and on this, in a great measure, depends the skill of the artist to produce large fine flowers. During the flower season, particular care should be taken not to let them suffer for want of water, which should on no account be raw spring water, nor compound waters, such as are enriched with various sorts of dung; but the best and most natural water is that of a fine soft river; next to that is pond-water, or standing water; but if you have no other than spring water, it should be exposed to the sun and air two days before it is used, otherwise it will give the flowers the canker, and spoil them. The directions here introduced are chiefly intended for the management of those large Carnations, which require the greatest skill of the florists, although of late years they have been less esteemed than formerly, and those flowers which do not break their pods, and are termed *whole-blowers*, have now the preference. These are generally planted in pots, and treated in the same way as the large flowers, but do not require so much trouble to blow them; all that is necessary to be done for these, is to fasten their stems up to flower-sticks, to prevent them from being broken, and to take off the pods which proceed from the side of their stalks, leaving only the top-bud to flower, if they be intended to be large and fair; and when the flowers begin to open, if they be screened from the sun in the heat of the day, and also from the wet, they will continue much longer in beauty. But although the most valuable of these flowers are usually planted in pots, and thus carefully treated, yet many of these whole-blowing flowers may be planted in beds, or borders of the flower-garden, where they form a principal ornament during their continuance in flower, which is from the beginning of July till the middle of August, especially if the several colours be properly intermixed; for the flakes and bizarrs should be intermixed with the picquettes, and not planted separately, unless where they are designed for saving the seeds, in which case, those which are the finest of each sort should be planted in beds at a distance from each other, especially where persons are desirous to keep them distinct; for where the sorts are blended together, there will be an admixture of their farina, so that the seeds will vary, and not produce the particular kinds: the flowers that are planted in the full ground, generally produce such seeds better than those in pots. But whoever proposes to raise a supply of new flowers from seeds, must always observe to save the best of their seedling flowers for this purpose; for it is well known, that after any of these flowers have been a few years propagated by layers, they become barren, and do not seed; which is also the case of most other plants that are propagated by slips, layers, or cuttings, so that the young plants which have been newly obtained from seeds, are always the most productive of seeds: the plants which are propagated by layers or slips, will

always continue to produce the same flowers, so that when a fine variety is obtained, it is thus propagated and maintained; but all the new varieties come from seed, so that every person that is curious in these flowers must sow the seeds annually. Carnations may also be increased by cuttings and pipings as pinks are, but not so successfully in general as by layers, unless the operation be performed on a hot-bed under glasses; the cuttings for piping should have two joints, which ought to be thrown into water for a few minutes, and planted not more than half an inch deep; they are to be gently watered, and to continue open till their leaves are dry before they are covered; after this, they are to be kept moist till they have rooted, and to have only the morning sun and air admitted occasionally; but notwithstanding every precaution, success will be very uncertain, and many of the cuttings will frequently perish.—*Propagation and culture of Pinks.* The common Pinks are propagated by seeds, which is the best way to obtain new varieties; or by layers, as is practised for Carnations; or by slips, or pipings as they are commonly called, which, if carefully managed, will take root very well. In raising them from seed, care should be taken to save only the sorts which will produce the finest flowers; the seeds may be sown in the spring, and the plants treated in the same way as is above pointed out for the Carnation: the Old Man's Head and Painted Lady Pinks, are commonly propagated by this method, and most of the others. The time most proper for piping, will vary with the season, but it should always be done immediately before or during the bloom, or indeed as soon as the young shoots are of a sufficient length for that purpose, that is, to form pipings from two to three inches in length; the striking will be much facilitated by covering the beds or pots with glasses, after having given them a good watering; not taking off the glasses till the cuttings or pipings begin to grow, but applying the water, when necessary, round the outside of the glasses. In a month or six weeks they may be rooted, and grow, though they may be fully exposed. The only difference between cuttings and pipings is, that the former are cut through a joint horizontally, and the latter are drawn out at the joint from their sockets, so that they leave a hollow like a pipe, and thence derive their name. At the time of planting, if any rain should fall it will be of great service, but should the weather prove dry, the cuttings or pipings will require to be watered every other day until they have taken root; they should be planted in a shady border, and the ground should be dug well, and all the clods broken; and if no rain falls, it should be well soaked with water a few hours before they are planted; they ought then to be taken from the plants, all their lower lips stripped off, and planted as soon as possible after, for if suffered to lie long, they will wither and spoil. They need not be planted at a greater distance than three inches square, with the ground closed very hard about them; after which, watering and weeding is all they will require. Pinks may also be increased by slipping off the young shoots from the sides of the main ones, any time in the spring from February to April; the slips ought to be from three or four to six or eight inches in length.

10. Dianthus Pomeridianus; *Afternoon Pink.* Calicine scales ovate, acute, very short, upper half of the calix striated; petals emarginate, almost entire. The stem has only three or four simple, long, one-flowered branches; the corolla is yellow, and underneath pale green. The flowers open at half after twelve at noon, and close at ten at night.—Found near Constantinople, and in Palestine.

11. Dianthus Deltoides; *Maiden Pink.* Calicine scales ovate-lanceolate, acute, about two; petals crenate; leaves bluntish, subpubescent. Barren stems numerous, reclining, putting forth roots; flowering-stems six to eight inches high, columnar below, square at top, slender, weak, but usually erect, sometimes simple, sometimes branched or dichotomous, swollen at the joint, slightly pubescent; the petals vary much in colour, being sometimes of a very pale flesh-colour, sometimes deep red, but always marked with a ring of deeper red dots near the centre of the flower. Dillenius distinguished this species by the scales of the calix being much more pointed; the corolla of a deeper colour, with numerous silvery dots; and its flowering later, namely, in June, and July. It continues flowering till late in autumn. There is a variety of this species common in gardens, which has white flowers with a beautiful purple ring, and leaves rather more glaucous than in the common sort.—It is found on pastures and heaths on a light soil in Sweden, Denmark, Germany, Spain; and is not uncommon in England, being found on Hampstead Heath, Dupper's Hill near Croydon, about Hampton Court Park, Beacon's Hill, near Feversham in Kent; not far from Slough, near Windsor; near Sandy, in Bedfordshire; in Cambridgeshire, Suffolk, and Norfolk; at Clay, near Hillborough in the way from Brandon, &c. in Nottinghamshire, Derbyshire, Westmoreland, Shropshire, Somersetshire; and at King's Park, Edinburgh.

12. Dianthus Rupestris; *Field Pink.* Calicine scales two, very obtuse; petals crenate. Leaves linear, very narrow, three-sided, channelled, stiffish, connate, in tufts, scabrous on the edge and keel; stem filiform, prostrate, bearing one or two flowers, which are remote, and sweet-scented; petals blood-red, crenate, not feathered or villose.—Perennial; native of mountains in the south of Europe.

13. Dianthus Cæsius; *Mountain Pink.* Flowers subsolitary; calicine scales roundish, short; petals crenate, pubescent; leaves rugged at the edge. The circle is purple, and there is a purple tinge on the upper surface, from a number of very fine lines. Root woody; stalks several, a span high, erect, simple, smooth, quadrangular, having two or three pairs of leaves on them, one-flowered, scarcely ever two-flowered; petals flesh-coloured, with a double row of blunt notches, marked with lines, and bearded at the base. The flowers have no scent.—Native of Switzerland; and in England it is found on Chedder rocks, in Somersetshire.

14. Dianthus Albens; *Cape Pink.* Calicine scales lanceolate, four, short; corollas emarginate. Petals white above, greenish white underneath, with the tip violet-coloured on both sides.—It is a perennial, flowering in August; and native of the Cape of Good Hope. This is the only plant of the genus which will not bear the open air of our climate.

15. Dianthus Chinensis; *China Pink.* Calicine scales subulate, patulous, leafy, equalling the tube; corollas crenate, leaves lanceolate. The flower-stems rise from six to eight or nine inches high, branching out on every side; the branches grow erect, and are terminated each by one flower, which possesses no scent, but exhibits a great variety of colours. They are a considerable ornament to the flower-garden from July till autumn, when the frost stops them. They have been greatly improved by culture; some flowers being as full of petals as the best double Pinks, and displaying the most glowing and vivid red colours: it is known in the nursery-grounds by the name of *Indian Pink*, and was originally imported from China by way of Paris. It is generally supposed to be an annual plant, because the plants which are raised from seeds, flower and produce ripe seeds in the same season, so that their roots are not often preserved; but, where they are planted on a dry soil they will continue two years, and the second year will produce a greater number of flowers than

the first. There is a great variety of very rich colours in these flowers, which annually vary when raised from seeds. The double flowers are most esteemed, though the colours of the single ones are most distinct and beautiful; for the multiplicity of petals in the double flowers in a great measure hides the deep shades which lie towards the lowest part of the petals. These plants are propagated by seeds, which should be sown upon a gentle hot-bed about the beginning of April: this moderate heat is merely intended to accelerate the vegetation of the seeds; therefore, when the plants come up, they must have a large share of air admitted to them, to prevent their drawing up weak; and, as soon as the weather will permit, they should be exposed to the open air. Three weeks or a month afterwards, they will be fit to remove, and should then be carefully taken up with good roots, and planted in a bed of rich earth, at about three inches asunder, being careful to shade them from the sun until they have taken new root, and in dry weather to water them three or four times a week; they will then only require weeding till the end of May, at which time they may be transplanted to the places where they are designed to remain for flowering, when they may be taken up with large balls of earth to their roots, so as scarcely to feel their removal, especially if it happen to rain at that time. As they do not grow large plants, so when they are planted singly in the borders of the flower-garden, they do not make so fine an appearance as where they are planted by themselves in beds, or if they be planted in small clumps of six or eight roots each, where the flowers being of different colours, will set each other off to advantage. Those who are curious in these flowers, take particular care in saving their seeds, never permitting any single flowers to stand among the double, but pull them up as soon as they display their flowers, and also draw out all those which are not of lively good colours. Where this is observed, the flowers may be kept in great perfection; but where the seeds can be exchanged once every two or three years, with trusty friends who live at some distance, it is much better to change than to continue sowing seeds in the same place many years in succession.

16. Dianthus Monspeliacus; *Montpellier Pink.* Calicine scales subulate, straight, a little shorter than the tube; corollas many-cleft; stem erect.—It is a perennial plant, and grows wild about Montpellier, Verona, and in Piedmont.

17. Dianthus Plumarius; *Feathered Pink.* Calicine scales subovate, very short, much blunted and awnless; corollas many-cleft. Stems ascending a foot or eighteen inches in height, branched; flowers, one, two, seldom three, at the ends of the branches, sweet-scented; petals large, light red, or bright purple, sometimes white, with a circle of red deeply jagged, having a red down at the base of the lamina or border; antheræ red. It flowers from June to August, and is perennial.—Native of rocks, mountain pastures, and dry woody places, in North America.

18. Dianthus Crinitus; *Hairy Pink.* Calicine scales, oval, mucronate, subdiverging, one-third of the length of the tube; petals many-cleft, beardless. Stalks a span high, smooth and even; flowers two or four on a stalk, erect; petals narrow, irregularly cut to the base in very fine segments. It varies with a white flower.—Found by Tournefort in Armenia.

19. Dianthus Superbus; *Superb Pink.* Flowers panicled; calicine scales very short, acuminate; petals cloven into many capillary segments. Stem erect. The stem is a foot or eighteen inches in height, procumbent at the base, and then erect; round, somewhat two-edged on the upper part, smooth, branching only at top; leaves like those of the narrow-leaved Sweet-william; petals pale-red colour, sometimes white, hairy at the base of the border, sprinkled with bloody spots. The flowers smell very sweet, especially in the evening; capsule cylindrical, a little longer than the calix, glittering like gold-dust, smooth, four-parted. According to some, it is perennial, while others reckon it biennial, and even annual. Mr. Miller asserts, that the roots will live three or four years, but that the flowers are in their greatest beauty the second year from seeds.—Native of Denmark, Lapland, Germany, Switzerland, France, Italy, and Spain: flowering from July to September. This deserves a place in every garden, on account of the elegance and delicious fragrance of the flowers. It grows naturally in a calcareous soil, and will thrive luxuriantly in a garden, if chalk be mixed with the common mould, but not otherwise.

20. Dianthus Attenuatus; *Diminished Pink.* Calicine scales short, lanceolate, acuminate, about six; tube attenuated at the top; petals crenate. Stalks diffused, woody at bottom, twisted, branching very much; flowering-branches ascending a foot long, leafy, round, smooth, divided at top into two or three branches, which are one-flowered; flowers flesh-coloured, void of scent.—Native of the south of France, near the coast.

**** Stem one-flowered, herbaceous.*

21. Dianthus Arenarius; *Sand Pink.* Stem bearing one or two flowers; calicine scales ovate, obtuse; petals many-cleft; leaves linear. Stem a span in length, sustaining one flower; root-leaves abundant, in bundles, smooth, narrow, obtuse, stiffish; petals white, not crenate, smelling very sweet, especially in the evening. Mr. Miller says that the flower is sweet, but pale-coloured and small.—It flowers in May and June; and is a native of Scania, in drifting sand; of Silesia, on the borders of Saxony; of the mountains of Carniola, and Piedmont; and is found on old walls and buildings in any part of England.

22. Dianthus Alpinus; *Alpine Pink.* Corollas crenate; outer calicine scales leafy, almost equalling the tube. Root woody, perennial, putting forth many stems of a finger's length, having three joints; leaves on the stem linear, blunt-ish, flat; root-leaves in tufts, linear-lanceolate.—Native of the Alps, Silesia, Austria, Stiria, and Siberia, in rough stony places; flowering in June and July.

23. Dianthus Virgineus; *Upright Pink.* One or two inodorous flowers on the stem; petals crenate; calicine scales very short and blunt, in pairs. Root perennial; lower leaves copious, erect, in an imbricate tuft, acuminate, like those of Thrift; stems few, a span in height, having four very simple joints with smaller leaves, the uppermost very small, arising from a perfoliate sheath, decumbent, not prostrate. It flowers in June and July.—Native of the Alps, the south of France, Austria, Carniola, &c.

***** Shrubby.*

24. Dianthus Arboreus. Stem shrubby; leaves oblong, somewhat fleshy; calicine scales numerous, blunt, closely imbricate, very short. Stalks eighteen inches and more in height, white, round, smooth, jointed, woody, branched; leaves glaucous, an inch and half long, narrow, rigid, mucronate; petals pale purple, striated a little beyond the middle marked with a dark-red dotted line, forming a ring, below which they are lanuginous; they are also cut about the edge.—Native of the island of Candia. This, with the two following species, are noble ornamental plants, which, it is to be lamented, are lost to our gardens.

25. Dianthus Fruticosus. Stem shrubby, twisted, two feet high, brittle, hard, covered with a dark cloven bark; leaves lanceolate, an inch long, and three or four lines broad, obtuse, fleshy, brittle, bitter as gall, growing in tufts; flowers

commonly solitary, but sometimes several together; petals an inch and half long.—Native of Seriphos, in the Levant.

26. Dianthus Juniperinus. Stem shrubby, with a lacerated chinky bark, very much branched; leaves awl-shaped; calicine scales about four, obovate, mucronate and pungent, patulous, only half the length of the tube; flowers two or three at the tops of the branchlets, pedicelled, small.—Native of the island of Candia.

***** *New Species.*

27. Dianthus Pungens; *Prickly-leaved Pink.* Flowers solitary; stems full of alternate branches, few-flowered; calicine scales very short, mucronate, spreading; tube gibbous; petals entire. The stem-leaves are connate and sheathing at the base, crowded and covering the branches with their sheaths; the leaves on the branches are slightly connected with distant sheaths; all are flattish, acuminate, and somewhat prickly; the peduncles arise from the ends of the lateral branchlets; the pedicels sustain from one to three flowers, which appear from August until October.—It is a native of the coast of Spain.

28. Dianthus Hispanicus. Stem usually one-flowered; calicine scales ovate; petals linear, quite entire. Plant a span in height; root woody; root-leaves in a tuft, linear, subulate; stems seldom two-flowered, smooth. There is a variety with roundish petals, white and red.—Native of the province of Arragon in Spain.

29. Dianthus Libanotis. Flowers subaggregate; calicine scales six, acuminate, recurved; corollas multifid-capillary, bearded at the throat; stem erect. Root perennial, thickish, and somewhat branched; stem herbaceous, a foot high; leaves lanceolate, glaucous, those next the root obtuse, on the stem acute, recurved; flowers panicled; calicine scales six, sometimes eight, seldom four, awl-shaped, dilated at bottom, membranaceous, a little shorter than the tube of the calix; petals yellowish, with a few hairs and red dots within at bottom; the claws are the length of the calix; filamenta filiform, a little longer than the calix; styles swelling at the base, scarcely the length of the stamina.—Native of Mount Libanus.

30. Dianthus Pumilus. Stemless; leaves linear. This plant grows in a tuft; the leaves are acute, smooth, and half an inch long; flowers sessile, solitary; petals toothed.

Diapensia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth eight-leaved; the five interior leaflets placed in a circle, the rest leaning upon them in an imbricated manner, all equal, ovate, obtuse, erect, permanent. *Corolla:* one-petalled, salver-shaped; tube cylindric, open, length of the calix; border five-cleft, obtuse, flat. *Stamina:* filamenta five, compressed, linear, erect, terminating; the tube at the incisures of the border short; antheræ simple. *Pistil:* germen roundish; style cylindric, length of the stamina; stigma obtuse. *Pericarp:* capsule roundish, three-celled, three-valved. *Seeds:* very many, roundish. Essential Character. *Corolla:* salver-shaped. *Calix:* five-leaved, imbricate with three other leaflets. *Stamina:* placed on the tube of the corolla. *Capsule:* three-celled.——The species are,

1. Diapensia Lapponica. Root perennial; stem rising immediately from the root, and divided into several simple diffused branchlets, clothed all round with leaves at most a finger's height; leaves linear, blunt, almost membranaceous, having a longitudinal nerve, concave above, prominent beneath, perennial, the lower ones finally withering, but not falling; peduncle from the top of the branch straight, slender, one-flowered; corolla shining, snowy white.—Native of the mountains of Lapland, among stones covered with moss; also found on the coast of Labrador, and in Norway.

2. Diapensia Barbulata. Leaves somewhat wedge-shaped, downy beneath; antheræ spurred at the base.—Found on the mountains of North Carolina.

Dicera; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth four or five parted; leaflets equal. *Corolla:* petals four or five, obovate, trifid; segments obtuse, the middle one longest; nectary of four or five small emarginate corpuscles surrounding the germen. *Stamina:* filamenta (twelve to twenty) several between the nectary and the germen, capillary, short; antheræ linear, two-horned at top. *Pistil:* germen roundish; style awl-shaped, longer than the stamina; stigma simple. *Pericarp:* berry, ovate, two-celled. *Seeds:* very many. Essential Character. *Petals:* four or five, obovate, trifid. *Nectary:* of four or five emarginate corpuscles. *Antheræ:* two-horned.——The species are,

1. Dicera Dentata. Style one; leaves oblong, acuminate, toothed; racemes simple, axillary, loose. This is an elegant tree, bearing at the extremities of the branches abundance of leaves, which are alternate, oval, or oval-oblong, bluntish, smooth, veined, bluntly serrate, petioled with a double gland at their base; racemes axillary, simple, loose, solitary, the length of the leaves; flowers on very minute pedicels, nodding; stamina sixteen when there are four, and twenty when there are five petals. Fruit an oval berry, with a hard stone in it; while unripe, it is preserved after the manner of olives. Linneus remarked twenty stamina in the Ceylonese plant, and only eight in that from Java.—Native of New Zealand.

2. Dicera Serrata. Styles four; leaves opposite, cordate-ovate, unequally serrate; racemes lateral, compound. This agrees with the preceding species in the structure of the flowers, but differs in the fruit.—Native of New Zealand.

Dichondra; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* five-leaved; leaflets obovate, netted nerved, hairy without, smooth within, permanent. *Corolla:* monopetalous, inferior, rotate, subcampanulate, five-cleft, the length of the calix. *Stamina:* filamenta five, subulate, spreading, placed alternately between the divisions of the corolla, and only half the length; antheræ roundish. *Pistil:* germina two, hairy; styles two, divaricate, setaceous, the length of the stamina, arising on the inside from the base of the germina; stigmas capitate. *Pericarp:* capsules two, globular, subhirsute, one-celled. *Seeds:* one in each cell, globular. Essential Character. *Calix:* five-leaved. *Corolla:* rotate, inferior. *Capsule:* dicoccous.——The only known species is,

1. Dichondra Repens. Stem prostrate, creeping, branched, round, leafy; leaves alternate, petioled, erect, kidney-shaped, sometimes emarginate, above almost naked, below silky, radiate-veined; flowers small, rather nodding, on axillary filiform, simple, silky peduncles, scarcely the length of the petioles, and usually solitary. The specimens from different countries differ in having the leaves naked above, or silky on both sides; also in the length of the petioles and peduncles; but these seem only to be varieties. Mutis sent it to Linneus from New Granada; Commerson found it at Buenos Ayres, and in the island of Mauritius; and it is likewise known to be a native of Peru, Jamaica, and New Zealand.

Dicksonia; a genus of the class Cryptogamia, order Filices.—Generic Character. Fructifications, kidney-shaped, lying under the edge of the frond at the lower surface; outer valve formed of the substance of the leaves itself, inner membranaceous.——The species are,

1. Dicksonia Arborescens; *Tree Dicksonia.* Fronds superdecompound, villose; leaflets almost entire; stem

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

DIGITALIS CANARIENSIS — *Canary Shrubby Foxglove.*

P. 455.

P. 454.

DIGITALIS PURPUREA — *Purple Foxglove.*

DICTAMNUS ALBUS — *Fraxinella.*

P. 453.

P. 449.

DELPHINIUM GRANDIFLORUM — *Great-flowered Larkspur.*

Published by Henry Fisher Carson, London 1823

arboreous.—It flowers during the greater part of the winter; and was found by Sir Joseph Banks and Dr. Solander, in the island of St. Helena.

2. Dicksonia Culcita; *Shining-leafed Dicksonia.* Fronds superdecompound, smooth; leaflets serrate. Found in the island of Madeira, where it is called *feila brom*; and in the island of San Miguel, one of the Azores. The inhabitants make pillows and cushions of the roots. There is little doubt but that this plant, and the *barometz*, or Scythian Lamb, are one and the same, though they come from countries so remote.

Dictamnus; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix*: perianth five-leaved, very small, deciduous; leaflets oblong, acuminate. *Corolla*: petals five, ovate-lanceolate, acuminate, with claws, unequal, of which two are bent upwards, two placed obliquely at the sides, one bent downwards. *Stamina*: filamenta ten, subulate, length of the corolla, situated between the two lateral declining petals, unequal; small point-like glands scattered over the filamenta; antheræ four-sided, rising upwards. *Pistil*: germen five-cornered, elevated from the receptacle; style simple, short, bent downwards, incurved; stigma sharp, rising upwards. *Pericarp*: capsules five, conjoined inwardly at the border, compressed, acuminate, with distant tips, two-valved. *Seeds*: in pairs, ovate, very smooth, within a common aril, which is two-valved, and cut down. Essential Character. *Calix*: five. *Petals*: five, patulous. *Filamenta*: having glandulous dots scattered over them. *Capsule*: five, conjoined.——The species are,

1. Dictamnus Albus; *Fraxinella.* Leaves pinnate; stem simple. Root perennial, striking deep into the ground, and the head annually increasing in size; stalks many, two or three feet high, round, here and there slightly grooved, sometimes subancipital, not branched, at bottom green and beset with white hairs, ferruginous, red towards the top, with resinous glands; leaves alternate, the larger above a foot in length, spreading out horizontally, ascending towards the end; the midrib flat at top and edged on both sides, convex beneath, and hairy; leaflets from two to five pairs, with an odd one at the end, most of them alternate; the whole somewhat resembling an ash-leaf: flowers in a long pyramidal loose spike or raceme, nine or ten inches in length; corolla large and handsome, the common natural colour pale purple, with dark purple veins, but varying to white; filamenta pale purple, concealing the germen and style, ascending or turning up at the end, glandular, especially at top; antheræ green; germen covered with pedicelled glands; style with white hairs; stigma blunt, dark purple. The whole plant, especially when gently rubbed, emits an odour like that of lemon-peel; but when bruised, has something of a fine balsamic scent, which is strongest in the pedicels of the flowers, which are covered with glands of a rusty red colour, exuding a viscid juice or resin, which exhales a highly inflammable vapour, and in a dark place, in hot weather explodes, on the approach of a candle, without injuring it. Gerarde calls it *Bastard* or *False Dittany*; and Parkinson, *False* or *White Dittany.* It flowers with us at the end of May and in June, and the seeds ripen at the end of September.—Native of Germany, France, Spain, Italy, &c. in shady mountainous places. Its beauty and fine scent should introduce it into every good garden. The roots are the parts chiefly used in medicine, and they are of a cordial sudorific nature, and are good in fevers, and in nervous hysteric complaints. A strong infusion of the young tops is a pleasant and efficacious medicine for the gravel: it works powerfully by urine, and gives ease in those colicky pains which so frequently attend that disorder.—It is propagated by seeds, which, if sown in the autumn, soon after they are ripe, the plants will appear the following April; but when they are kept out of the ground till the spring, the seeds seldom succeed; or if they do grow, it is the following spring before the plants appear, so that a whole year is lost. When the plants come up, they must be constantly kept clean from weeds; and in the autumn, when their leaves decay, should be carefully taken up, and planted in beds at six inches' distance every way: these beds may be four feet broad, and the paths between them two, that there may be space left for weeding them. The plants may stand two years in these beds, during which time they must be constantly kept clean from weeds; and if they thrive well, they will be strong enough to flower. In the autumn they should be carefully taken up, and planted in the middle of the borders of the flower-garden, where they will continue thirty or forty years, producing more stems of flowers in proportion to the size of the roots. All the culture these require, is to be kept clean from weeds, and the ground about them dug every winter.

2. Dictamnus Capensis. Leaves simple; stem branching. The simple leaves are alternate, and like the leaflets of the preceding; the raceme is the same in both.—Native of the Cape of Good Hope.

Didelta; a genus of the class Syngenesia, order Polygamia Frustranea.—Generic Character. *Calix*: common, double, permanent; outer three-leaved or three-parted, umbilicated at the back; leaflets cordate, acuminate, much expanded, tomentose-hoary above; inner placed on the disk of the outer, shorter, composed of eleven or twelve leaflets, which are linear-lanceolate, very acute, serrate, prickly, one-nerved, spreading, five or six, alternately shorter by half than the others, the twelfth often wanting. *Corolla*: compound, radiated; corollets hermaphrodite, numerous, shorter than the calix, barren in a deltoid disk, fertile in the outer triangles of the receptacle; females eleven or twelve in the ray, each opposite to one of the calicine leaflets, and double the length of the calix; proper in both hermaphrodites funnel-shaped, half five-cleft; border five-parted, linear, acute, patulous, revolute, brown at the tip; female ligulate, four or three toothed, three-furrowed, tubular at the base, spreading. *Stamina*: in both hermaphrodites; filamenta five, capillary, very short, inserted into the tube; antheræ cylindric, tubular, five-toothed, brown at the tip, the length of the corollet: in the females, the rudiment of one stamen inserted at the top of the tube. *Pistil*: in the perfect hermaphrodites, germen inferior, immersed in the receptacle, oblong, compressed, crowned with a thin short pappus or down, like the eye-lashes; style slender, finally standing out; stigma two-parted, subulate, revolute; in the barren hermaphrodites, germen roundish, very small, immersed; in other respects as in the fertile; females scarcely any rudiment of a germen. *Receptacle*: deltoid, flat, honey-combed, with labyrinthed membranes, distinct, and finally resolvable into four partial deltas or triangles; the central naked, barren; the side ones producing seeds, roughened with stiff brown bristles, becoming hard, and in separating from each other forming a pericarp; nuts three, bony, three-cornered, flatted, stiff, bristly, from the outer triangles of the receptacle gaped and hardened, each retaining an outer leaf and the opposite inner calicine leaflets, or one-third part of the calix, and many-celled. *Seeds*: small kernels, as many as there were germina, but some abortive, oblong; down simple, thin, short, stiffer than in the flower. Essential Character. *Calix*: expanding, outer leafy. *Receptacle*: honey-combed, dividing into many parts which retain the seeds. *Down*

chaffy, many-leaved.—These plants may be propagated both from seeds and cuttings, must have the protection of a dry-stove or a glass-case, and may be managed like other Cape plants.——The species are,

1. Didelta Carnosa; *Succulent-leaved Didelta.* Leaves alternate, lanceolate-oblong, fleshy. Stem herbaceous, very much branched, erect, round, eighteen inches in height; branches alternate, diffused, fleshy, smooth, green, the thickness of a quill, the extreme branchlets woolly; leaves from an inch to two inches long, thick and juicy, entire, obtuse, somewhat downy beneath; flowers solitary, terminating, on long pedúncles, scarcely nodding, yellow. It is an annual; but, like some other annuals, will last several years in the stove, and become somewhat shrubby.—It flowers in July; and is a native of the Cape of Good Hope.

2. Didelta Spinosa; *Opposite-leaved Didelta.* Leaves opposite, somewhat stem-clasping, ovate. Stem shrubby, erect; leaves broad-ovate, somewhat heart-shaped, smooth, with prickles above their insertion; calix entire, the outer of five leaves or segments. This plant is very smooth.—It flowers in June and July; and is a native of the Cape.

Didymodon, one of Hedwig's genera of Mosses.

Dier's-broom, or *Dier's-weed.* See *Genista.*

Dier's-weed. See *Reseda.*

Digitalis; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth five-parted; divisions roundish, sharp, permanent; the superior longer than the rest. *Corolla:* one-petalled, bell-form; tube large, expanding, bellied downward; cylindric, and close at the base; border small, four-cleft; upper division more expanding, emarginate, inferior division larger. *Stamina:* filamenta four, subulate, inserted into the base of the corolla, bent downwards, of which two are longer; antheræ two-parted, acuminate on one side. *Pistil:* germen acuminate; style simple, in the situation of the stamina; stigma sharp. *Pericarp:* capsule ovate, length of the calix, acuminate, two-celled, two-valved; valves bursting in two directions; according to Gærtner, partition double from the inflex edges of the valves. *Seeds:* very many, small; Gærtner says, subprismatic. Essential Character. *Calix:* five-parted. *Corolla:* bell-form, five-cleft, bellying. *Capsule:* ovate, two celled.——The species are.

1. Digitalis Purpurea; *Purple Foxglove.* Calicine leaflets ovate, acute; corollas obtuse, upper lip entire, according to Withering very slightly notched. Root biennial; stem three to six feet high, simple, upright, leafy, round, pubescent; leaves alternate, ovate-acute, serrate, veiny, wrinkled underneath, whitish with pubescence, gradually lessening to both ends; petioles short, winged; flowers in a long spike, nodding, imbricate, all directed the same way; peduncles one-flowered, pubescent, thickest at top; calix also pubescent; corolla purple; the bellying part sprinkled in the inside with spots like little eyes, or elegantly mottled; upper segment entire and truncate; lower bent in, obtusely lobed above, and four-cleft, the lower segment somewhat longer: filamenta a little broader at top, crooked at bottom; antheræ at first large, turgid, ovate, cloven almost to the base, yellowish, and often spotted, afterwards changing both their form and situation in a singular manner; germen rather conical, very hairy; stigma bifid; nectary a gland surrounding the base of the germina; the lowermost valve of the capsule splits in two; seeds dark-brown, truncate at both ends. The corolla is generally of a fine purple; but it varies into different shades of that colour, and is frequently white or cream-coloured. Some, says Parkinson, thinking Foxglove to be a foolish name, do call them Finger-flowers, because they resemble the fingers of a glove with the ends cut off.—It flowers from June to August, and is a native of Denmark, Germany, Switzerland, and Britain. It is found in sandy and gravelly soils, and grows plentifully about Charlton-wood, and Norwood, near London. The Digitalis Purpurea, or common Purple Foxglove, has long been considered as a plant possessed of very powerful virtues. A drachm of the powdered leaves, taken inwardly, excites violent vomitings. It is certainly a very active medicine, and merits great attention; and it is singular that a plant, so powerful in its operations, should not sooner have been introduced into the modern materia medica. The country people in Somersetshire are said to have been long in the habit of using it, in decoction, for fevers, to purge and vomit, which it often brings on in too violent a degree. The Italians call this plant *aralda,* and have a proverb concerning it, *aralda tutte piaghe salda,* "Foxglove cures all sores." Parkinson declares it to be effectual in the falling sickness, if two handfuls of it be boiled in ale with four ounces of Polypody of the Oak, and the decoction drank by the patient; and that they who had laboured under that disease twenty-six years, falling down twice or thrice every month, were perfectly restored by the use of this decoction, and did not fall into a fit for the space of fourteen or fifteen months after. The dried leaves applied, or the juice made into an ointment, has been highly commended in ulcers, king's evil, &c. as well as the bruised flowers made into an ointment with fresh or May butter. The diuretic effects of Foxglove, for which it is now so deservedly celebrated, and on which account, as well as for its other powers, it is so much used in dropsical cases, seem to have been first ascertained by Dr. Withering; yet he observes, that it seldom succeeds in men of great natural strength, tense fibre, warm skin, and florid complexion, or in a tight cordy pulse. If the belly in ascites be tense, hard, and circumscribed, or the limbs in anasarca be solid and resisting, we have but little hope. On the contrary, if the pulse be feeble or intermitting, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, the anasarcous limbs readily pitting under pressure of the finger, we may expect the diuretic effects to follow in a kindly manner. In hydrothorax, or water in the chest, striking proofs are said to have been afforded of the efficacy of Foxglove. The dose of the dried leaves in powder is from one to three grains a day; but if a liquid medicine be preferred, a drachm of the dried leaves is to be infused for four hours in half a pint of boiling water, adding to the strained liquor an ounce of any spirituous water. The first dose of this infusion for an adult may be about half an ounce three times a day, increased by about a drachm daily till the desired effect follows, unless the reduction of the pulse, and other symptoms, arise to an alarming degree.—If the seeds of this plant be permitted to scatter, the young plants will come up in the spring, and require only to be weeded out where they are too numerous. The seeds of this, and of the other sorts, should be sown in autumn; for those which are sown in the spring seldom succeed, or at least lie a year in the ground before they grow.

2. Digitalis Minor; *Small Foxglove.* Corollas obtuse; upper lip slightly two-lobed; leaves entire, according to Withering very slightly notched; stem even, shorter by half than that of the first species; peduncles villose; flowers very like those of first species in form, size, and colour, but the dots of the palate are more copious and without the pale iris; the upper lip is more deeply two-lobed, the lower very obtuse, and the lateral segments reflex.—Native of Spain; perennial.

3. Digitalis Thapsi; *Spanish Foxglove.* Leaves decurrent, tomentose, veined, serrate; the lower lanceolate-ovate, the upper broad-lanceolate, all decurrent, and having the decurrent sides reflex. The bunch or spike of flowers the same as in the first species; the corolla purple, with a pale throat, over which are sprinkled blood-red dots; border four-cleft; the upper lobe undivided, the lower longer and ciliate.—Perennial; flowering from June to August; and a native of Spain.

4. Digitalis Lutea; *Small Yellow Foxglove.* Calicine leaflets lanceolate; corollas acute; upper lip bifid. It has very long obtuse leaves near the root; the stalk is small, and rises from two to three feet high. It is distinct from the next species, in having the leaves smooth, harder, and narrower; the flowers small, thicker in the spike, pale, not spotted; the segments of the calix and corolla acute, triangular; the spike long and dense, of small yellow flowers. Perennial; flowering in July and August.—Native of France, about Geneva, in Switzerland, Silesia, Carniola, and about Salerno and Naples.

5. Digitalis Ambigua; *Greater Yellow Foxglove.* Calicine leaflets lanceolate; helmet of the corolla emarginate; leaves pubescent underneath. The upper part of the stalk is adorned with large yellow flowers, nearly of the same size with those of the first sort, the brim having acute points, and the upper lip being entire; the stem is two feet high, and pubescent. It flowers in July and August.—Native of Germany, Switzerland, Geneva, Austria, and Piedmont.

6. Digitalis Ferruginea; *Iron-coloured Foxglove.* Calicine leaflets ovate, obtuse, spreading; lower lip of the corolla bearded. Stem strict, even, six feet high; leaflets sessile, lanceolate, even, marked with lines, quite entire; flowers in an upright raceme from each of the upper axils; bractes linear-lanceolate, reflex; pedicels very short, solitary; the three upper leaves of the calix approximating; corolla a little longer than the calix, pubescent, yellowish within; the two upper divisions obscure, the side ones sharp, the lowest longer; stamina flexuose, without any rudiment of a fifth; style the length of the flower, which expands in June, and has the colour of rusty iron.—Native of Italy, and found about Constantinople.

7. Digitalis Obscura. *Willow-leaved Foxglove.* Leaves linear-lanceolate, quite entire, growing together at the base. Stem undershrubby, with a few opposite branches; flowers on terminating racemes; corollas drooping, obtuse, yellowish within, reticulated, and rufous at the bottom, pale rufous on the outside, especially at the back; upper lip half cloven and recurved, lower three-parted, the middle part a little longer than the others.—It flowers in July and August; and it a native of Spain.

8. Digitalis Canariensis; *Canary Shrubby Foxglove.* Calicine leaflets lanceolate; corollas two-lipped, acute; stem shrubby. It rises sometimes four, and even five or six feet high, dividing into several branches; leaves lanceolate, rough, nearly five inches long, and two broad in the middle, gradually decreasing to both ends, having a few short serratures on their edges, placed alternately on the branches, each of which is terminated by a loose spike of flowers, nearly a foot in length: they are of an orange colour, intermixed with yellow, and are shaped somewhat like the flowers of Acanthus.—Native of the Canary Islands. It begins to flower in May, and there is generally a succession of flowers on the same plant till the winter puts a stop to them, which renders the plant more valuable. It is propagated by seeds, which should be sown in pots filled with light earth, in the autumn, soon after the seeds are ripe. Those pots ought to be plunged into an old bed of tanner's bark, the heat of which is exhausted, and in mild weather the glasses ought to be drawn off to admit the air; but in hard rains and frosts they must be kept on, to protect the seeds from both which frequently destroy them when exposed in our climate. The plants will come up in the spring, and should enjoy the free air in mild weather, but must be protected from the cold. When these are large enough to transplant they should be each planted into a separate small pot filled with light earth, and placed under the frame till they have taken new root, and ought then to be gradually inured to the open air. They must have a sheltered situation during the summer, but in the winter must be placed in a green-house, for they will not live abroad in England. They must not be kept too warm and close in the house, for they only want protection from the frost, and in mild weather require abundance of free air and frequent waterings.

9. Digitalis Sceptrum; *Madeira Shrubby Foxglove.* Calicine leaflets subulate; bractes linear, longer than the flowers; corollas obtuse; leaves elliptic, serrate; stem shrubby. This is a very handsome plant, the branches of which are rough with hairs; pedunele terminating the branch, solitary, round, upright, a hand or more in length, porous on the inside, ending in an ovate spike, with the flowers hanging down. It flowers in July and August.—Native of Madeira, in woods. For the propagation and culture of this plant, see the preceding species.

10. Digitalis Orientalis; *Oriental Foxglove.* Calicine leaflets acute; leaves oval-lanceolate, nerved. Root leaves many, smooth; among these arises the stalk about a foot high; the leaves on it are smooth, from four to five inches long, and one inch and a half broad in the middle, half stem-clasping; spike terminating, short, loose: corollas yellow, almost as large as those of the fifth species, but shorter It flowers in May, and the seeds ripen in Autumn.—Native of Tartary.

11. Digitalis Cochin-chinensis. Leaves lanceolate, rough; flowers solitary, axillary; calices acute; corollas obtuse, emarginate at top. Stem herbaceous, a foot and half high, almost upright; capsule ovate, acute, two-celled.—Native of Cochin-china.

12. Digitalis Sinensis. Leaves ovate, hairy on both sides; flowers solitary, axillary; segments of the calix awl-shaped; corollas obtuse, entire at top. Stem cespitose, erect, a foot and half high, round, smooth; stigma screw-shaped.—Native of China.

Dilatris; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* six-petalled, superior; petals ovate-lanceolate, concave, from erect spreading, equal, hirsute on the outside, permanent. *Stamina:* filamenta three, subulate, shorter than the corolla, the third less than the other two; antheræ ovate-lanceolate, two-furrowed, that on the smaller filamenta larger. *Pistil:* germen inferior; style filiform; stigma simple, obtuse. *Pericarp:* capsule globular, extremely hirsute, three-celled, three-valved. *Seeds:* solitary, orbicular, compressed, smooth, perpendicular. Essential Character. *Calix:* none. *Corolla:* six-petalled, hirsute. *Filamenta:* one less than the others. *Stigma:* simple.—For the propagation and culture of this genus of plants, see *Wachendorfia.*——The species are,

1. Dilatris Umbellata. Petals ovate; corymb fastigiate, hirsute. The whole plant hoary, and very villose, except the inside of the flower; root fibrous; root-leaves like those of Cyperus, even, strict, erect, one or two only on the stem, lanceolate, short, orange at their base; flowers numerous, pale lilac; stalks red, hairy.—Native of the Cape

2. Dilatris Viscosa. Petals linear; corymbs fastigiate,

villose, viscid. This species is larger than the preceding with broader leaves; the stem and infloresence more hairy and viscid.—Native of the Cape.

3. Dilatris Paniculata. Petals lanceolate; panicle oblong, villose, viscid; flowers of a yellowish purple colour.—Native of the Cape of Good Hope.

Dill. See *Anethum.*

Dillenia; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* perianth five-leaved; leaflets obovate, obtuse, concave, leathery, smooth within, villose without, permanent. *Corolla:* petals five, obovate, narrowed at bottom, very blunt, very finely subcrenate, somewhat concave, longer than the calix, deciduous. *Stamina:* filamenta scarcely any; antheræ very numerous, inserted into the base of the germen, linear, orange with a black line, shorter than the calix. *Pistil:* germen superior, ovate; styles several, erect, simple, longer than the antheræ; stigmas simple. *Pericarp:* roundish, outwardly coated with as many oblong capsules, which are longitudinal, and divided by a furrow, inwardly by a columnar, very large, pulpy receptacle. *Seeds:* numerous, very small, nestling under the capsules. Essential Character. *Calix:* five-leaved. *Petals:* five. *Capsules:* many seeded, connate, filled with pulp.—This genus consists of beautiful trees, natives of the East Indies: their leaves are large, and of a leathery substance; their flowers axillary or terminating, sometimes very large; the fruit approaching to that of Clusia.——The species are,

1. Dillenia Integra. Leaves obovate, obtuse, almost entire; pedunclesone-flowered. Branches, alternate, wrinkled, dusky, smooth; flowers terminating on the extreme branchlets, subsolitary, peduncled.—Native of Ceylon; where the inhabitants use a decoction of the leaves for cleansing foul ulcers, and have named the tree *gudapara* and *runumidale.*

2. Dillenia Speciosa. Leaves oblong, round-acute, toothletted; peduncles one-flowered. This is a lofty tree, with thick, wrinkled, ash-coloured, smooth branches; leaves a foot in length, and a hand in breadth; petioles thick, scarcely an inch in length; flowers on the branchlets terminating.—Native of Java and Malabar

3. Dillenia Elliptica. Leaves elliptic-ovate, acute, serrate; peduncles one-flowered; flowers terminating. Native of Amboyna, Celebes, and Macassar.

4. Dillenia Retusa. Leaves obovate, truncate, serrate; peduncles one-flowered. Branches alternate, wrinkled, dusky, smooth; petioles semi-cylindric, channelled, hirsute at the base, scarcely an inch long; flowers terminating.—Native of the woods of Ceylon.

5. Dillenia Serrata. Leaves elliptic-ovate, acute, serrate; peduncles three-flowered. pedicelled.—Native of Celebes, Macassar, and Java.

6. Dillenia Dentata. Leaves ovate, retuse, toothed; peduncles three-flowered. Branches alternate, wrinkled, ash-coloured, smooth; petioles angular, smooth, a little shorter than the leaf; pedicels alternate, smooth, half an inch long. According to Vahl, the peduncles are frequently from four to eight flowered, branching at the base.—Native of Ceylon, where the natives call it *diapara.*

7. Dillenia Pentagynia. Leaves ovate-lanceolate, serrate, sharp; flowers pentagynous. It is a large tree, with numerous ascending branches; leaves from twelve to twenty inches long, and four to six broad; flowers small, yellow, on simple stalks, growing many together in bundles along the branches; pericarp pendulous, size of a small nutmeg; seeds reniform.—It flowers in March and April, and is a native of the mountainous parts of Coromandel.

Dimorpha; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, rounded at the base, deeply three or four-cleft, obtuse. *Corolla:* petals very wide, ventricose, convolute at the sides, crenulate, inserted into the calix below the stamina, placed at the lower side. *Stamina:* filamenta diadelphous, (single at the opening of the petal, and nine-cleft, incumbent on the middle of the petal,) ascending, longer than the corolla; antheræ parallelopiped, incumbent. *Pistil:* germen pedicelled, compressed, short; style longer than the stamina; stigma simple. *Pericarp:* legume large, obliquc, compressed, one-celled. *Seed:* single, or few. Essential Character. *Petal:* one, large, convolute, in place of the keel; standard and wings none.——The species are,

1. Dimorpha Falcata. Leaves pinnate; pods falciform. A tall tree, upwards of sixty feet high, very much branched at top, and branches much scattered; flowers numerous, spiked; spikes alternate, extremely long, pendulous, axillary, and terminal.—Native of the woods of Guiana; where it flowers in September.

2. Dimorpha Grandiflora. Flowers larger than in the other species. A large tree, with a trunk more than two feet in diameter; the wood is reddish, solid, and compact, and is used for various important purposes: it flowers in September.—Native of Guiana.

3. Dimorpha Tomentosa. Legume tomentose. A tree upwards of twenty feet high, very much branched at top, and branches much scattered; flowers scattered, terminal, axillary, appearing in September.—It grows on the banks of the rivers in Guiana.

Diodia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth two-leaved; (according to Gærtner, two or four leaved;) leaflets subovate, superior, equal, permanent. *Corolla:* one-petalled, funnelform; tube slender, long; border small, spreading, four-parted; divisions lanceolate. *Stamina:* filamenta four, bristle-shaped, upright; antheræ versatile. *Pistil:* germen roundish, four-sided, inferior; style filiform, length of the stamina; stigma two-cleft. *Pericarp:* capsule ovate, four-cornered, crowned, larger than the calix, two-celled, two-valved; (according to Gærtner, valveless, bipartile, eight-furrowed.) *Seeds:* solitary, ovate-oblong, polished, convex, and furrowed on the outside, flat on the inner. Essential Character. *Corolla:* one-petalled, funnel-form. *Capsule:* two-celled, two-seeded.——The species are,

1. Diodia Virginica. Stem branching, procumbent, smooth and even, red; branches alternate; leaves opposite; flowers white. The calix in some is two-leaved only, in others unequally four-leaved, that is, with two very minute leaves placed in the interstices of the larger, and this even seems to be the more natural number.—Native of Virginia.

2. Diodia Simplex. Stem herbaceous, simple, almost erect, smooth, and even; leaves ovate-lanceolate.—Native of the island of Jamaica.

3. Diodia Prostrata. Stem suffruticose, subdivided; branches prostrate, filiform; leaves linear, somewhat hirsute, revolute.—Native of Jamaica.

4. Diodia Scandens. Stem scandent, suffruticose; leaves ovate-lanceolate, rigid, rugged.—Native of Hispaniola.

5. Diodia Sarmentosa. Stem flaccid, shrubby; branches opposite, spreading; leaves oblong, acute, somewhat rugged.—Native of Jamaica.

6. Diodia Verticillata. Smooth: leaves lanceolate, in whorls, rugged at the edge; stem herbaceous, erect, simple, a foot high, smooth, as is the whole plant, and even; flowers several together in whorls, inclosed by the stipule; the terminating whorl larger than the others; capsule two-celled,

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

DRACONTIUM PERTUSUM — *Perforate-leaved Dragon.*

DIONÆA MUSCIPULA - *Venus's Fly Trap.*

linear, somewhat compressed, ciliate on both sides at top, crowned with two teeth.—Native of Santa Cruz.

Dionæa; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved, upright; leaflets oblong, acute, permanent. *Corolla:* petals five, sessile, oblong, obtuse, concave. *Stamina:* filamenta ten, subulate, shorter; antheræ roundish; pollen tricoccous. *Pistil:* germen roundish, depressed, crenate; style filiform, shorter than the filamenta; stigma spreading, fringed on the edge. *Pericarp:* capsule one-celled, gibbous. *Seeds:* very many, subovate, very small, affixed to the base of the capsule. *Observe.* The number of stamina is not always constant. Essential Character. *Calix:* five-leaved. *Petals:* five. *Capsule:* one-celled, gibbous, containing many seeds: ——The only known species is,

1. Dionæa Muscipula; *Venus's Fly Trap.* This is a very singular plant: root squamous, sending forth but few fibres, like those of some bulbs, and perennial; stalk about six inches high, round, smooth, without leaves, ending in a spike of flowers; leaves many, ciliated, inclining to bend downwards, and placed in a circular order, jointed, succulent; the lower joint, which is a kind of stalk, is flat, longish, two-edged, and inclining to heart-shaped; in some varieties they are serrate on the edges near the top; the upper joint consists of two lobes, each semioval, the margins furnished with stiff hairs, like the eye-lashes, embracing or locking into each other when they are close: this they do when they are irritated within: the upper surface of these lobes is covered with small red glands, appearing, when highly magnified, like the compressed fruit of the Arbutus; among the glands, about the middle of each lobe, are three very small erect spines. The lobes are so remarkably irritable or sensitive, that if a fly settles on the leaf, the lobes immediately close, and never open again while it continues there; if it can be extracted so as not to strain the lobes, they expand again, but if force be used to open them so strong has nature formed the springs of their fibres, that one of the lobes generally snaps off rather than yield. The flowers are milk-white, on peduncles, with a little pointed bracte at the bottom of each. What Mr. Ellis calls the lower joint of the leaf, Linneus looks upon as the petiole winged in the same manner as in the orange. The stem is a scape; the flowers grow in a corymb, resembling an umbel; the petals are marked with seven streaks, and bending at the end. Linneus asserts, that when the entrapped insect ceases to struggle, and is quiet, the leaf opens and permits it to escape; which disagrees with Ellis's account, for the latter affirms, that the lobes never open again, so long as the animal continues there. He thinks it probable that a sweet liquor discharged by the red glands, tempts the insect to its destruction; and adds, that if a straw or pin be introduced between the lobes, they will grasp it as fast as if it were an insect.—It is a native of the swamps of North Carolina, near the confines of South Carolina, where the winters are short, and the summers very hot: it flowers in July and August. Being a swamp plant, a north-east aspect will be the most proper to plant it in, to avoid the direct rays of the meridian sun; and in winter it will be necessary to shade it with a bell-glass, which should be covered with straw or mat in hard frosts. Its sensitive quality will be in proportion to the heat of the weather, and vigour of the plant. It may also be planted in pots of light moorish earth, for in such the plants are imported, and should be placed in pans of water in an airy stove, where the heat of such a situation, being like that of its native country, will make it surprisingly active; but the heat of our summers is not sufficient to ripen the seed.

Dioscorea; (Indian Yam) a genus of the class Dicœcia, order Hexandria.—Generic Character. *Male. Calix:* perianth one-leafed, bell-form, six-parted; divisions lanceolate spreading at top. *Corolla:* none, unless the calix be so termed *Stamina:* filamenta six, capillary, very short; antheræ simple *Female. Calix:* perianth as in the male. *Corolla:* none *Pistil:* germen very small, three-sided; styles three, simple stigmas simple. *Pericarp:* capsule large, triangular, three-celled, three-valved. *Seeds:* in pairs, compressed, girt with a large membranaceous border. Essential Character *Male. Calix:* six-parted. *Corolla:* none. *Female. Calix* six-parted. *Corolla:* none. *Styles:* three. *Capsule:* three celled, compressed. *Seeds:* two, membranaceous.—These plants may be propagated by laying their branches into the ground, where in about three months they will put out roots, and may then be taken from the old plants, and put into separate pots, which should be plunged into the tan-bed in the stove: during winter they should have a little water, but in summer, when they are growing vigorously, they should be watered three or four times a week, and have their glasses open, to admit a large portion of free air in warm weather. When seeds are received, they should be immediately sown in pots, and plunged into a hot-bed, where, if it be early in the spring, the plants will come up in the same season; but when they are sown late, the seeds often remain in the ground till the following season before they vegetate, in which case the pots must be screened from frost during the winter, and put into a new hot-bed in the spring. They may also be increased by cutting the roots in pieces, as is practised for potatoes, putting each piece in a pot filled with fresh earth, and plunged into the bark-pit, giving them little water until they shoot, lest they should rot. The roots do not grow to any great size in our climate; and the plants having little beauty, seldom flowering, and requiring much care and room, are not often allowed a place in our stores, except in very curious collections.——The species are,

1. Dioscorea Pentaphylla. Leaves digitate. Root very large and thick; stalks spiny, slender; flowers first yellow, then turning blackish.—Native of the East Indies and the Society Isles.

2. Dioscorea Triphylla. Leaves ternate. The leaves are above dusky green, beneath smooth and shining, with whitish prominent nerves, on long petioles; stalks round, slender, smooth, spiny; seeds in pairs, semielliptic, about an inch long, of a cinnamon colour.—Native of Malabar.

3. Dioscorea Trifida. Leaves cordate, trifid; stem winged, bearing tubers.—Native of Surinam.

4. Dioscorea Aculeata. Leaves cordate; stem prickly, bulb-bearing, suffruticose, turning round, slender, very much branched, with many straight, short, scattered prickles; flowers in long, spiked, lateral racemes; the calix has from three to six acute, very short, unequal, spreading leaflets; the corolla exhibits six ovate concave petals, almost closed, and of a dusky purple colour; filamenta awl-shaped, equal to the corolla, with roundish antheræ; germen inferior.—Native of Malabar and Cochin-china.

5. Dioscorea Alata. Leaves cordate; stem winged, bulb-bearing. Root a foot or more long, as big as a man's leg or thigh, brown on the outside, within white, or reddish purple, viscid, but when boiled very mealy; stalk the size of a goose-quill, square, with a thin reddish membrane at each corner, winding itself round poles nine or ten feet high, and putting out leaves at every three inches' distance, opposite, on square winged footstalks, two inches long; peduncles axillary, an inch or more in length, with small flowers of a yellowish green colour.—Native of both Indies, where it is cultivated

for food, as well as the sixth and seventh species. The roots are frequently three feet long, and weigh thirty pounds.

6. Dioscorea Bulbifera. Leaves cordate; stem even, bulb-bearing. Stalks slender, somewhat woody.—Native of both Indies, and of the islands in the South Seas.

7. Dioscorea Sativa; *Cultivated Dioscorea*, or *Yam*. Leaves cordate, alternate; stem even, round. It has slender stalks, climbing to the height of eighteen or twenty feet, not winged, but round. There is much confusion in the synonyms of this plant. It is a native of the East and West Indies, and of Japan. The Yam is largely cultivated for food in Africa, and in the East and West Indies, especially by the negroes of the latter; the roots grow to a considerable size, are mealy, and esteemed to be easy of digestion; they are palatable, and not inferior to any roots now in use, either for delicacy of flavour, or nutritive qualities; they are eaten instead of bread, either roasted on the embers or boiled, and the flour of them is also made into bread and puddings. In Otaheite they make a dish which the natives esteem very delicious, from the roots of the Yam, with the kernel of the cocoa-nut scraped, and the pulp of the banana. There are many varieties of the roots, some spreading out like the fingers, others twisted like a serpent, others again very small, scarcely weighing more than a pound, with a whitish ash-coloured bark, whereas the bark is commonly black. The flesh of the raw Yam is white or purplish, and viscid, but becomes farinaceous, or mealy, when dressed. The above-named varieties were found in Othaheite.—The Yam is a native of Florida and Maryland.—*Cultivation of the Yam.* The roots (according to Brown) must be cut so as to have a little of the skin to each piece, for by that alone they germinate, the roots having no apparent buds or eyes, but casting out their weakly stems from every part of the surface alike; two or three plants are put into each hole, which holes are dug pretty regular, a foot and a half or two feet square; these are afterwards filled from the adjoining banks, and the whole piece is covered with cane trash, which serves to keep the ground cool and fresh, and to prevent the growth of weeds, from which they must be carefully preserved, until they grow sufficiently to cover the mould. They are planted commonly in August, and are ripe about November and December following: care should be taken to wound the roots as little as possible in digging them up, for such as are cut throw out their sprouts very early, and are therefore seldom fit for any thing but planting. They should be rubbed over with ashes, and piled regularly on beds or hurdles raised above the floor, that the air may come easily between them; or if they be piled in heaps, some ashes should be strewed between the layers.

8. Dioscorea Villosa. Leaves cordate, alternate, and opposite; stem even. The flowers come out on long loose strings on short pedicels.—Native of Florida and Maryland.

9. Dioscorea Oppositifolia. Leaves opposite, ovate, acuminate. Stem round, woody, twining, unarmed; racemes of male flowers axillary, opposite, solitary, subvillose, composed of three cylindric aments; the flowers are almost sessile.—Native of the East Indies, Japan, and Cochin-china; where the roots are preferred to all others.

10. Dioscorea Septemloba. Leaves cordate, seven-lobed, seven-nerved. The whole of this plant is smooth; stem round, climbing; flowers axillary, in racemes, very small; capsule ovate, triangular, with the corners winged, emarginate, with the style permanent.—Native of Japan.

11. Dioscorea Quinqueloba. Leaves cordate, five-lobed, nine-nerved. Stem filiform, twining, very long, with the rest of the plant smooth; petioles swelling at top and bottom, reflex, a finger's length; racemes axillary, two or three, loose, near a span in length; flowers on patulous pedicels, a line in length, three or four together; bractes ovate, acute; calix saffron-coloured; germen inferior, smooth.—Native of Japan.

12. Dioscorea Japonica. Leaves cordate, acuminate, nine-nerved. The whole plant is smooth; stem filiform, angular, twining, branched; branches scattered, few, resembling the stem; petiole somewhat angular, reflex, spreading, nearly the length of the leaf; spikes axillary, one or two together, spreading, longer than the leaves; the rachis regular.—The root of this species is cut into slices, boiled, and eaten, in Japan; where it is a native.

13. Dioscorea Hastata. Leaves hastate; stem even; racemes very long. This differs from the seventh species in the shape of its leaves, which have two round ears at their base, but the middle extends to an acute point, like an halbert; the bunches of flowers are also longer and looser than those of the seventh species.

14. Dioscorea Eburina. Leaves heart-shaped, seven-nerved, alternate; flowers hermaphrodite, in simple long racemes. Stem shrubby, unarmed, long, twining; the branches and petioles four-cornered; calix three-leaved, with ovate erect leaflets; corolla three-petalled, ovate, fleshy, yellow, concave, nearly equal to the calix; filamenta hardly any; antheræ roundish, two-celled, very small; germen inferior, oblong, three-sided, without any style, but three oblong reflex stigmas; capsule oblong oval, the angles entering deep; seeds ovate, few. Root vertical, consisting of one or two tubers, three feet long, round, angular, sharpish, curved a little in shape and whiteness resembling elephants teeth, whence the vernacular name *khoai ngu*, and the trivial, *eburina*.—Native of Cochin-china.

15. Dioscorea Cirrhosa. Leaves ovate-lanceolate, three-nerved; flowers hermaphrodite, three-stamined; stem cirrhose Stem shrubby, long, slender, climbing; flowers very small, axillary, on three-flowered peduncles; calix six-leaved, superior; leaflets ovate, thick, curved, almost closed, permanent, in a double row, of which the inner is smaller; corolla and filamenta none. The root a middle-sized irregular tuber.—Native of Cochin-china.

Diosma; (African Spiræa) a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, acute, permanent. *Corolla:* petals five, ovate, obtuse, sessile, erect, spreading; nectaries five, placed on the germen. *Stamina:* filamenta five, subulate; antheræ subovate, erect. *Pistil:* germen crowned with the nectary; style simple, the length of the stamina; stigma obscure. *Pericarp:* capsules five, ovate-acuminate, compressed, conjoined inwardly at the margin, distant at the tips, gaping at the upper suture. *Seed:* solitary, oblong, ovate-depressed, acuminate at the point; an elastic aril, gaping on one side, involving each seed. Essential Character. *Corolla:* five-petalled. *Nectary:* five on the germen. *Capsule:* three or five, conjoined. *Seeds:* veiled.—All these plants are propagated by cuttings, which may be planted during any of the summer months, in pots filled with light fresh earth, and plunged into a very moderate hot-bed, where they should be shaded in the day-time from the sun, and frequently refreshed with water. In about two months the cuttings will have taken root, when they should be each transplanted into a small pot, and placed in a shady situation, until the plants have taken fresh root, when they may be placed in a sheltered situation with other plants; they may remain abroad until the beginning of October, or later, if the season continue favourable; for they only require to be sheltered from frost, so that in a very dry airy green-house they may be

preserved very well in winter, and in summer they may be exposed to the open air with other green-house plants. The great beauty of the bloom, and the fragrant smell, of many of these plants, particularly entitle them to a place in collections of the shrub kind.——The species are,

1. Diosma Oppositifolia; *Opposite-leaved Diosma.* Leaves subulate, acute, opposite. It rises to the height of three feet; the branches are very long and slender, and are very irregularly produced from the stem; the leaves are placed cross-wise, in pairs, and are pointed; every evening they close up to the branches: the flowers are produced along the branches from between the leaves, and in the evening, when they are expanded, and the leaves closely embrace the branches, the whole plant appears as if covered with spikes of white flowers; and as it continues a long time in flower, it makes a fine appearance when intermixed with other exotics in the open air.—Native of the Cape.

2. Diosma Hirsuta; *Hairy-leaved Diosma.* Leaves linear, hirsute. This sort makes a very handsome shrub, growing to the height of five or six feet; stalks woody, sending out many slender branches; the leaves come out alternately on every side; flowers in small clusters at the ends of the shoots, they are white, and are succeeded by starry seed-vessels, having five corners, like those of the starry Anise; each of these corners is a cell, containing one smooth, shining, oblong, black seed: these seed-vessels abound with a resin which affords a grateful scent, which is common to the whole plant. This species frequently ripens its seeds in England; but if they are not sown soon after they are ripe, they rarely grow, or at least lie a whole year in the ground.—Native of the Cape.

3. Diosma Rubra; *Red-flowered Diosma.* Leaves linear, mucronate, smooth, keeled, dotted in two rows beneath. This plant seldom exceeds three inches in height, and spreads out into many branches, with leaves resembling those of Heath; flowers in clusters at the ends of the branches, like those of the second species, but smaller, and the bunches not so large. The leaves, when bruised, emit a strong balsamic odour.—Native of the Cape.

4. Diosma Ericoides; *Sweet-scented Diosma.* Leaves linear-lanceolate, convex beneath, imbricate in two rows. It is a low bushy shrub, which seldom rises above two feet high, but spreads out its branches far on every side; the leaves are narrow and smooth, of a light-green colour, and being ranged on each side the branches, appear flat on the upper and under side, and when bruised, emit a very strong penetrating odour; the flowers are produced singly from between the leaves; they are white, and tinged on their upper surface.—It is a native of the Cape.

5. Diosma Capensis; *Cape Diosma.* Leaves linear, three-sided, dotted beneath, opposite; flowers white in a corymb. The barren stamina have almost the appearance of petals.—Native of the Cape.

6. Diosma Capitata; *Headed Diosma.* Leaves linear, imbricate, scabrous, ciliate; flowers in spiky heads. Stem proliferous, two feet high, erect, brown, having the appearance of a large Heath; flowers purple, sessile, and forming a head; calix imbricate; leaflets (the inmost and true ones only five) ovate, pubescent at the edge; petals roundish, with the claws the length of the calix; nectaries very small, awnless.—Native of the Cape.

7. Diosma Unicapsularis; *One-capsuled Diosma.* Leaves linear-lanceolate; capsules one-celled; branches wand-like, even; leaves alternate, subpetioled, linear-lanceolate, even above, longitudinally wrinkled underneath, smooth, quite entire at the edge, but as it were serrate with pellucid dots; peduncles lateral, few-flowered, much shorter than the leaves; flowers minute; capsules usually solitary, bent in, and having a beak of the same length.—Native of the Cape.

8. Diosma Latifolia; *Broad-leaved Diosma.* Leaves ovate-crenate; peduncles axillary, solitary; stem villose. Branches somewhat pubescent; leaves petioled, crenulate above the edge with pellucid dots, every notch dotted on the disk, bluntish, scarcely acute.—Native of the Cape.

9. Diosma Marginata; *Margined Diosma.* Leaves cordate-attenuated, membranous-edged, erect, with the branches scarcely pubescent; leaves remote; flowers from the upper axils of the leaves, solitary or in pairs; the peduncles longer than the leaf; stamina five, real; nectaries five from alternate filamenta, having at the tip a black larger antherine gland, bifid at the base, with a small yellow head.—Native of the Cape.

10. Diosma Barbigera; *Bearded Diosma.* Leaves cordate, stem-clasping; petals bearded, branching. Leaves sessile, opposite, mucronate, even, dotted underneath; corymbs terminating, subsessile; calix five-cornered; petals small, and bearded with white.—Native of the Cape.

11. Diosma Tetragona; *Quadrangular Diosma.* Leaves cordate, retuse, folded together and keeled, ciliate; branches one-flowered. This species is singular, and is distinguished from the rest by the leaves being so closely together, that the whole stem is covered with them; by the branches being quadrangular and thicker toward the top; and by the large, solitary, and terminating flower.—Native of the Cape.

12. Diosma Cupressina; *Heath-leaved Diosma.* Leaves ovate, three-cornered, imbricate; flowers solitary, terminating, sessile. Branches filiform, erect, alternate, covered with alternate minute leaves like those of Heath, subscabrous, sessile, erect, terminating in a coloured callosity; calix membranaceous, lanceolate, erect; petals often four, obovate, twice as long as the calix, attenuated gradually into the claws; stamina erect, the length of the calix.—Native of the Cape.

13. Diosma Imbricata; *Imbricated Diosma.* Leaves ovate, mucronate, imbricate, ciliate. The petals are purplish and roundish, with the claws three times the length of the calix.—Native of the Cape.

14. Diosma Lanceolata; *Spear-shaped Diosma.* Leaves elliptic, obtuse, smooth. They have a few hairs on both sides.—Native of the Cape.

15. Diosma Ciliata; *Ciliated Diosma.* Leaves lanceolate, ciliate, wrinkled. Petals oblong, with the claws scarcely longer than the calix. Native of the Cape.

16. Diosma Crenata; *Crenated Diosma.* Leaves lanceolate-oval, opposite, glandular-crenate; flowers solitary. Leaves of the calix subulate and crenate.—Native of the Cape.

17. Diosma Uniflora; *One-flowered Diosma.* Leaves ovate, oblong; flowers solitary, terminating. Leaflets of the calix ovate, large, and almost broader than the leaves.—Native of the Cape.

18. Diosma Pulchella; *Oval-leaved Diosma.* Leaves ovate, obtuse, glandular-crenate; flowers twin, axillary. The flowers are hermaphrodite, but the fruit is three-celled. The horns of the germen are each of them terminated by two glands. The Hottentots use the leaves of this species dried and powdered, under the name of *bucku*, to mix with the grease with which they anoint themselves, which gives them so rank an odour, that the chevalier Thunberg declares he could not bear the smell of the men who drove his waggon.—Native of the Cape.

19. Diosma Asiatica; *Asiatic Diosma.* Leaves lanceolate, alternate; racemes subterminating. It is a small tree, six feet high, spreading, and very much branched; leaves quite entire, smooth; flowers yellow, in compound racemes; an-

theræ sessile, linear, at the side of the nectary, converging at top; capsules somewhat kidney-form, each on its proper peduncle; seeds destitute of an aril.—Native of Cochin-china.

Diospyros; a genus of the class Polygamia, order Dicœcia; or, according to Thunberg, of the class Octandria, order Monogynia.—Generic Character. *Hermaphrodite female. Calix:* perianth one-leafed, four-cleft, large, obtuse, permanent. *Corolla:* one-petalled, pitcher-shaped, larger, four-cleft; divisions sharp, spreading. *Stamina:* filamenta eight, bristle-form, short, almost inserted into the receptacle; antheræ oblong, unproductive. *Pistil:* germen roundish; style single, half four-cleft, permanent, longer than the stamina; stigmas obtuse, two-cleft. *Pericarp:* berry globose, large, eight-celled, sitting on a very large spreading calix. *Seeds:* solitary, roundish, compressed, very hard. *Male*, in a distinct plant. *Calix:* perianth one-leafed, four-cleft, sharp, upright, small. *Corolla:* one-petalled, pitcher-shaped, leathery, four-cornered, four-cleft; divisions roundish, rolled back. *Stamina:* filamenta eight, very short, inserted into the receptacle; antheræ double, long, sharp, the interior shorter. *Pistil:* rudiment of a germen. Essential Character. *Hermaphrodite. Calix:* four-cleft. *Corolla:* pitcher-shaped, four-cleft. *Stamina:* eight. *Style:* four-cleft. Berry eight-seeded. *Male. Calix, Corolla,* and *Stamina:* of the other.——The species are,

1. Diospyros Lotus; *European Date-plum.* The two surfaces of the leaves of different colours. The smaller branches spread a little, and are yellowish; leaves oval-lanceolate, large, quite entire, paler underneath, somewhat hoary, with the veins somewhat hairy; flowers small, reddish-white, rotate; fruit the size of a cherry, yellow when ripe, astringently sweet, sessile in the bosom of the leaves, within the calix, which is increased, somewhat cartilaginous, flatted, usually five-cleft, seldom four-cleft. These berries are recommended as a cure for the diarrhœa. Loureiro describes it as a small tree, six feet high, with spreading branches. The broad-leaved variety grows up into very large trees in the southern parts of Caucasus. It is also abundant in the woods of Hyrcania, and along the whole coast of the Caspian sea. Gesner was informed that it grows upon the mountains in the neighbourhood of Verona; and Mr. Ray is pretty confident, that he saw it in his way from Lerici to Lucca, and not far from the latter place. It is also found in the woods on the hills about Turin, plentifully about Lyons, and upon the eastern coast of Africa, whence it is supposed to have been first imported into Europe. Gerarde says, that, in English, it is called *Bastard Meuynwood*, which name is now quite lost; and Parkinson calls it *India Date-plum.*——This, and the second species, are both propagated by seeds, which will come up well in the open ground, but will appear much sooner if sown upon a moderate hot-bed, as well as make a greater progress: in this case the seeds should be sown in pots or boxes of earth, and plunged into the hot-bed, because the plants will not bear transplanting till autumn, when the leaves fall off; so that, when the plants are up, and have made some progress, they may be inured by degrees to the open air; and in June they may be wholly exposed, and may remain abroad until November, when it will be proper to set the pots under a hot-bed frame, to protect them from hard frost, which might kill the tops while they are very young, but they must have as much free air as possible in mild weather. The following spring, before the plants begin to shoot, they should be transplanted into a nursery, in a warm situation, where they may be trained up for two years, and then removed to the places where they are designed to remain. They are both hardy enough to resist our severest winters.

2. Diospyros Virginiana; *American Date-plum.* The two surfaces of the leaves of the same colour. In England it rises to the height of fourteen or sixteen feet, but generally divides into many irregular trunks near the ground, so that it rarely forms a handsome tree. The branches are many, and grow slender to the end, covered with a thin greenish bark; leaves many, broad, green, without dent or notch on the edges; and is so like the first sort, that it seems, to a slight observer, to be the same. Our European Lotus has a lighter-coloured bark, inclining to yellow on the branches, and yellow and shining on the twigs; the American has a dark-brown bark on the branches, and on the twigs it is grayish from pubescence, so that they are soft to the touch, whereas the others are smooth: fruit, in form, size, and firmness, like a date, and almost as sweet, with a great flat thick kernel within. In England it produces fruit in abundance, but never brings it to perfection. Captain Smith, in the Discovery of Virginia, says, if it be eaten while it is green, it draws the mouth awry by its harsh and binding taste, but is pleasant when ripe; which, however, is not the case till it has been mellowed by the frost, being then very sweet and glutinous, with a little astringency; and a considerable quantity may may be eaten without inconvenience. The Americans extract a spirit from it, and make a palatable liquor with it and malt. The time of ripening is from the end of September to December. The wood is very hard, but brittle, rather white, and very suitable for joiners' tools, such as planes, handles to chisels, &c. but it soon rots if exposed to the weather. It spreads very much, and is not easy to extirpate; but in the northern provinces of the American states it is often killed by frosts in hard winters. In Virginia and Carolina it is called *pishamin* or *persimon*, and there is plenty of it in the woods; as well as in Pennsylvania, New Jersey, Philadelphia, &c. where it is generally found in wet places, round water pits. See the first species.

3. Diospyros Kaki; *The Kaki.* Peduncles three-parted. A middling-sized tree, very branching; branches and twigs alternate, round, dotted, smooth, tomentose at the ends, spreading; leaves alternate, petioled, ovate, acuminate, quite entire, paler underneath, scarce apparently villose, netted-nerved, smooth above, an inch or more in breadth, from an inch to three inches in length, spreading; petioles semicylindric, subtomentose, half an inch long; flowers axillary; peduncles tomentose, half an inch in length; pedicels one-flowered, like the peduncles; fruit a subglobose pome, obscurely four-cornered, smooth, when unripe green, when ripe yellow, truncate at the base, where the calix remains, obtuse, with the stigma also permanent, eight-valved, eight-celled, the size of a middling apple, having nearly the taste of a sweet white plum, fleshy; seeds half-mooned, compressed at one edge, smooth, some of the cells are occasionally barren. The fruit eaten plentifully occasions a diarrhœa in the autumnal months. It is preserved in the same manner as the fig, by sprinkling meal or sugar over it. There is a variety of this species, in which the leaves are oblong-ovate, acute, nerved, a finger's length; the petioles channelled; pome ovate, very obtuse, yellow, with a soft astringent pulp like that of the orange, usually eight-celled, sometimes ten-celled, but very seldom nine-celled, the size of a pigeon's egg, and always barren.—Native of Japan, China, and Cochin-china, with other parts of the East Indies. It differs from the American sorts in its branches, and the pubescence on the lower surface of the leaves.

4. Diospyros Hirsuta. Branches and leaves villose underneath; leaves elliptic, obtuse; flowers axillary, heaped, sessile.—Found by Thunberg, in Ceylon.

5. Diospyros Ebenaster; *Ebony.* Leaves oval-oblong, leathery; buds smooth. This is a very large tree, very smooth in all its parts, and the timber very hard. The small branches have an ash-coloured bark, those which bear the leaves are blackish; the leaves are alternate, on very short petioles, quite entire, obtuse, shining, often spotted, beneath wrinkled with small veins, and as it were a little hoary; berry sessile, ovate, on the four-cleft reflex calix; seeds six to eight, ovate, black, somewhat compressed. It is very like the first species, but the leaves are more ovate, and more hoary underneath. The wood is heavy, compact, and hard, whitish next the bark, but towards the middle very black; this blackness gradually tinges the whole body, in the same manner as the resinous part of the Fir pervades the body by the decaying branches. This is the true Ebony, according to Kœnig and Thunberg: but Loureiro describes the real Ebony as a distinct genus, by the name of *Ebenoxylum.*——Native of the vast woods of Ceylon, Amboyna, Cochin-china, and the East Indies.

6. Diospyros Ebenum; *Green-leaved Ebony.* Leaves ovate-lanceolate, acuminate; buds rough with hairs; leaves about three inches in length, thin, flexible, dark green.—Native of Ceylon; and observed in the woods near Calcutta.

7. Diospyros Lobata. Leaves ovate-lanceolate, smooth on both sides; peduncles one-flowered, axillary; berries eight-lobed. This is a small tree, eight feet high, with spreading branches; flowers white, hermaphrodite; berry pale yellow, an inch in diameter, compressed, eight-celled, one-seeded, with a sweetish austere pulp, without any smell.—Native of Cochin-china.

8. Diospyros Dodecandra. Flowers twelve-stamined, axillary: berries lenticular. This is a large tree; leaves broad-lanceolate, quite entire, alternate; flowers white; berry pale, compressed, shaped like a lens, one-celled, with eight compressed-ovate, bony, large seeds; the pulp is sweetish, astringent, eatable, but not pleasant. The wood is like that of the fifth species, but has not the black veins. This tree is much used for supporting the black-pepper shrubs.—Native of Cochin-china.

9. Diospyros Tetrasperma. Leaves membranous, shining, wedge-form; berries four-seeded.—Native of Jamaica.

10. Diospyros Menaloxylon. Trunk erect, in large trees from 20 to 25 feet to the branches, and about eight or ten in circumference; bark scabrous or deeply cracked, somewhat spongy; berry round, size of a small apple, yellow, pulpy, astringent, and not very palatable. This tree is the *tumida* of the Telingas.—Native of the mountainous parts of the Circars, on the coast of Coromandel.

11. Diospyros Sylvatica. Leaves three to six inches long, two to three broad; berry the size of a nutmeg, round, smoothish. This is the *tellagada* of the Telingas.—It grows on the uncultivated hills of the Circars.

12. Diospyros Montana. Trunk crooked, covered with dark rust-coloured pretty smooth bark; leaves three to four inches long, two broad; flowers bowing, small, greenish-white. This is the *yerragada* of the Telingas.—It is common among the mountains in the Circars: its timber is variegated with dark and white coloured veins, is hard, and very durable.

13. Diospyros Chloroxylon. Leaves an inch and a half or two long, one broad; flowers small, white; berry the size of a cherry, which when ripe is very palatable. The *nella-woolymera* of the Telingas.—A middle-sized tree among the Orixa mountains; but in the low lands towards the coast only a large bush.

14. Diospyros Cordifolia. Leaves two inches long, three-quarters broad; berry round, size of a small crab-apple. The *kal-woolymera* of the Telingas.—A pretty large tree among the mountains of the Circars; but towards the sea much smaller.

Diphysa; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, slightly compressed, half five-cleft; the two upper segments roundish, obtuse, plane, spreading very much: the two lateral ones ovate, acute, erect, flattish; the lowest lanceolate, acuminate, concave, erect, a little longer than the rest. *Corolla:* papilionaceous; standard obovate-oblong, emarginate, plane, broad, reflex, on a claw the length of the calix; wings shorter than the standard, oblong, obtuse, ascending, converging behind, diverging in front; keel sickle-shaped, acuminate, compressed, ascending, shorter than the wings. *Stamina:* filamenta ten, diadelphous, simple, and nine-cleft, ascending; antheræ ovate, small. *Pistil:* germen subcylindrical, pedicelled; style capillary, rising; stigma simple, acute. *Pericarp:* legume linear, compressed, flat, obtuse, augmented longitudinally on each side by a membranaceous, very large, inflated bladder, closed all round, one-celled. *Seeds:* several, oblong, obtuse, compressed, furnished with a little hook. Essential Character. *Calix:* half five-cleft. *Legume:* with a bladder on each side. *Seeds:* hooked.——The only species is,

1. Diphysa Carthaginensis. A small, unarmed, inelegant, erect, branching tree, ten feet in height, and approaching to the arborescent Mimosas. Leaves pinnate, smooth, two inches long, on the younger branches; there are usually five leaflets on each side, with an odd one, though not unfrequently more or less: they are oblong, emarginate, small, some alternate, others opposite; common peduncles two-flowered or three-flowered, axillary, filiform, the length of the leaves; flowers yellow, with scarcely any smell; legumes have thin, dry, whitish bladders to them, and hence the name. They continue long upon the tree without opening, till at length they fall in transverse pieces at the joints; seeds five or six, yellowish.—It flowers in August and September, and is a native of Carthagena in New Spain.

Dipsacus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth common many-flowered, many-leaved; leaflets longer than the floscule, loose, permanent; perianth proper scarce manifest, superior. *Corolla:* proper universal equal, one-petalled; tubular; border four-cleft, upright; outer division larger, more acute. *Stamina:* filamenta four, hair-form, longer than the corolla; antheræ incumbent. *Pistil:* germen inferior; style filiform, length of the corolla; stigma simple. *Pericarp:* none. *Seeds:* solitary, columnar, crowned by the entire calicine margin. *Receptacle:* common, conical, separated by longer chaffs. Essential Character. *Calix:* common many-leaved; proper superior. *Receptacle:* chaffy.—These are biennial, tall, herbaceous plants, prickly or rough, terminated by rough heads of flowers; the leaves sometimes connate at the base, and forming a basin containing rain.——The species are,

1. Dipsacus Fullonum; *Cultivated Teasel.* Leaves sessile, serrate; involucres short, horizontal; chaffs bent back. This plant is cultivated in great quantities in the west of England, for raising the nap upon woollen cloths, by means of the crooked awns or chaffs upon the heads, which in the wild sort are straight, or at least not hooked; for this purpose they are fixed round the circumference of a large broad wheel, which is turned round while the cloth is held against them. These heads are collected in August. Parkinson calls it *Fuller's Thistle;* and Gerarde, *Tame,* or *Garden Teasel.* The root of this plant is bitter, and given in a strong infusion, strengthens the stomach and creates an appetite, and

is also good for obstructions of the liver, and the jaundice. Many people erroneously think that the water contained in the basin formed by the leaves is a good cosmetic.—Teasel is propagated by sowing the seeds in March, upon a soil that has been well ploughed; about a peck of seed will sow an acre, for the plants should have sufficient room to grow, or the heads will not become either so large or so numerous. When the plants are come up, hoe them in the same manner as is practised for turnips, cutting down all the weeds, and singling out the plants to about six or eight inches' distance; and as the plants advance, and the weeds begin to grow again, hoe them a second time, cutting out the plants to a wider distance, for they should be finally left at least a foot asunder; and you should be particularly careful to clear them from weeds, especially during the first summer, for when the plants have spread so as to cover the surface of the ground, the weeds will not so readily grow between them. The second year after sowing, the plants will shoot up stalks with heads, which will be fit to cut about the beginning of August, and should afterwards be tied up in bunches, setting them in the sun if the weather be fair, but if not, placing them in rooms to dry. The common produce is about one hundred and sixty bundles or staves upon an acre, which they commonly sell for about one shilling a stave. Some persons sow Caraway and other seeds among their Teasels, but it is not a good method, for the one spoils the other; nor can you so easily clear them from weeds as when alone: this, however, is still the common practice in Essex, where the Teasel is chiefly cultivated, on account of the neighbouring manufactories of ordinary cloth and baize, in which it is used for raising the nap. Old pasture-land, the soil of which is a strong clayey loam, is best adapted to the culture of Teasel. The method of managing the land for their compound crop, has already been given under the article *Carum*, or Caraway; we have only to add therefore, for the instruction of the hoers, that the first appearance of Teasel is much like that of a Lettuce; that the heads being ready about the middle of September, the second year, are to be cut as soon as they begin to turn brown, with a stalk a foot long, and tied up in bundles or bunches, twenty-five in each; twenty-four of these bunches are fixed on a small stick, and called a row, two hundred and forty of which make a load, in bulk equal to a ton of hay from the meadow. The work of cutting and bunching the Teasel can only be done by those who are well acquainted with it; the crop must be looked over, and the heads cut at several times as they ripen; the produce is sometimes a load on an acre, the average price of which is twelve pounds, but it often happens that there is not more than one-fourth of a load.

2. Dipsacus Sylvestris; *Wild Teasel.* Leaves connate, crenate, uppermost entire; involucres long, bending up; chaffs straight. Root biennial, simple, with large fibres; stem from three to six feet high, branched, round, striated, hollow, spinous, but the spines few near the base, very numerous near the heads, long and sharp; root-leaves of the first year's plant spread on the ground in a circular form, ovate-oblong, bluntish, notched, wrinkled, and rough, with spines thinly scattered over the leaf; stem-leaves, at least the lowermost, less wrinkled, uniting at the base so as to form a large cavity containing water after rain, and hence the name of *dipsacus*, and *labium Veneris*. The flowers are blue purple, first breaking forth about the middle of the heads; chaffs of the receptacle the length of the stamina, rigid, bearded; some of the lower chaffs bowed downwards, but not hooked at the points.—Native of most parts of Europe, on the edges of pastures, in cultivated places, and by road-sides, flowering from June or July to September. The water contained in the basin formed by the leaves, is said to cure warts, and to serve as a beauty-wash for the face; it is also supposed to be good for the eyes. Cattle in general, even asses, appear to avoid this plant: a small moth, earwigs, and other insects, take refuge in the head. Linneus thought this to be a mere variety of the first species; but Mr. Miller, after having cultivated both for nearly forty years, hesitates not to declare them to be distinct species.

3. Dipsacus Laciniatus; *Cut-leaved Teasel.* Leaves connate. Root biennial, long, branching; stem three feet high, upright, angular, prickly, branched; leaves pinnatifid, laciniate or sinuate, bright green, smooth above, pubescent beneath, having short prickles along the nerve, and being ciliate on the edge; heads ovate, obtuse, terminating the stem and branches, with an involucre at the base, consisting of stiff prickly leaves, spreading out like a star; chaffs lanceolate, straight, ending in a stiff prickle; flowers whitish; antheræ reddish. It differs from the common Teasel, not only in the leaves being cut so deeply, but in the prickles being weaker, and having lateral flowers, rising higher than those in the middle. The goldfinch is fond of the seeds, as well as those of the common sort.—Native of Germany, France, Alsace, Austria, and Carniola.

4. Dipsacus Pilosus; *Small Teasel.* Leaves petioled, with little appendages. It differs from its congeners in having a fragile stem, from two to six feet high, sharp, with short prickles pointing upwards, angular, and grooved; leaves with little appendages at the base, but these are sometimes wanting, and the upper leaves are nearly entire, slightly hairy on both sides, and with short prickles along the midrib underneath; scales of the receptacle longer than the corollas, ciliate, in hemispherical heads; corollas white, sometimes with a purple tinge; antheræ dark purple; seeds ovate-quadrangular, crowned with the calix; stigma sometimes simple, but most frequently trifid, with the lower lobe shorter than the upper, as it is likewise in the common sort; sometimes it is slightly cloven into three parts. The heads of flowers hang down during the time of flowering, but afterwards become upright. This plant is called *Shepherd's Rod*, and *Shepherd's Staff*; it flowers in July, and in September ripens seeds. They are eaten by the small birds; and the flowers are frequented by great numbers of moths after sun-set. It is the handsomest species of the genus, and very distinct from the three others, which are very nearly allied.—It is a native of France, Germany, Switzerland, and Austria: in England, it is found in moist and watery places, by brooks and damp hedges and ditches; between Deptford and Lewisham; at Edgecombe, near Croydon; at Guildford, and Godalmin, in Surry; in Beckenham church-yard near Chislehurst, Foot's-cray, Farnborough &c. in Kent; about Finchley in Middlesex; at Fulham, between the bishop's palace and the field; at Morehall, &c. near Harefield; near Thame Park in Oxfordshire; at Littleshall abbey, in Shropshire; at Eversham in Worcestershire; in the way from Braintree to Hedingham, and from Dunmow to London; in Garanton park, and Hollinghall wood, in Leicestershire; and in Scotland.

Dipteryx; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix*: perianth one-leafed, turbinate: two upper segments wing-shaped, oblong, concave, spreading; the third lower, small, entire, or three-toothed. *Corolla*: papilionaceous; standard longer, obovate, bent in at the sides, erect; wings two, oblong, shorter than the standard; keel shorter, two petalled. *Stamina*: filamenta eight to ten, united into a cylinder, cloven at top; antheræ small, roundish. *Pistil*: germen pedicelled, oblong; style

awl-shaped, ascending; stigma acute. *Pericarp:* legume large, ovate, compressed, thick, one-celled. *Seed:* single, ovate. ESSENTIAL CHARACTER. *Calix:* two, upper segments winged. *Legume:* ovate, compressed, one-seeded.——The species are,

1. Dipteryx Odorata; *Coumarouna.* Leaves alternate. This is a large tree, sixty feet high, very much branched at top; leaves large and pinnate; leaflets perfectly entire, two or three on each side, affixed alternately on the midrib. The flowers are borne on racemes, which are axillary and terminal; their colour purple, dashed with violet. The almonds or fruits are fragrant, and are put by the Creoles into chests, in order to drive away insects, as well as for the sake of their smell: they are known in London by the name of Tongo Beans, and are used to give a flavour to snuff.—It grows in the large forests of Guiana.

2. Dipteryx Oppositifolia; *Taralea.* Leaves opposite. This, like the former, is a tall tree, and very branchy at top; the leaves are opposite, and pinnate; the leaflets large, ovate, sharp, strong, and perfectly entire; the flowers are panicled, axillary, and terminal, and when blown, their fragrance is very diffusive.—Native of the woods of Cayenne.

Dirca; a genus of the class Octandria, Order Monogynia.—GENERIC CHARACTER. *Calix:* none. *Corolla:* one-petalled, club-shaped; tube bellying above; border obscure, with unequal margin. *Stamina:* filamenta eight, capillary, inserted into the middle of the tube, longer than the corolla; antheræ roundish, upright. *Pistil:* germen ovate, with oblique tip; style filiform, longer than the stamina, crooked at the tip; stigma simple. *Pericarp:* berry one-celled. *Seed:* single. ESSENTIAL CHARACTER. *Calix:* none. *Corolla:* tubulous, with an obscure border. *Stamina:* longer than the tube. *Berry:* one-seeded.——The only known species is,

1. Direa Palustris; *Marsh Leatherwood.* Height five or six feet, but in Europe seldom exceeding three: it sends out many jointed branches near the root; leaves oval, pale yellowish, and smooth; the flowers come out from the side of the branches, two or three upon each peduncle; they are of a greenish white colour, and appear early in the spring, when the leaves begin to shoot. It is a little shrub, growing on hills towards swamps and marshes in North America: the bark is very tough, as is also the shrub itself, insomuch that the branches cannot easily be separated without cutting. The twigs are used for rods, and the bark for ropes, baskets, &c. for which it is very suitable, being equal in strength and toughness to the bark of the Lime-tree. The French in Canada call it *bois de plomb*, or leaden-wood.—This shrub is very difficult to propagate in Europe, where it does not produce seeds, and can therefore only be propagated by layers or cuttings, and these are generally two years before they put out roots, and as it naturally grows in very moist places, it is with difficulty preserved in gardens, unless it be planted in wet ground: it is seldom injured by cold.

Disa; a genus of the class Gynandria, order Diandria.——GENERIC CHARACTER. *Calix:* spathe one-valved, acuminate, oblong, gaping longitudinally on one side. *Corolla:* petals three, ovate, spreading, large, nearly equal; the upper one unequal, somewhat horned obtusely at the base behind. *Stamina:* filamenta subulate; antheræ two, connected into a lanceolate form, a little shorter than the corolla, subulate at the base, gaping, mounted on the style; dorsal petal of the stamina two-parted, shorter than the stamina; divisions oblong, obtuse, converging. *Pistil:* germen inferior, length of the spathe; style tongue-shaped, short, hollowed at the base, two-horned backwards. *Pericarp:* capsule oblong, three-valved. *Seeds:* numerous, minute. ESSENTIAL CHARACTER. *Spathe:* one-valved. *Petals:* three; the third less, two-parted, gibbous at the base.——The species are,

1. Disa Grandiflora. Horn shorter than the petals, with about two flowers on the stem. Stem a foot high, erect, quite simple, even; leaves shorter than the stem, those next the root lanceolate-linear, those on the stem sheathing, alternate, three in number; the disk shorter than the sheath, acuminate at the end; flower terminating, pedunculed, inclined, sometimes two, and then the second comes out on a longer peduncle from the spathe of the former; this flower is red, and elegantly veined; it is very conspicuous and beautiful.—Native of the Cape of Good Hope.

2. Disa Racemosa. Horn shorter than the petals; flowers in racemes.—Native of the Cape of Good Hope.

3. Disa Longicornis. Horn longer than the petals; scape one-flowered. Flower blue, beautiful, and singular in its form.—Native of the Cape of Good Hope.

4. Disa Maculata. Horn conical, very short; scape one-flowered. Root-leaves oblong; stem and sheath spotted with red; flowers blue.—Native of the Cape of Good Hope.

Disandra; a genus of the class Heptandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, from five to eight parted; divisions straightish, permanent. *Corolla:* one-petalled, wheel-shaped; tube very short; border five-parted; divisions ovate. *Stamina:* filamenta from five to eight, bristle-form, from erect, becoming patulous, shorter than the corolla; antheræ sagittate. *Pistil:* germen ovate; style filiform, length of the stamina; stigma simple. *Pericarp:* capsule ovate, length of the calix, two-celled. *Seeds:* several, ovate. ESSENTIAL CHARACTER. *Calix:* seven-leaved. *Corolla:* seven-parted, flat. *Capsule:* two-celled.——The species are,

1. Disandra Prostrata. Leaves reniform, crenate; pedunceles in pairs. Stems from a foot to two feet in height, prostrate, round, pubescent; leaves alternate, petioled, pubescent; pedunceles axillary, usually two together, but sometimes one or three, erect, filiform, one-flowered, higher than the petioles; corollas yellow. The foliage greatly resembles that of Ground-ivy; the branches also trail upon the ground in a similar manner, to the length of several feet. It varies extremely in the number of stamina, and in the divisions of the calix and corolla; seven is thought to be the most usual number of the former, and five the most natural.—It flowers during most part of the summer, and is a native of Madeira. It grows readily from cuttings; in the winter it must be kept in the green-house, but will bear the open air in summer; it should be planted in rich earth, and plentifully watered in dry weather: it appears to most advantage in a pot placed upon a pedestal, or in some elevated situation, where its branches may hang carelessly down.

2. Disandra Africana. Leaves orbiculate, entire, crenate, pedunceles solitary. It is doubtful whether this be a distinct species.—Native of Africa.

Dittander. See *Lepidium.*

Dittany of Crete. See *Origanum.*

Dittany, White. See *Dictamnus Fraxinella.*

Dock. See *Rumex.*

Dodartia; a genus of the class Didynamia, order Angiospermia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, bell-form, five-toothed, with ten corners, tubular, nearly equal, flat, permanent. *Corolla:* one-petalled, ringent; tube cylindric, bent downwards, much longer than the calix; upper lip small, emarginate, ascending; lower lip spreading, wider, three-cleft, twice longer, obtuse; middle division narrower. *Stamina:* filamenta four, ascending

towards the upper lip, and shorter than it; antheræ small, roundish, twin. *Pistil:* germen roundish; style subulate, length of the corolla; stigma compressed, oblong, obtuse, two-cleft, the lamellas converging. *Pericarp:* capsule globose, two-celled. *Seeds:* numerous, very small. *Receptacle:* convex, growing to the dissepiment. Essential Character. *Calix:* five-toothed. *Corolla:* lower lip twice as long as the upper. *Capsule:* two-celled, globular.——The species are,

1. Dodartia Orientalis; *Oriental Dodartia.* Leaves linear, quite entire, smooth. It has a perennial root, which creeps far under the surface, and sends out new stalks at a great distance from the parent plant; these stalks are firm, a little compressed, and grow a foot and half high, sending out several side-branches; leaves long, narrow, fleshy, opposite, of a deep green colour, those on the lower part of the stalk are shorter and broader than those above: the flowers come out singly on each side the stalk, sitting close to it; they are nearly an inch long. The flower is of a deep purple colour, and appears in July, but rarely produces seeds in England.—First discovered by Tournefort near Corvirap, not far from the foot of mount Ararat, in Armenia. This plant propagates very fast by its creeping roots, so that when it is once established in a garden, it will multiply fast enough; it loves a dry light soil, and may be transplanted, either in autumn when the stalks decay, or in the spring before the new stalks arise.

2. Dodartia Indica. Leaves ovate, serrate, villose; stems roundish, villose, somewhat branching; raceme terminating with small leaves; flowers opposite, pointing one way, subsessile; calix obtuse, villose; corolla yellow, with the outer lip straight and short.——Native of India.

Dodder. See *Cuscuta.*

Dodecas; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, turbinate, permanent, half four-cleft, superior; divisions ovate, spreading. *Corolla:* petals roundish, sessile, inserted into the calix. *Stamina:* filamenta twelve, capillary, shorter than the calix, inserted into the receptacle: antheræ oblong. *Pistil:* germen half superior; style filiform, longer than the stamina; stigma simple. *Pericarp:* capsule ovate, one-celled, inferior, growing to a patulous calix, within which the apex is naked and four-valved. *Seeds:* numerous, oblong, minute. Essential Character. *Corolla:* five-petalled. *Calix:* half four-cleft, bearing the corolla superior. *Capsule:* one-celled, connate with the calix.——The only known species is,

1. Dodecas Surinamensis. A shrub, somewhat four-cornered, even; the branches opposite, short; leaves opposite, obovate-oblong, or wedge-shaped, subpetioled, even, obtuse, quite entire; peduncles axillary, one-flowered, short, solitary, the length of the calix; bractes in pairs, minute under the calix; calix before it unfolds four-cornered, four-valved, turbinate at bottom, columnar; petals inserted into the calix at the divisions; stamina inserted into the receptacle, next the germen, not into the calix.—Native of Surinam.

Dodecatheon; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* involucre many-leaved, many-flowered, very small; perianth one-leafed, half five-cleft, permanent; divisions reflex, finally longer, permanent. *Corolla:* one-petalled, five-parted; tube shorter than the calix, naked at the throat; border reflex; divisions very long, lanceolate. *Stamina:* filamenta five, very short, obtuse, seated on the tube; antheræ sagittate, converging into a beak. *Pistil:* germen conic; style filiform, longer than the stamina; stigma obtuse. *Pericarp:* capsule oblong, one-celled, gaping at the tip; (according to Gærtner, subcylindric, opening into five parts.) Essential Character. *Corolla:* rotate, reflex. *Stamina:* placed on the tube. *Capsule:* one-celled, oblong.——The only known species is,

1. Dodecatheon Meadia; *Virginian Cowslip,* or *Meadia.* This plant has a yellow perennial root, from which come out in the spring several long smooth leaves, nearly six inches in length, and two and a half in breadth, at first standing erect, but afterwards spreading on the ground, especially if it be much exposed to the sun; from among the leaves arise two, three, or four flower stalks, in proportion to the strength of the roots, which reach to the height of eight or nine inches, and are smooth, naked, and terminated by an umbel of flowers, of a purple, inclining to a peach-blossom colour. The flowers appear at the end of April, or the beginning of May; and the seeds ripen in July; soon after which the stalks and leaves decay, and the roots remain inactive till the following spring.—Native of Virginia. It is propagated by offsets, which the roots put out pretty freely when they are in a loose moist soil and shady situation; the best time to remove the roots, and take away the offsets, is in August, after the leaves and stalks are decayed, that they may be fixed well in their new situation before the frost comes on. It may also be propagated by seeds, which the plants generally produce in plenty, and which should be sown in autumn, soon after they are ripe, either in a shady moist border, or in pots, which should be placed in the shade. In the spring the plants will come up, and must then be kept clean from weeds, and, if the season prove dry, be frequently refreshed with water; nor should they be exposed to the sun, for while the plants are young they are very impatient of heat. The young plants should not be transplanted till their leaves are decayed, then they may be carefully taken up and planted in a shady border, at about eight inches' distance from each other, where the soil is loose and moist, where they may remain for a year, by which time they will be strong enough to produce flowers, and may then be transplanted into some shady borders in the flower-garden, where they will appear very ornamental while they continue in flower. This plant is not only very elegant, but also hardy.

Dodonæa; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved, flat; leaflets ovate, obtuse, concave, deciduous. *Corolla:* none. *Stamina:* filamenta eight, very short; antheræ oblong, bowed, converging, length of the calix. *Pistil:* germen three-sided, length of the calix; style cylindric, three-furrowed, upright; stigma slightly three-cleft, a little acute. *Pericarp:* capsule three-furrowed, inflated, three-celled, with large membranaceous corners. *Seeds:* in couples, roundish. Essential Character. *Calix:* four-leaved. *Corolla:* none. *Capsule:* three-celled, inflated. *Seeds:* in couples.——The species are,

1. Dodonæa Viscosa; *Broad-leaved Dodonæa.* Leaves oblong. A tree ten or twelve feet high, according to Sloane, with fibrous deciduous bark; branches round, when young unequally quadrangular; leaves deciduous, alternate, nearly sessile, obovate with a taper base, nearly entire, bluntish with a little point, about two or three inches long, very glutinous, especially when young, destitute of all pubescence; flowers greenish, in little terminal, often branched clusters. The taste of the whole plant is acrid and bitterish. In Jamaica it is called the *switch sorrel.*—Native of the countries between the tropics, in sandy ground. It is propagated by seeds, which, if obtained fresh from abroad, will rise easily upon a hot-bed. When the plants are fit to remove, they should be each planted in a separate small pot filled with light loamy earth, and plunged into a hot-bed of tanner's

bark, shading them from the sun until they have taken new root; they then may have free air every day admitted to them, in proportion to the warmth of the season, and must neither be drawn up weak, nor should they have too much water. In the autumn the plants must be removed into the stove, where they should have a temperate warmth in winter, but during that season little water should be given them, nor should they have too much heat; for either of these will soon destroy them. As the plants obtain strength they will become hardier, and may be set in the open air for two or three months in the heat of summer, but should always be placed in a sheltered situation; in winter they must be placed in a stove, kept to a moderate temperature of warmth, for the plants will not live in a green-house here. This plant was formerly shewn for the Tea-tree, in many parts of the European gardens; and passed for it during many years, among those who knew no better.

2. Dodonæa Angustifolia; *Narrow-leaved Dodonæa.* Leaves linear. It resembles the foregoing: the fructification is polygamous.—It flowers from May to August; and is a native of the Cape of Good Hope. The second sort is less tender than the first, and requires only the protection of a green-house or glass-case.

Dogberry Tree, Dogwood. See *Cornus.*

Dog's Bane. See *Apocynum.*

Dog's Grass. See *Triticum.*

Dog's Mercury. See *Mercurialis.*

Dog's-tail Grass. See *Cynosurus.*

Dog's Tooth. See *Erythronium.*

Dolichos; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, very short, four-toothed, equal; the superior tooth emarginate. *Corolla:* papilionaceous; standard roundish, large, emarginate, the whole reflex; two calluses oblong, parallel and longitudinal, growing to the standard beneath towards the base, compressing the wings, not hollowed on the back; wings ovate, obtuse, length of the keel; keel lunulate, compressed, beneath converging closely, length of the wings, ascending at the tip. *Stamina:* filamenta diadelphous, simple and nine-cleft, the simple one curved at the base; antheræ simple. *Pistil;* germen linear, compressed; style ascending; stigma bearded, running on inwardly from the middle to the tip of the style, which on the fore part is callous, obtuse. *Pericarp:* legume acuminate, large, oblong, two-valved, two-celled. *Seeds:* several, elliptic, usually compressed. Essential Character. Two parallel oblong calluses at the base of the standard, compressing the wings underneath.—Most of these species come from the East and West Indies, are tender, and seldom perfect their seeds in England; they are principally annual plants, and are frequently lost in our stoves. Several species are cultivated for the table in warm countries, but seldom perfect their seeds in England; and were they to thrive here as well as in the warm countries, they would be little esteemed, because we already have much better sorts in our gardens; for the scarlet-flowering kidney-bean is preferable to all of them for eating, and deserves to be cultivated more than any other.——The species are,

* *Twining.*

1. Dolichos Benghalensis. Shrubby; legumes ending in long dagger-points. This is perennial; the stem is rather roughish to the touch, and scandent, as well as producing several branches; leaves roundish, ovate, ending in a point, furnished with a bristle; stipules lanceolate; peduncles racemose, four or five inches long; flowers seated on very short peduncles, uncertain as to number, snow-white, and slightly odorous; legume oblong, pointed, compressed, first green, afterwards growing pale; seeds few, roundish-oblong, compressed, brown, with deeper-coloured points, and with a long protuberant, snow-white hilum.

2. Dolichos Lablab; *Black-seeded Dolichos.* Legumes ovate, salver-shaped; seeds ovate, with a bowed eye towards one end. Stems and branches round, scabrous backwards; peduncles forming half whorls; seeds three or five, flatted a little, smooth, but not shining, black or ferruginous, edged on one side with a fungous snow-white callous, proceeding from the umbilicus, they have no albumen. Alpinus says, that this plant grows wild in Egypt: Hasselquist, however, is certain it does not grow wild in Lower Egypt, but is only cultivated there in gardens. The Egyptians call it *ful Frangi,* or European bean; and thence we may conjecture that the Europeans first brought it into Egypt. The natives make pleasant arbours of it, not only supporting it with trellis work, but fastening it with twine, by which means the leaves form an excellent covering and an agreeable shade.

3. Dolichos Sinensis; *Chinese Dolichos.* Legumes pendulous, cylindric, torulose; peduncles erect, many-flowered. Stem annual, long, round, slender, twining, somewhat branched; leaves ternate, broad-lanceolate, smooth, with two or three lanceolate stipules at the base of the common petiole; flowers pale violet, on few-flowered, suberect, axillary peduncles; standard ascending, very blunt.—Native of Amboyna, China, Cochin-china, and the East Indies generally.

4. Dolichos Uncinatus; *Hook-podded Dolichos.* Legumes cylindric, hirsute, with a hooked subulate claw at the end; peduncles many-flowered; stem rough with hairs.—Native of Jamaica.

5. Dolichos Luteolus. Legumes in several cylindric heads; seeds rounded. Stem rather angular, branched, round. A scandent plant; branches three or four cubits long; leaves ovate, entire, subacute, glossy; stipules small, and roundish; peduncles axillary, supporting from six to ten elegant yellow flowers; the stigma bearded.—Native of the Society Isles.

6. Dolichos Unguiculatus; *Bird's-foot Dolichos.* Legumes in subcylindric heads, recurved, and concave at the tip. This is an annual smooth plant, with a climbing stem; leaves lanced-ovate, and sharp; peduncles upright, supporting but few flowers; flowers whitish; stigma long and bearded; seed whitish, with a snow-white hilum.—Native of the West Indies. Loureiro says it is a native of China, and was imported into Portugal.

7. Dolichos Tranquebaricus. Legumes few, in cylindric heads, with a straight dagger-point. The whole plant is very smooth; the vexillum, or standard of the flowers, pale yellow behind, and blush red in front, the wings more blue, and the keel white.

8. Dolichos Ensiformis; *Horse Bean.* Legumes gladiated, three-keeled at the back; seeds arilled. Stem three or four feet high, with shoots running much farther; the legumes are between ten and fourteen inches in length, and generally contain ten or eleven seeds. This species is distinguished by its large falcated legume and white seeds, with a saffron-coloured scar.—Native of Jamaica.

9. Dolichos Tetragonolobus. Legumes quadrangular-membranaceous. Stem herbaceous, round, slender, scandent, long, branching; leaflets broad-lanceolate, smooth, pale green; stipules lanceolate, minute; flowers pale blue, on long, lateral, few-flowered peduncles; seeds about eight.—Native of the East Indies, China, and Cochin-china.

10. Dolichos Sesquipedalis; *Long-podded Dolichos.* Legume subcylindric, even, very long; standard of the flower pale above, reddish within; legume more than a foot and a

half in length, roundish, with a little obtuse gibbous hook at the end.—Native of the West Indies.

11. Dolichos Altissimus; *Tall Dolichos.* Legumes racemed, rough-haired, equal; seeds surrounded with a scar; leaves smooth on both sides. This climbs the highest trees, whence hang elegant wreaths of flowers in close racemes, on peduncles frequently more than twelve feet in length. The flowers are void of scent, an inch and a half long, with a ferruginous calix, a violet blue standard and wings, and a yellowish keel; the whole of the stamina and pistilla rise surprisingly, and are inclosed within the convoluted standard.—Native of the island of Martinico.

12. Dolichos Pruriens; *Horse-eye Bean.* Legumes in racemes; valves somewhat keeled, rough-haired; peduncles by threes. Leaflets rough with hairs underneath; calix campanulate, five-toothed, the middle tooth shorter; banner very short, three times less than the other petals, ovate; keel linear, acute, boat-shaped at the end; legume compressed, inflex at the base, reflex at the tip. Common in all parts of the West Indies, and rising to the top of the tallest trees or spreading wide among lower bushes. The flowers dark purple, in spikes at the axils of the ribs. A decoction of the roots is reckoned a powerful diuretic and cleanser of the kidneys; and a vinous infusion of the pods in beer, (twelve pods to a quart) is said to be a certain remedy for the dropsy: the dose is half a pint. In the Windward Islands they make a syrup of the pods, which is said to be very effectual against worms.—Native of both Indies, and of Cochin-china. This, and the next species, are sometimes preserved in botanic gardens, especially the latter, whose pods are closely covered with stinging hairs, commonly known by the name of *cow-itch.* Both these plants are too tender to thrive in the open air of our country; so that whoever desires to have them, should sow their seeds in a hot-bed in March; and when the plants come up, they should be each planted in a separate pot, and plunged into the hot-bed again, taking care to shade them until they have struck root; after which they must every day have fresh air admitted to them, in proportion to the warmth of the season; and when the plants are too tall to remain in the hot-bed, they should be removed into the bark-stove, where, if they be allowed room to run, they will flower and perfect their seeds.

13. Dolichos Urens; *Cow-itch Dolichos.* Legumes in racemes, with furrows transversely lanceolate; the seeds surrounded with a scar. Stems round; leaves subovate, quite entire, acuminate, the upper surface smooth, the lower covered with a shining silvery down that is hardly perceptible; racemes simple, pendulous, scarcely ever longer than the leaves; proper peduncles one-flowered, in threes, placed closely at the end of the raceme, and hence forming a very elegant pendulous wreath of about eighteen flowers, which are scentless, about two inches long, having a ferruginous calix, and a yellow corolla, with the lower edge of the wings red. The seeds, from their resemblance to an eye, are called by the French *yeux bourrique,* or ass's eye; and in the British West India islands, they are for the same reason named *ox-eye bean.* This plant climbs to the top of the tallest trees, throwing down its long slender flower-stalks to a moderate distance from the axils of the upper ribs, whence they generally rise, and are not above the thickness of a common packthread, but seldom under four or five feet in length, and bear the flowers in clusters at their extremities. The outside of the pods are densely covered with sharp hairs, which penetrate the skin when touched, and cause a most excessive and troublesome itching.—Native of the West Indies. See the preceding species.

14. Dolichos Minimus; *Small Dolichos.* Legumes in racemes, compressed, with four seeds in them; leaves rhomb-shaped. This climbs three or four feet in height, and has numerous branches; leaves glaucous; racemes stiff; wings of the corolla yellow; standard brownish red, turning blue as it withers. Brown calls it *small fetid dolichos;* and in Curaçoa, it has the name of *vrattekruyt,* or wart-herb, the leaves bruised with salt being reputed to cure warts.—Native of Jamaica.

15. Dolichos Lineatus. Legumes in racemes, oblong, three-keeled. Stem subangular, smooth; leaflets smooth, ovate, obtuse, with a point, marked with lines, equal, an inch and half in length, the side ones short, the middle ones on a long petiole; stipules very small, bristle-form; legumes rounded in front, straight at the back, marked with three lines, the side ones larger than the middle line, acute, smooth, two inches long.—Native of Japan.

16. Dolichos Capensis. Peduncles with one or two flowers; legumes elliptic, compressed; leaves smooth. Stem filiform, angular, even; stipules ovate, acute, striated, very small; leaves petioled; leaflets ovate-oblong, acuminate, veined; peduncles long; legumes acute at both ends, the back suture straight, smooth, containing usually two seeds.—Native of the Cape of Good Hope.

17. Dolichos Scarabæoides; *Silvery-leaved Dolichos.* Leaves ovate, tomentose; flowers solitary; seeds two-horned. Stem scabrous; leaves petioled; leaflets obtuse, veined underneath, soft; flowers single, from the axils.—Native of the East Indies.

18. Dolichos Incurvus. Legumes solitary, incurved, three-keeled. Stem striated, smooth; leaflets oblong, acute, entire, smooth, paler underneath, nerved, two inches broad, a hand in length, equal, the side ones on very short petioles, the middle leaflet on a longer; flowers axillary, solitary, peduncled.—Native of Japan.

19. Dolichos Bulbosus; *Bulbous Dolichos.* Leaves smooth, many-angled, toothed. Stem perennial, suffruticose, long, round, smooth, branched, without any stipules; leaves roundish, petioled; flowers terminating in long racemes; calix cup-shaped, four-cleft, the upper segment shorter, emarginate; corolla pale violet, with an ovate, entire, converging standard. The root consists of roundish, tailed, juicy, white tubers, in bundles; they are eaten both raw and dressed, but the seeds are refused.—Native of both Indies.

20. Dolichos Trilobus. Lateral leaflets gibbous on the outside, the middle one three-lobed. Stem perennial, suffruticose, round, very long, branched, twining, or creeping, when it lies on the ground, hirsute; leaves petioled, with two horned stipules; leaflets three-lobed, acuminate, pubescent; flowers purple, in long terminating and lateral spikes, with a large yellow spot on the middle of the standard. The root is composed of a few long tubers in bundles; they are two feet long, subcylindric, fibrose, fleshy, of a pale colour, and eatable when boiled, but not the legumes.—Native of the East Indies, and cultivated in China and Cochin-china.

21. Dolichos Aristatus. Peduncles two-flowered, axillary; legumes linear, compressed, ending in a straight awn. Stem round; leaflets even, ovate-oblong, acuminate.—Native of America.

22. Dolichos Filiformis; *Cat's-claw Dolichos.* Leaflets linear, obtuse, mucronate, smooth, pubescent underneath. This grows among bushes, but seldom stretches beyond three or four feet in length; the pods are long and compressed; the stigma or top of the style almost naked. It is used as a purgative ingredient in diet-drinks, and is said to answer well in dropsical cases.—Native of Jamaica.

23. Dolichos Purpureus; *Purple Dolichos.* Stem smooth; petioles pubescent; wings of the corolla spreading. Leaflets subcordate, smooth, netted underneath with purple veins; calices covered with two bractes; corolla bright purple; keel violet below the tip. The legumes, when young and fresh, are sapid and salubrious; seeds compressed, ovate, surrounded with a scar.—Native of both Indies: cultivated in China and Cochin-china.

24. Dolichos Regularis. Leaves ovate, obtuse; peduncles many-flowered; petals equal in size and alike in form.—Native of Virginia.

25. Dolichos Lignosus; *Woody Dolichos.* Stem perennial; peduncles forming a head; legumes stiff and straight, linear. Root woody, perennial; leaves alternate, on long foot-stalks, ternate, or rather binate, with an odd leaflet; common footstalk roundish, channelled above, umbelling, and purplish at the base; partial ones very short, swollen, incurved; leaflets rhombed, elongated, acute, entire, obsoletely three-nerved, bright green and shining above, glaucous beneath; racemes axillary, solitary, erect, having from three to six flowers in a little head; flowers nodding a little, rose-coloured, with a purplish keel; seeds black.—Native of the East Indies. It is easily propagated by seed, and produces abundance of flowers during summer in a stove.

26. Dolichos Polystachios; *Many-spiked Dolichos.* Stem perennial; racemes very long; pedicels in pairs; legumes acuminate, compressed. Stem becoming shrubby, often round, smooth, very long; leaves alternate, unequally pinnate, smooth; leaflets about six pairs, opposite, on very short petioles, ovate, acuminate, entire, smooth, pale underneath, an inch long, the odd lobe on a longer petiole; the flowers from the same bud with the leaves, in racemes often a foot in length; pedicels scattered, opposite, and alternate, short, one-flowered. It varies with white and with purple corollas, with larger hirsute, and with smaller smooth legumes. Native of Japan, where it is frequently cultivated for arbours; and also of Virginia.

27. Dolichos Reticulatus; *Netted-leaved Dolichos.* Leaves ovate, acute, wrinkled, netted, villose; racemes few-flowered. Shrubby.—Native of New South Wales.

28. Dolichos Luteus. Twining: flowers in a sort of spike; legumes subcylindric, smooth; leaves roundish, rhombed, obtuse, entire, smooth.—Native of Jamaica.

29. Dolichos Montanus; *Mountain Dolichos.* Stem shrubby, climbing; leaflets ovate, rhombed; five filamenta with oblong antheræ, and five alternate, roundish. Roots subtuberous, hard, long, in bundles; stem long, branched; leaflets large, tomentose, entire; flowers wholly purple, in long lateral spikes; stamina five, longer, with oblong antheræ, five alternately shorter, with roundish antheræ; legume linear, straight, compressed, separated between the seeds, which are compressed and suborbiculate.—Native of the mountain woods of Cochin-china.

30. Dolichos Hastatus. Stem procumbent; leaves subhastate; peduncles many-flowered, erect. Stem annual, long, round, branched; flowers yellow, axillary, on long striated peduncles; legume linear, straight, subcylindric; seeds ovate, pale, esculent.—Native of Africa.

31. Dolichos Rotundifolius. Legumes racemed, compressed, somewhat hairy, sword-shaped; leaflets oval, roundish, smooth. Stem smooth, woody, angular at top; leaflets oval, the end one roundish, entire, emarginate, veined; petiole a little longer than the leaflets, scarcely hairy; petiolules purple, hairy; racemes axillary, half a foot long; flowers two or three at each tubercle, on very short pedicels; bractes two, roundish, caducous, at the base of the flower; calix bell-shaped, smooth; corolla large, purple.—Native country unknown.

** *Erect.*

32. Dolichos Ensiformis; *Scymetar-podded Dolichos.* Stem suberect; legumes scymetar-shaped, three-keeled; seeds arilled. Leaflets acute, wrinkled, smooth; stipules bristle-shaped, very small; flowers violet-coloured, on many-flowered axillary peduncles; calix tubular, two-lipped, upper lip bifid, lower three-toothed, shorter. There is a variety with legumes twice as long, and flatter, with blunter leaves, and other minute differences.—Native of China and Cochin-china, where it is cultivated for arbours, but not for food.

33. Dolichos Soja. Stems flexuose; racemes axillary, erect; legumes pendulous, hispid, containing about two seeds. Stem round at bottom and smooth; above, striated, very hirsute, a foot or more in height; leaves petioled, hirsute; leaflets petioled, ovate, obtuse, with a point, entire, the middle leaves on a longer petiole, and larger, an inch in length; petiole striated, hirsute, a finger's length; flowers in short, erect, hirsute racemes; subsessile, from three to five together; corollas purple, scarcely bigger than the calix.—Native of the East Indies, Ceylon, and Japan.

34. Dolichos Catiang. Legumes double, linear, somewhat erect. Stem annual, a foot and a half high, roundish, rugged, branched; leaflets broad-lanceolate, smooth; common petiole long; stipules lanceolate, minute; flowers subterminating, two or three together, on a very long peduncle; seeds oblong, ovate, somewhat compressed, with a scar of a different colour. There are several varieties differing in the colour of the flower and seed, all of which are much cultivated for food.—Native of the East Indies.

35. Dolichos Biflorus; *Two-flowered Dolichos.* Stem perennial, even; peduncles two-flowered; legumes erect. Root an ovate brown tuber; leaves linear-lanceolate, quite entire, veined, pubescent on both sides, subsessile; flowers yellow, axillary.—Native of China and India.

36. Dolichos Repens; *Sea-side Dolichos.* Stem creeping; leaves pubescent, ovate; flowers racemed, in pairs; legumes linear, columnar.—This is a common plant by the sea-side, in Jamaica: the root is a strong purgative.

37. Dolichos Roseus. Stem creeping, ascending; leaflets roundish, shining; flowers in racemes; legumes three-keeled at the back.—Native of Jamaica.

38. Dolichos Fabæformis; *Bean-shaped Dolichos.* Stem erect, angular; leaves villose, glaucous; legumes stiff and straight, subquadrangular. Root annual; petioles three-sided, channelled; stipules linear, very acute, villose, erect, permanent; spikes axillary, solitary, erect, villose, shorter than the petioles; flowers subsessile, erect, purple.—Native of the East Indies.

Doliocarpus; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets oblong, rounded, concave, unequal, coloured, permanent. *Corolla:* petals three, roundish, concave, plaited. *Stamina:* filamenta very many, inserted into the receptacle, capillary; antheræ compressed. *Pistil:* germen globular; style long, incurved; stigma compressed, flat, subbifid. *Pericarp:* berry globular, one-celled, crowned with the style. *Seeds:* two, arilled, oblong, rounded, flat on one side, convex on the other. Essential Character. *Calix:* five-leaved. *Corolla:* three-petalled, plaited. *Stigma:* subbifid. *Berry:* globular, crowned with the style, one-celled, two-seeded.——The species are,

1. Doliocarpus Rolandri. Stem stiff and straight: leaves

ovate-lanceolate, toothed; flowers terminating. A stiff erect shrub, with pendulous leaves.—Found in Surinam.

2. Doliocarpus Major. Stem scandent; leaves ovate, toothed; peduncles lateral, one-flowered. The flowers are aromatic, but rather nauseous, and the berries positively pernicious; stem slender and flexuose; branches at right angles; leaves spreading.—Found in Surinam.

3. Doliocarpus Calinea. Stem scandent; leaves ovate, quite entire; flowers axillary, in bundles. This is a shrub with several knotty spreading twigs, scattering over the neighbouring trees; the branches are garnished with alternate, oval, shining, green leaves, terminating in a point, the largest are four inches long. The flowers spring from the bosoms of the leaves, on the branches, and are arranged alternately in little heaps; the corolla consists of three white petals, which are large and rounded.—Native of Guiana.

Dombeya; a genus of the class Dicœcia, order Monadelphia.—Generic Character. *Male. Calix:* ament ovate-cylindric, imbricate, with very many woody short scales, each terminated by a lanceolate, acute, coriaceous leaflet, concave at bottom, narrower and recurved at top. *Perianth* and *Corolla:* none. *Stamina:* filamenta none, except the amentaceous scales; antheræ ten or twelve, heaped about each amentaceous scale, linear, grooved, the length of the scale, fastened to the top of it, below the leaflet by the upper extremity, approximating and converging round the scale, separating by the lower extremity when the scale is broken. *Female. Calix:* ament large, roundish, ovate, closely imbricate, with very many germina, resembling scales. *Perianth* and *Corolla:* none. *Pistil:* germen each wedge-form, oblong, subcompressed, contracted at the base into a point, with a broad, thick, callous termination; style none; stigma bivalve, the valves unequal, the inner very small, obtuse, the outer very large, broad at the base, thick, curved inwards above the inner one, terminated by a linear, acute, slender, ascending strap, almost the length of the germen, bent in at a right angle above it. *Pericarp:* none. *Seeds:* very many, heaped into a roundish strobile, imbricate, each oblong, subcylindric, towards the base obtusely four-cornered, with a short broad spatulate wing or strap at the top, thickened at the edge, incurved, ascending; the shell coriaceous, coloured, valveless; the kernel oblong, subangular at the base. *Receptacle:* naked, villose, here and there alveolate. Essential Character. *Male. Calix:* the scales of an ament, terminated by a leaflet. *Corolla:* none. *Antheræ:* ten or twelve, without filamenta. *Female. Calix:* ament with many germina. *Corolla:* none. *Stigma:* bivalve, unequal. *Seeds:* many, in a roundish strobile.——The only species hitherto discovered is,

1. Dombeya Chilensis. Turbinate, imbricate leaves, mucronated on one side; the branches quaternate and cruciate.—This tree is very little known: it is a native of Chili, of a resinous nature, in some respect allied to Protea; and also to the Pines in some particulars of its fructification. The trunk is straight, and of considerable height; the wood white, solid, and clothed with a kind of double bark; the boughs are covered with very numerous leaves, sessile, oval, very pointed, entire, smooth, and coriaceous, a little concave inwards, and convex outwards; they have a sharp point, and are ranged on the branches in the manner of scales; the flowers are male and female, borne on different individuals, and hang in solitary catkins from the tops of the branches.

Donatia; a genus of the class Triandria, order Trigynia.—Generic Character. *Calix:* perianth three-leaved; leaflets awl-shaped, short, remote. *Corolla:* petals nine, or eight to ten, linear, oblong, twice as long as the calix, spreading. *Stamina:* filamenta three, awl-shaped, the length of the calix; antheræ subglobular, twin. *Pistil:* germen inferior; styles three, filiform, a little longer than the stamina; stigmas bluntish. Essential Character. *Calix:* three-leaved. *Petals:* nine, twice as long as the calix, linear, oblong. *Antheræ:* subglobular, twin.——The only known species is,

1. Donatia Fascicularis. This is a simple undivided plant, a finger's length, with imbricate leaves.—Native of moist rocky places in Terra del Fuego.

Doræna; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, shorter than the corolla; divisions ovate, concave. *Corolla:* one-petalled, subcylindric, wheel-shaped; border five-cleft; segments ovate, obtuse, erect. *Stamina:* filamenta very short, so as to be scarcely any, inserted into the tube of the corolla; antheræ oblong, subquadrangular, included. *Pistil:* germen conic, smooth, superior; style filiform, the length of the corolla; stigma truncate, emarginate. *Pericarp:* capsule ovate, acute, one-celled. *Seeds:* very many. Essential Character. *Corolla:* five-cleft. *Stigma:* emarginate. *Capsule:* one-celled.——The only species hitherto discovered is,

1. Doræna Japonica. A tree about six feet high; branches alternate, round, ash-coloured, smooth, divaricate; leaves alternate, petioled, oblong, acuminate, remotely and obscurely serrate, nerved, smooth, spreading, the length of a finger; petioles semicylindric, grooved on the upper part, smooth, half an inch in length; flowers in racemes, white, minute; racemes axillary, scarcely half an inch long; capsule the size of a pepper-corn.—Native of Japan.

Doronicum; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common with leaflets lance-subulate, about twenty in number, equal, upright, of a double series, length generally of the rays of the corolla. *Corolla:* compound, rayed; corollules hermaphrodite, tubular, numerous in the disk; females ligulate; of the number of calicular leaves, in the ray; proper of the hermaphrodite funnel-form; border five-cleft, patulous; female ligulate, lanceolate, three-toothed. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; anther cylindric, tubular. *Pistil:* in the hermaphrodites; germen oblong; style filiform, length of the stamina; stigma emarginate: in the females, germen oblong; style filiform, length of the hermaphrodites; stigmas two, reflex. *Pericarp:* none; the calix slightly converging. *Seeds:* in the hermaphrodite solitary, obovate, furrowed, a little compressed; down hairy: in the females solitary, obovate, furrowed, a little compressed; down none. *Receptacle:* naked, flat. Essential Character. *Calix:* scales in two rows, equal, longer than the disk. *Seeds:* of the ray naked, and destitute of down; down to those of the disk simple. *Receptacle:* naked.——The species are,

1. Doronicum Pardalianches; *Great Leopard's Bane.* Leaves cordate, obtuse, toothletted, those next the root petioled, on the stem embracing. Roots thick, fleshy, divided into many knots, sending out strong fleshy fibres, which penetrate deep into the ground; root-leaves heart-shaped, hairy, petioled; among these arise the flower-stalks, which are channelled and hairy, nearly three feet high, putting out one or two smaller stalks from the side; these grow erect, and have one or two heart-shaped leaves closely embracing the stalk; this and each branch is terminated by one large yellow flower, which appears in May, and ripens seed in July.—Native of France, Switzerland, Germany, Austria, Carniola,

Hungary, and Savoy. This plant has been stigmatized as poisonous, without much occasion, although it derives its name from this imaginary noxious quality. The famous Conrad Gesner, however, took two drachms of the root without injury; and some say that it is an antidote to poison, which is still farther from the truth. It is not used in the present practice; and Dr. Stokes informs us, that two drachms occasioned a sense of inflation in the stomach, and also of general weakness, but that these symptoms were only of short duration; he adds, that it has been recommended in vertigo, epilepsy, and menstrual obstructions, but that these powers want the confirmation of a more accurate experiment.—It multiplies very fast by its spreading roots; and if the seeds be permitted to scatter, they will produce plants wherever they happen to fall, so that it becomes a weed where it is once established: it loves a moist soil and shady situation.

2. Doronicum Plantagineum; *Plantain-leaved Leopard's Bane.* Leaves ovate, acute, somewhat toothed; branches alternate. The stalks rise about two feet high; each is terminated by a large yellow flower, which has two or three alternate embracing leaves, not so hairy as those of the first species.—Native of Germany, France, Spain, and Portugal. This is equally hardy with the first, and multiplies abundantly.

3. Doronicum Bellidiastrum; *Daisy-leaved Leopard's Bane.* Stem naked, very simple, one-flowered. This, like the two preceding, has a perennial root; the leaves are like those of the common Daisy, but longer and not so broad; the flower grows on a naked stalk, nearly a foot long; and the root seldom sends out more than one stalk; the ray of the flower is white, very like that of the common Daisy; disk yellow. Haller found it in the Lower Alps with a deep red flower.—Native of the Swiss, Tyrolese, and Italian Alps, and of Austria, Carniola, and Silesia. This species is propagated by parting the roots, for the seeds do not ripen well in England; it must have a shady situation, and a moist soil. The flowers do not make a much better appearance than those of the common Daisy, only they stand on much taller stalks.

Dorstenia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* receptacle common one-leafed, flat, cornered, very large, covered by the receptacle, with very numerous floscules inhabiting the disk, very small; perianth proper four-cornered, concave, imbedded in the receptacle, and united with it. *Corolla:* none. *Stamina:* filamenta four, filiform, very short; antheræ roundish. *Pistil;* germen roundish; style simple; stigma obtuse. *Pericarp:* none; receptacle, common becoming fleshy. *Seeds:* solitary, roundish, acuminate. Essential Character. *Receptacle:* common one-leafed, fleshy, in which solitary seeds nestle.—It will be difficult to obtain these plants, because the seeds are seldom to be found good, nor will they grow if they be kept long out of the ground; so that the only sure method to obtain them, is to have the roots taken up at the time when their leaves begin to decay, and planted pretty closely in boxes of earth, which may be brought very safely to England, provided they be preserved from salt water, and are not too often supplied with fresh during their passage. As soon as they arrive, each of them should be transplanted into a separate pot, filled with fresh earth, and plunged into the bark-stove, which should be kept of a moderate heat: they must be frequently refreshed with water during the summer season; but in winter, when their leaves are decayed, it should be more sparingly given. These directions will enable any one who conforms to them, not only to maintain, but increase the plants, by parting their roots in the spring, before they put out their leaves.——The species are,

1. Dorstenia Houstoni. Scapes rooted; leaves heart-shaped, angled, acute; receptacles quadrangular. It sends out the leaves upon footstalks eight or nine inches in length, and very slender; the leaves are about three inches and a half long, and almost four broad at their base, the two ears having two or three angles, which are acute, and the middle of the leaves are extended, and end in acute points like a halbert; they are smooth, and of a lucid green; the footstalk which sustains the placenta is nine inches long, and about half an inch square, and the upper surface closely set with small flowers.—Native of Campeachy, in South America.

2. Dorstenia Contrayerva; *Contrayerva.* Scapes rooted; leaves pinnatifid-palmate, serrate; receptacles quadrangular. It sends out several leaves from the root, which are about four inches long, and as much in breadth; these are deeply laciniated into five or seven obtuse parts standing upon footstalks nearly four inches long; they are smooth, and of a deep green. The stalks arise from the root, and grow nearly four inches high, upon which the fleshy placenta is vertically placed; this is of an oval form, about one inch long, and three quarters broad: upon the upper surface of this the small flowers are closely situated, the fleshy part becoming an involucre to them; they are very small, and very indistinct at a distance, being of an herbaceous colour.—Native of New Spain, Peru, Tobago, and St. Vincent's. The roots and seeds of this plant are excellent aromatics, and alexipharmics or counter poisons, and cure the bites of serpents, and stings of scorpions, or black spiders. A decoction of the root in water, is also good in dropsies, and debilitations, or taken as a bitter in wine, with the addition of steel. The root, says Motherby, has a light aromatic smell, and a very pungent bitter taste; it promotes perspiration, resists putrefaction, and is an excellent medicine in malignant, low, and putrid fevers. Meyrick recommends it for strengthening the stomach and digestive faculties, dispersing wind, easing the colic, and is excellent in the decline of ardent fevers, and through the whole course of putrid ones. Hill remarks, that we use the roots; he adds, our druggists keep them, and they are the principal ingredients in that famous powder, called, from its being rolled up into balls, *lapis contrayerva.* It is an excellent cordial and sudorific, good in fevers, and in nervous cases, and against indigestions, colics, and weaknesses of the stomach: it may be taken in powder, or in tincture, but it is better to give it alone than with that mixture of crab's claws, and other useless ingredients, which are compounded in the contrayerva-stone. In fevers and in nervous disorders, it is best to give it in powder; in weaknesses of the stomach it is best in tincture, and is also an excellent ingredient in bitter tinctures, so that it is wonderful that the present practice has not put it to that use. All the old prescribers of recipes for these things have put some warm root into them, but none is so proper as this, although the galangale is the most commonly used; but that has a very disagreeable flavour in the tincture, while the contrayerva, with equal or superior virtues, is entirely free from that defect.

3. Dorstenia Drakena. Scapes rooted; leaves pinnatifid-palmate, quite entire; receptacle oval. This plant sends out leaves of different forms, some of the lower ones are heart-shaped, having a few indentures on their edges, and ending in acute points, but the larger leaves are deeply cut, like the fingers on a hand, into six or seven acute segments; these leaves are five inches long, and six broad in the middle; they are of a deep green, and stand upon long footstalks. The placenta is very thick and fleshy, an inch and a half long, and three-quarters broad, having four acute corners; these have

a number of small flowers placed on the upper surface, like the other species.—Native of Vera Cruz, and Tobago. Mr. Miller informs us, that the roots of all the three species are brought over, indifferently to be used in medicine and in dying; and that it was not known what the plant was, the roots of which were imported, and had been long used in medicine, until Dr. Houston informed us.

4. Dorstenia Cauleseens. Peduncles on a stem. This is a small plant, the leaves of which proceed irregularly from the stem, which is short. The leaves are ovate-acute, and pretty strongly dentated at the edges; the male flowers are collected into little heads, and the females into a kind of sharply lobed or irregular flattish heads; they stand upon remarkably long footstalks.—Native country unknown.

5. Dorstenia Lucida. Caulescent: leaves obliquely ovate, entire, even; peduncles in cymes, axillary. Native of the Society Islands.

6. Dorstenia Pubescens. Caulescent: leaves obliquely ovate, serrate, pubescent; peduncles axillary, bearing heads. —Native of the Society Islands.

7. Dorstenia Cordifolia. Scapes rooting; leaves cordate-ovate, toothletted; receptacles orbiculate; disk a little concave: male flowers in the disk, towards the ray; calices immersed in the receptacle, or four-toothed hole; filamenta two, three, or four, short, with twin antheræ; flowers in the middle of the disk, female; germen ovate; style bifid; stigmas reflex.—Native of Jamaica and St. Domingo.

8. Dorstenia Chinensis. Peduncles cauline; petioles three or five leaved. Root fusiform, three inches long, white within and without, fleshy, aromatic; stem perennial, suberect, round, simple, whitish; leaves ternate or quinate, lanceolate, quite entire, smooth, on a long common petiole; receptacle of the flowers lateral, fleshy, suboval, with many florets put forth at the top; the calix is funnel-form, and three-toothed. The root is aromatic, and used in medicine.—Native of China, in the northern provinces; and called there *pechi* and *bach-chi*.

Douglassia; a genus of the class Polyadelphia, order Polyandria.—Generic Character. *Calix*: perianth one-leafed, turbinate, half six-cleft, permanent; segments ovate, acute, coloured. *Corolla*: none; nectaries six, ovate on the outside with two oblong pits, on the inside convex; anthera-bearing, terminated by two glands, convex without, concave within, ending at bottom in a capillary pedicel, shorter than the calix, inserted at the base of the segments, with a villose gland on each side at the insertion of it. *Stamina*: filamenta none; antheræ very many, minute, one-celled, with the valve opening at the base. *Pistil*: germen ovate, superior; style filiform, the length of the stamina; stigma six-cleft. *Pericarp*: berry ovate, acute, one-celled. *Seed*: single, with a brittle shell. Essential Character. *Calix*: half six-cleft. *Corolla*: none. *Nectaries*: six. *Fliamenta*: none. *Germen*: superior. *Stigma*: six-cleft. *Berry*: ovate, one-celled. *Seed*: one, with a brittle shell.——The only known species of this genus is,

1. Douglassia Guianensis. With alternate lanceolate leaves. This is a middling-sized shrub, growing in Guiana; it is about five feet high, and branching at top, its diameter five or six inches; the wood white and compact; the branches are subdivided into smaller ones; and the flowers grow at their extremities in a kind of straggling clusters, they are small and yellowish. The berry is black, with viscid pulp; the seeds oily and aromatic. It is called by the natives *aiouvè*.

Draba; a genus of the class Tetradynamia, order Siliculosa. —Generic Character. *Calix*: perianth four-leaved; leaflets ovate, concave, from erect spreading, deciduous. *Corolla*: four-petalled, cruciform; petals oblong, somewhat spreading, with very small claws. *Stamina*: filamenta six, length of the calix; of these the four opposite ones somewhat longer, from erect spreading: antheræ simple. *Pistil*: germen ovate; style scarcely any; stigma headed, flat. *Pericarp*: silicle elliptic-oblong, compressed, entire, destitute of style, two-celled; dissepiment parallel with the valves; valves plano-concave. *Seeds*: several, small, roundish. Essential Character. *Silicle*: entire, oval-oblong; valves flattish, parallel to the dissepiment.—*Style*: none.— These plants are easily propagated by parting the heads in autumn, for they shoot up to flower very early in the spring; they will thrive, and flower annually, in a moist soil and shady situation, and require no other culture but to be kept clean from weeds. Some of them are peculiarly adapted to adorn rock-work, and they all prosper best in that situation.—— The species are,

1. Draba Aizoides; *Hairy-leaved Alpine Whitlow Grass*. Scape naked, simple; leaves ensiform, keeled, ciliate. Root perennial; stem three inches high; petals entire; silicle hairy, rough, ovate, sharp at both ends, ending in a long style, four lines in length, the cells having six to eight seeds, which are round and flatted; flowers in a sort of corymb, which becomes a raceme when the fruit is ripe; petals yellow, usually entire. It is well adapted to rock-work, and is a pretty plant with a pleasant smell.—Native of the mountains of Franee, Switzerland, Savoy, Austria, Carniola, and Silesia.

2. Draba Ciliaris. Stem almost naked; leaves linear, ciliate about the edge and along the keel; petals entire; root perennial; root-leaves forming a close tuft, imbricate, crowded, even, keeled, distinctly ciliate; petals obovate, white; style longer than the stamina; peduncle naked, the length of the stem, filiform, few-flowered; flowers terminating, subsessile; leaflets of the calix erect, almost equal, lanceolate, obtuse, green on the outside, yellowish on the inside; germen ovate, longer than the stamina.—Native of Provence, in dry rocky places.

3. Draba Alpina. Scape naked, simple; leaves lanceolate, quite entire; petals emarginate. Perennial: all the root-leaves spreading, sprinkled with hairs on the upper surface, by no means imbricate, linear, ciliate or smooth on the upper surface; stem leafless, with a few hairs scattered about it, not one-leafed or smooth; petals slightly emarginate, not entire. —Native of the European Alps.

4. Draba Verna; *Common* or *Spring Whitlow Grass*. Scapes naked; leaves somewhat serrate, often very entire; petals divided. Root annual; stems about three inches high, one to five or more from the same root, in a rich soil, smooth after flowering, but hairy when young; peduncles alternate, bearing one flower only; leaflets of the calix obtuse and somewhat hairy; petals white, twice the length of the calix, two-parted; filamenta bending forward, the four longer ones the height of the pistil; seeds ovate, brown, fixed to the edge of the partition, from three to six in a cell, according to Scopoli, but sometimes as many as twenty-four: by these it propagates itself with such amazing rapidity, that it is a weed which it is hardly possible to eradicate wherever it has obtained admittance. Linneus observes, that it hangs down the flowers in the night and in wet weather; that in Smoland they sow Rye when this plant is in blossom; and that in dry soils whole fields are covered with the flowers early in the spring. In England it is common upon walls, dry banks, fields, and pastures, flowering in March and April, or earlier if the weather be mild. In some countries abundance of this little plant is supposed to prognosticate dearness of corn, which may have some foundation, as a wet season produces

a great crop of this little weed, which some say is much liked by sheep. Gerarde calls it *whiteblowe*, or *whitlowe-grasse*, or *naile-woort*. This small plant may serve as an index of the difference of climates; for in Sweden it flowers in the month of April; in Germany a month earlier; in England, Holland, and France, in February; while in the genial air of Sicily it flowers throughout the winter.

5. Draba Pyrenaica. Scape naked; leaves wedge-shaped, palmate, three-lobed. It is a perennial plant, seldom more than two inches high, with a shrubby stalk dividing into many small heads; leaves small, the lower ones have five short narrow lobes, the upper have but three; the flowers come out in clusters, sitting close to the leaves, they are of a pale purple colour, and appear early in the spring; root creeping, putting out erect branching shoots, which at the end bear thick, shining, stiffish, spreading leaves, half-three-lobed, narrowed at the base into a sort of half-embracing erect petiole, marked with three lines; the lobes spreading oblong, sharpish, ciliate at the tip, and interruptedly on the edge.—Native of the mountains of Switzerland in the canton of Appenzel, Provence, Carniola, Austria, and Piedmont; flowering in May. This decorates the loftiest mountains of Europe with its pale purple diminutive flowers, in the spring and early summer, and vies with the neighbouring Androsaces and Arctiæ in beauty.

6. Draba Muralis; *Wall Whitlow Grass.* Stem branched; leaves ovate, sessile, toothed. Root annual; root-leaves entire at the base, toothed upwards; stem-leaves rather heart-shaped; fruit-bearing peduncles horizontal, longer than the silicles; corollas pale yellow, or white, with the petals slightly emarginate; silicles exactly elliptic, ending in a short blunt knob; seeds reddish-brown. It rises with an upright branching stalk about ten inches high, terminated by loose spikes of white flowers, which appear in the beginning of May. The wood variety being sown with this in a garden, became so like it as not to be distinguished, the yellow flowers becoming white.—Native of Sweden, Switzerland, Germany, the south of France, and of Italy, in the fissures of rocks Mr. Ray found it near Montpellier, and between Lucca and Pisa, in hedges. In England, it is met with in Derbyshire, Yorkshire, and Westmoreland; and is common about Malham.

7. Draba Hirta. Scape one-leafed; leaves subhirsute; silicles oblique, pedicelled. Petals white, emarginate, perennial; root-leaves elliptic, smooth, ciliate, tongue-shaped; stem-leaves sessile, ovate-acuminate, having only two teeth.—Native of Lapland, Denmark, Provence, Switzerland, Silesia, Austria, and Piedmont, in the fissures of the rocks; flowering in May.

8. Draba Fladnizensis. Scape two-leaved; leaves smooth, ciliate; silicles straight, pedicelled. Root fusiform, perennial; root-leaves forming roses, lanceolate, bluntish, quite entire, flat, shining, smooth, firm, ciliate, with distant hairs; stems from the centre of the roses, erect, undivided, slender, an inch high, naked; they have one or two sessile, lanceolate, smooth, entire leaves on them, villose, ciliate on the edge; raceme terminating, few-flowered; flowers from five to eight, pedicelled; calicine leaflets naked, half the length of the petals, green; petals snow-white, slightly emarginate; filamenta awl-shaped, white, with ovate yellow antheræ; silicle naked. It has no scent.—Native of Carinthia.

9. Draba Incana; *Hoary Whitlow Grass.* Stem-leaves numerous, hoary; silicles oblong, oblique, subsessile. Root biennial; root-leaves very numerous, spreading like the flower of a rose, lanceolate, tomentose, and somewhat hairy, entire, acute; stem a hand in height, straight, and stiff, hoary, clothed with many leaves, frequently more than thirty, very like the root-leaves, but shorter, so that the uppermost are ovate, sessile, and have a few teeth, on the lower part of the stem they are more crowded; flowers in a small terminating corymb; petals white, obscurely emarginate; silicles in a raceme, erect, twisted in a direction contrary to the sun's diurnal motion, compressed, naked; peduncles hoary, three times shorter than the silicles, stiff, approaching to the stem.—Native of Lapland, Sweden, Denmark, Norway, and Britain; as in Westmoreland, Yorkshire about Settle, and near the summit of Ingleborough; in the Scottish islands of Isla and Skye; and in Carnarvonshire, North Wales. It flowers in May and June.

Dracæna; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong, somewhat upright, equal, cohering by the claws. *Stamina:* filamenta six, inserted into the claws, subulate, thicker in the middle, membranaceous at the base, length scarcely of the corolla; antheræ oblong, incumbent. *Pistil:* germen ovate, six-striated; style filiform, the length of the stamina; stigma three-cleft, obtuse. *Pericarp:* berry ovate, six-furrowed, three-celled. *Seeds:* solitary, ovate-oblong, incurved at the tip. Essential Character. *Corolla:* six-parted, erect. *Filamenta:* somewhat thicker in the middle. *Berry:* three-celled, one-seeded. For propagation and culture, see *Phœnix.*——The species are,

1. Dracæna Draco; *Dragon Tree.* Arboreous: leaves somewhat fleshy, with a thorny end. This rises with a thick trunk, nearly equal in size the whole length, the inner part very pithy, next to this a circle of strong fibres, and the outside soft; height twelve or fourteen feet; the trunk is marked with circular rings where the leaves are fallen off; and the top sustains a large head of leaves coming out singly all round it; they are shaped like those of the common Iris, but are much longer, being often four or five feet in length, and an inch and a half broad at their base, where they embrace the trunk; they lessen gradually, and terminate in a point: these leaves are also pliable, hanging down, entire, of a deep green, smooth on both surfaces. It is called Dragon Tree, because the inspissated juice becomes a red powder, very like the Eastern Dragon's-blood.—Native of the East Indies.

2. Dracæna Ferrea; *Purple Dracæna.* Arboreous: leaves lanceolate, acute. Stem shrubby, almost simple, eight feet high, erect, round, with close protuberant rings from the fallen leaves; these are quite entire, a foot and a half in length, erect, smooth, on stem-clasping petioles, and of a dusky red colour; flowers red-purple, subterminating; spadix diffused; spathe long, awl-shaped, permanent; corolla bell-shaped, six-parted, inferior; segments oblong, obtuse, spreading; antheræ sagittate, sharp, and bifid at the end; style awl-shaped, thick, trifid, equal to the stamina; stigmas simple; berry red.—Native of China. The Chinese call it *tat-sio*, or *tsiet-tsao*, and, as well as the Cochin-chinese, plant it in their gardens. It flowers in March and April.

3. Dracæna Striata. Frutescent, caulescent, erect: leaves lanceolate, obliquely sickle-form, striated; stem flexuose.—Native of the Cape of Good Hope.

4. Dracæna Terminalis. Herbaceous, caulescent: leaves lanceolate. Raceme terminating, composed of a few branches; pedicels alternate, solitary, shorter than the flower, surrounded at the base by an obtuse glume. It is a hardy tree.—Native of the East Indies, and the Society Isles. This plant was found by Captain Cook very useful in making a kind of beer. The juice of the root is sweet and mucilaginous.

5. Dracæna Ensifolia; *Sword-leaved Dracæna.* Herbaceous, subcaulescent; leaves ensiform. Root perennial, horizontal, creeping, somewhat woody, odoriferous, simple; root-

leaves heaped, thick, striated, shining, reflex, a foot long; scape three feet high, leafy at bottom, naked at top, round, slender, declining; flowers terminating, subumbelled; corolla bell-shaped, spreading; petals lanceolate, blue on the outside, white within, small; filamenta spreading, dilated at the base; berry roundish, blue, three-grooved, containing many minute seeds.—Native of the East Indies, and Cochinchina.

6. Dracæna Undulata. Herbaceous, caulescent, erect: leaves ovate, acute, many-nerved; flowers axillary, peduncled.—Native of the Cape of Good Hope.

7. Dracæna Medeoloides. Herbaceous, twining; leaves ovate, nerved.—Native of the Cape of Good Hope.

8. Dracæna Erecta. Herbaceous, caulescent, erect; leaves lanceolate, subulate, sessile.—Native of the Cape.

9. Dracæna Volubilis. Herbaceous, twining: leaves lanceolate.—Found at the Cape.

10. Dracæna Graminifolia. Herbaceous, stemless: leaves linear. Scape scarcely longer than the leaves; four or five flowers at each tooth of the raceme, on pedicels shorter than the flower itself, coming out from a kind of obscure glume.—Native of Asia.

11. Dracæna Emarginata. Shrubby: leaves tooth-spiny; racemes axillary; berries many-seeded.—Native of the Isle of Bourbon.

12. Dracæna Borealis. Herbaceous, subcaulescent; leaves elliptic. The whole herbage somewhat pubescent.—It flowers in June; and is a native of Hudson's Bay, and Newfoundland.

13. Dracæna Indivisa. Arboreous: leaves ensiform, acute; racème compound. Trunk round, full of small chinks, undivided, leafy at top, from six to nine feet high; raceme apparently lateral, but perhaps this was owing to the next set of leaves destined for the ensuing year coming out; it is ovate, nodding, with the partial racemes digested into a cylindric thyrsoid form; pedicels one-flowered, very short, horizontal; bractes at the base of the pedicel, two, very small, lanceolate, acute, concave; petals subreflex; germen superior; style short; berry globular, blue, marked above with three hollow dots, mucronate, with the permanent style, having about seven seeds in each cell, involved in an aril or membrane, so as to appear only one; they are black, smooth, semilunar, and three-sided. The berries of this species are eaten by the New Zealanders; they are ripe in May, that is, at the beginning of their winter. The young leaves, or rather the hybernacle concealed among them, is an excellent salad, which, together with the Areca Oleracea and Sapida, Apium Graveolens, or Smallage, Tetragonia Halimifolia, Lepidium Oleraceum and Piscidium, and Sonchus Oleraceus or Sow-thistle, was found to be of great service to our navigators in resisting the putrid scurvy.—Native of New Zealand.

14. Dracæna Australis. Arboreous: leaves ensiform, acute; raceme terminating, erect, superdecompound.—Native of New Zealand.

Dracocephalum; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix*: perianth one-leafed, tubular, permanent, very short. *Corolla*: one-petalled, ringent; tube length of the calix; throat very large, oblong, inflated, gaping, a little compressed at the back; lip superior, straight, arched, complicated, obtuse; lip inferior, three-cleft; lateral divisions upright, as it were the segments of the throat, the intermediate one hanging down, small, prominent, forwards at the base, roundish, emarginate. *Stamina*: filamenta four, subulate, hid beneath the upper lip of the corolla, of which two are a little shorter; antheræ somewhat cordate. *Pistil*: germen four-parted; style filiform, in the situation of the stamina; stigma two-cleft, sharp, slender, reflex. *Pericarp*: none; calix cherishing the seeds in its bosom. *Seeds*: four, ovate-oblong, three-sided. Essential Character. *Corolla*: throat inflated; upper lip concave.——The species are,

* *In Spikes.*

1. Dracocephalum Virginianum; *Virginian Dragon's Head.* Flowers crowded; leaves linear-lanceolate, serrate. It rises with an upright stalk, nearly three feet high; leaves about three inches long, and half an inch broad, sessile; they are usually in pairs at each joint, but sometimes there are three together: the flowers are purple, in terminating spikes, and make a pretty variety among other hardy plants.—It is perennial, flowering from July to September; and a native of North America, in woods, and by the sides of rivers. It will live in the open air of our climate, but requires a moist soil, or should be duly watered in dry weather, otherwise the leaves will shrink, and the flowers make little appearance. It may be allowed a place in the shady borders of a garden, for it will not ramble nor take up much room, and may be propagated by parting its roots in autumn.

2. Dracocephalum Denticulatum; *Denticulated Dragon's Head.* Flowers remote; leaves obovate-lanceolate, denticulate above. It is allied to the first species, but is inferior in point of beauty; it spreads more on the ground; its flowering-stems are not altogether so upright, nor so tall; its leaves are broader; and the flowers in the spikes less numerous.—It flowers in August and September; and is a native of North America. Like the first, it is a hardy perennial, multiplying considerably by its roots, which creep in some degree: it requires a moist soil, and a shady situation.

3. Dracocephalum Canariense; *Canary Dragon's Head,* or *Balm of Gilead.* Leaves compound. This plant is perennial, rising with several stalks to the height of three feet or more, and becoming woody at the lower part; leaves at each joint, having three or five oblong, pointed, serrate leaflets: the flowers come out on short thick spikes at the top of the stalks, they are of a pale blue colour, and are produced from July to September; the corolla is flesh-coloured, or pale purple with white lines.—Native of the Canary Islands, whence it was imported into Europe, under the name of *permento de Tana*: the old writers call it *Camphorosma* and *Cedronella*; and the moderns, *Balm of Gilead,* from its rich odour on being gently rubbed. It is usually kept in the green-house, but in mild winters the plants will live abroad in warm borders; and those which are kept in pots will thrive much better when sheltered under a frame, than in a green-house, where the plants are apt to draw up weak, for they require as much free air as possible in mild weather, and need only be sheltered from severe frost. This species may be propagated by seeds, which if sown in autumn will more certainly grow than those which are sown in the spring; but if these be sown in pots, they must be sheltered under a frame in winter, and if the plants do not come up in the same autumn, they will rise in the spring; but if the seeds are sown in the full ground, it should be in a warm border, and they should be defended from hard frosts, otherwise the young plants will be destroyed. They may also be propagated by cuttings, which, if planted in a shady border any time in summer, will very soon take root, and furnish plenty of rooted plants.

4 Dracocephalum Pinnatum. Leaves cordate, pinnate-sinuate. Stems shrubby, decumbent; leaves transversely pinnatifid, obtuse, with remote lobes, on long petioles. The spike is like that of the *Melampyrum Arvense.* The bractes are lanceolate, with bristly teeth, and are often red; corollas

small; styles twice as long as the flowers.—Native of Jerkatsch in Siberia.

5. Dracocephalum Peregrinum; *Prickly-leaved Dragon's Head.* Flowers somewhat spiked; stem-leaves ovate-oblong, gashed; bractes linear-lanceolate, denticulate, spiny. Root perennial; stems several, a long span in length, with the joints an inch asunder; leaves like those of the common Hyssop or Rosemary, moderately hoary underneath; from the axils of these come out branches with similar leaves, but smaller, and flowers at the end, with rigid calices, and corollas of a very elegant blue purple colour; seeds oblong, angular, blackish.—Native of Siberia.

6. Dracocephalum Austriacum; *Austrian Dragon's Head.* Leaves and bractes linear, parted, spiny. Root perennial; stalks hairy, a foot and a half high, sending out several side-branches; flowers terminating in short whorled spikes, with some very narrow leaves or bractes under each whorl. This, says Jacquin, is a beautiful plant, and grows in Austria, where it was first observed by Clusius. The stems, which vary in number according to the soil, are annual, squarish, and villose; the leaves opposite, hoary below, smooth and green above, and are deeply lobed, or cut in a pinnatifid manner. The flowers are axillary on the upper part of the plant, commonly in pairs, sometimes in threes, large, and of a violet purple colour, paler without.—Native of Austria and Hungary. This, and the seventh and eighth species, will be best propagated by seed, which should be sown in the latter end of March, in a bed of fresh light earth, in an open exposure, and in about five or six weeks after, the plants will appear, when they should be carefully cleared from weeds; and, if the season should prove dry, they must be refreshed now and then with water, which will greatly promote their growth. When the plants are about two inches high, they should be carefully transplanted into a bed or border of fresh, light, undunged earth, observing to shade them from the sun until they have taken root, as also to refresh them with water until they are well established in this bed; after which time, they will require no farther care, but to keep them constantly clear from weeds till Michaelmas, when they are to be removed into the places where they are finally to remain. When they are first removed from the seed-bed into the nursery-bed, they should be planted six inches asunder every way, which will be sufficient room for them the first season; and this will admit of the hoe to come between the plants to destroy the weeds, which is safer than pulling them up by hand, as well as sooner performed: for as the hoe stirs the ground between the plants, it not only cuts down the weeds which were up and visible, but also destroys all those whose seeds were sprouted, and would soon after have appeared; so that one hoeing, if well performed, and in dry weather, will more effectually destroy the weeds, than two hand weedings would do, were they performed ever so carefully; besides, the stirring the ground is of great service to the plants. At Michaelmas, when they are transplanted for good, they should be carefully taken up with balls of earth to their roots, and planted in fresh light earth in the middle of the borders of the pleasure garden, where, when intermixed with other hardy plants of the same growth, they will make a pretty appearance when they are in flower, and will continue three or four years, and have been known to live six or seven years in stony soils, where, however, the spikes of flowers are neither so large nor so vigorous as those of younger plants. Hence, as these plants do not continue many years, it will be proper to raise a supply of young plants to succeed them, for the old plants will produce seed plentifully, which are ripe the latter end of August, or the beginning of September, when they should be gathered in dry weather, and kept in a warm dry room ready for use.

7. Dracocephalum Ruyschiana; *Hyssop-leaved Dragon's Head.* Leaves and bractes lanceolate, undivided, awnless. Root perennial; stems about two feet high, with two smooth linear leaves at each joint, about an inch long, and one-eighth of an inch broad, with a deep furrow along the middle; at each joint, at the other sides of the stem, come out two or three very narrow small leaves of the same shape. The calices are cut into five segments at top, of which, four are narrow and acute, and the fifth, which is on the upper side of the flower, is broader, and rounded at the point. Tube of the corolla longer than the calix, swelling, and large at the chaps; the upper lip broad, erect, and arched over the tube, the lower shorter, with two short, erect, side segments; but the middle segment is broad, rounded, indented at the point, and reflex. The flowers appear in June, and are of a fine blue colour.—Native of Norway, Sweden, Switzerland, and Siberia. See the sixth species.

** *In Whorls.*

8. Dracocephalum Sibiricum; *Siberian Dragon's Head.* Flowers subverticilled; peduncles bifid, pointing one way; leaves cordate, oblong, acuminate, naked. The stalks of this species do not grow erect, like the preceding, but spread nearer to an horizontal position; they divide into several branches, which have a pair of large leaves at each joint, and four smaller, two on each side; they are smooth, have sharp indentures on their edges, and stand erect. The flowers come out from the side of the stalks, at the base of the leaves, two or three together, on each side; calix purple, cut into five acute segments, three broad in the upper lip, two narrower in the lower; upper lip of the corolla broad, indented at the point, and erect, lower trifid, but the middle segment not so much reflexed as that of the preceding, and the whole of a paler blue. The chaps of the corolla are broad, and almost inflated; the upper lip is compressed and bifid, the lower toothletted, and villose in front; the two upper stamina are hirsute at the base. The smell of this plant is fetid, and not unaptly compared to that of rancid oil.—Native of Siberia. See the sixth species.

9. Dracocephalum Moldavica; *Moldavian Dragon's Head,* or *Balm.* Leaves dotted underneath; bractes lanceolate, the serratures capillaceous. This is an annual plant, rising with branching stalks, a foot and a half high, with oblong leaves, deeply serrate on their edges. The flowers come out in whorls round the stalks at every joint, are blue, appear in July, and continue to the middle of August. The seeds ripen in September. It has a strong balsamic odour, which is very agreeable to some persons.—Native of Moldavia. This, with the five following species, may be propagated by seeds, sown either in the spring or autumn, in small patches upon the borders where they are to remain. When the plants come up, they should be thinned where they grow too near together, and kept clear from weeds.

10. Dracocephalum Canescens; *Hoary Dragon's Head.* Bractes oblong, with spiny serratures; leaves subtomentose. The stalks are hoary, a foot and a half high, putting out two or three side-branches, with hoary leaves, nearly two inches long, and half an inch broad, a little indented on their edges; they are placed just under the whorls of flowers which sit close to the stalk; the corolla is large, of a fine blue colour, and makes a pretty appearance among the hoary leaves. It flowers and seeds about the same time as the foregoing sort, and is generally treated as an annual, although the roots will survive two or three years in a dry soil. There is a variety

with white flowers.—It was discovered by Tournefort in the Levant. See the ninth species.

11. Dracocephalum Peltatum; *Willow-leaved Dragon's Head.* Bractes orbiculate, serrate-ciliate. This is an annual plant, about a foot high, sending out two small branches from the lower part; leaves lanceolate, crenate, petioled; flowers small, purplish.—Native of the Levant. See the ninth species.

12. Dracocephalum Grandiflorum; *Great-flowered Dragon's Head.* Leaves crenate; root-leaves cordate; stem-leaves orbiculate, sessile; bractes acuminate, toothed. Root-leaves like those of Betony, petioled, obtuse, wrinkled, pubescent; stem-leaves almost wedge-shaped, rounded, very obtuse, crenate-toothed. The bractes and floral-leaves are somewhat of a violet colour. The whorls have the flowers by threes on each side; calices subpeduncled, five-cleft; the three upper teeth less divided. Corollas large, blue; the chaps much inflated, with a rising streak at the back on each side; upper lip bifid, lower trifid; the middle segment larger, dark blue, reflex, bearded at the end; antheræ oblong. An alpine species.—Native of Siberia. See the ninth species.

13. Dracocephalum Nutans; *Nodding Dragon's Head.* Bractes oblong, ovate, quite entire; corollas rather large, nodding. Annual; stalks weak, many, about nine inches high, having at the bottom ovate-lanceolate leaves, about two inches long, and an inch and a quarter broad, crenate, and on pretty long footstalks. The upper part of the stalk has smaller leaves, sitting close at the joints, and from these come out the flowers in whorls; they are of a deep blue colour, and hang down, appearing at the same time with the preceding. The seeds ripen in autumn.—Native of Siberia. See the ninth species.

14. Dracocephalum Thymiflorum; *Small-flowered Dragon's Head.* Bractes oblong, quite entire; corollas scarcely longer than the calix. Stalks a foot and a half high; lower leaves very like those of Betony, standing upon very long footstalks; the upper small, sitting close to the stalks. The flowers come out in whorls at every joint; they are of a pale purple or blue colour, and being small, make little appearance. Seeds small, ovate-oblong, slightly convex on one side, angular on the other, dark chesnut colour.—Native of Siberia. See the ninth species.

15. Dracocephalum Cochin-chinense. Flowers in spikes; bractes roundish, acute; leaves ovate-lanceolate, quite entire. Stem herbaceous, ten inches high, erect, grooved, villose; leaves villose, few; flowers violet-coloured, in terminating spikes; bractes many-flowered; filamenta hairy.—Native of Cochin-china.

Dracontium; a genus of the class Gynandria, order Polyandria.—Generic Character. *Calix:* spathe boat-form, leathery, one-valved, very large. *Spadix:* extremely simple, cylindric, very short, coated on all sides with fructifications disposed into a head, of each of which the perianth proper none, unless you call the corolla so. *Corolla:* proper five-petalled, concave; petals ovate, obtuse, somewhat equal, coloured. *Stamina:* in each filamenta seven, linear, depressed, upright, equal, longer than the corolla; antheræ four-cornered, twin, oblong, obtuse, upright. *Pistil:* germen somewhat ovate; style columnar, straight, length of the stamina; stigma obscure, three-sided. *Pericarp:* in each a roundish berry. *Seeds:* very many. Essential Character. *Spathe:* boat-form. *Spadix:* covered. *Calix:* none. *Petals:* five. *Berries:* many-seeded.——The species are,

1. Dracontium Polyphyllum; *Many-leaved Dragon.* Scape very short; petiole rooted, torn; leaflets three-parted; divisions pinnatifid. It has a large, knobbed, irregular root, covered with a rugged brown skin. The stalk rises about a foot high, is smooth, and of a purple colour, full of sharp protuberances of different colours, shining like the skin of a serpent; it is naked to the top, where it has a tuft of leaves, which are divided into many parts. The flower-stalk rises immediately from the root, and is seldom more than three inches high, having an oblong swelling hood, or sheath, at top, which opens lengthwise, showing the short, thick, pointed style within, upon which the flowers are closely ranged. When the sheath opens, says Linnæus, it exhales a smell like that of the most putrid carcase, capable of taking away any person's senses or understanding; but it is remarkable, that after a few days, when the antheræ begin to shed their pollen, this poisonous fetor in an hour's time absolutely ceases.—It grows naturally in several of the islands of America, also in Surinam and Japan, where they prepare a medicine from the acrid roots, which they call *konjakf*, and esteem as a great emmenagogue, which dissolute women take to procure abortion. In the Society Islands, it is cultivated for the sake of the roots, which are eaten in a scarcity of the bread-fruit, notwithstanding their extreme acrimony.—This, and the second species, are tender, and require a warm stove to preserve them in England. The roots must be planted in pots filled with light kitchen garden earth, and plunged into the tan-bed in the stove, where they should constantly remain; in the winter, they must be watered very sparingly, but should be often refreshed in warm weather, when they are in vigour. With this management the plants will flower; but their roots do not increase in our climate.

2. Dracontium Spinosum; *Prickly Dragon.* leaves sagittate; peduncles and petioles prickly. The root is oblong, thick, and full of joints, from which arise several leaves, shaped like those of the common Arum; but their footstalks are covered with rough protuberances. The stalk which supports the flower is short, and set with similar protuberances; at the top is a spathe, about four inches long, as thick as a man's finger, which opens longitudinally, and exposes the spadix, which is set with flowers.—It grows naturally in the island of Ceylon, and in several parts of India.

3. Dracontium Fœtidum; *Fetid Dragon,* or *Scunk-weed.* Leaves roundish. The flowers of this plant appear first; after they arrive to a state of perfection, the leaves come out at a small distance, in a conic form, very closely rolled together: they are nearly ovate when expanded, and petioled. The plant has no stem. The globe of flowers is nearly the colour of the spathe, which is beautifully variegated with scarlet and yellow. The corolla has four erect, very thick, narrow, obtruncated petals. The stamina have four flattish filamenta, rising from the receptacle, longer than the corolla; style rather longer than the stamina; stigma bifid; seeds large, roundish, single, inclosed within the receptacle.—Native of North America; where it is found in swamps, and upon the borders of meadows, flowering in April and May. The vulgar names of *Scunk-cabbage* and *Scunk-weed,* are taken from its rank smell, nearly resembling that of a scunk or polecat. The roots, dried and powdered, are an excellent remedy in asthmatic cases. It may be given with safety to children, in doses of four, five, or six grains; and to adults, in doses of twenty grains and upwards. It appears to be antispasmodic, and bids fair to be useful in many disorders. In collecting the roots, particular care ought to be taken, that the *White Hellebore,* or *Poke-root,* which some call Scunk-weed, be not mistaken for this. There is this obvious difference; White Hellebore has a stalk, the real Scunk-weed has none. Cattle will not touch it during summer. The Swedes, settled in North America, call it *byorn-blad,* or *byorn-retter, bear's-leaf,* or *bear's-root,*) because the bears, when they

leave their winter quarters in the spring, are very fond of it.

4. Dracontium Camschatcense; *Kamtchatka Dragon.* Leaves lanceolate. The roots of this species resemble the common Arum, and the leaves come out each on a separate footstalk, immediately from the root, as in that plant. It has never flowered in England.—Native of Siberia; requiring a shady situation, and being fully able to bear the greatest cold in our climate.

5. Dracontium Pertusum; *Perforate-leaved Dragon.* Leaves perforated; stem climbing. This species has slender jointed stalks, which put out roots at every joint, that fasten to the trunks of trees, walls, or any support which is near them, and thereby rise to the height of twenty-five or thirty feet. The leaves are placed alternately, standing upon long footstalks; they are four or five inches long, and two and a half broad, having several holes in each; so that, on the first view, they appear as if eaten by insects. The flowers are produced at the top of the stalk, which always swell to a larger size in that part than in any other; these are covered with an oblong spathe, or hood, of a whitish green colour, which opens longitudinally on one side, and shews the spadix closely covered with flowers, of a pale yellow, inclining to white. When this plant begins to flower, it seldom advances farther in height, so that these seldom are more than seven or eight feet high; but the leaves are much larger on these, than those of the plants which ramble much farther.—Native of the West Indies, and of the isle of Tanna in the South Seas.——This plant is easily propagated by cuttings, which, if planted in pots filled with poor sandy earth, and plunged into a hot-bed, will soon put out roots, if they had none before; but there are few of the joints which have not roots. The plants being tender, will not endure the open air in England; and the pots should, on that account, be placed near the walls of the hot-house, against which the plants will climb, and fasten their roots into the wall, and thereby support the stalks. They should have but little water in the winter; but in warm weather, it must be given them three or four times a week; and in the summer, free air should be admitted to them in plenty. The plants have no particular season of flowering; for they sometimes flower in autumn, and sometimes in the spring, but never ripen their seed in our climate. The plants of this genus, are preserved in the gardens of the curious, both in England and Holland, more for variety than for beauty; but this species is an exception, and may be suffered to have a place against the wall of the stove, over which it will spread, and cover the nakedness of the wall; and the leaves, which are so remarkably perforated, remaining all the year, make a singular appearance.

Dragon. See *Arum* and *Dracontium.*

Dragon's Head. See *Dracocephalum.*

Dragon Tree. See *Dracæna.*

Draining. See *Land,* vol. ii. p. 10.

Drilling. See *Hoeing,* p. 696.

Dropwort. See *Spiræa.*

Dropwort, Water. See *Œnanthe.*

Drosera; a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, sharp, upright, permanent. *Corolla:* funnel-form; petals five, somewhat ovate, obtuse, rather larger than the calix, and alternate with it. *Stamina:* filamenta five, subulate, length of the calix, and alternate with the petals; antheræ small, growing to the filamenta. *Pistil:* germen superior, roundish; styles five, simple, length of the stamina; stigmas simple. *Pericarp:* capsule surrounded with the calix, somewhat ovate, one-celled, three, four, or five-valved at the tip. *Seeds:* very many, very small, somewhat ovate, scabrous, fixed to a branching loose receptacle in the centre at the bottom. Essential Character. *Calix:* five-cleft. *Petals:* five. *Capsule:* one-celled, five, or three-valved at the tip. *Seeds:* very many.—These plants are not easily preserved in gardens. They must be taken from their native bogs, with a sufficient quantity of bog-earth and water-moss, and planted in pots, set in pans, constantly supplied with water. They will also succeed better if defended from the sun, and well enveloped in moss kept constantly wet. The leaves, in most of the species, only next the root, furnished with glandulous hairs on the upper surface, and fringed with them round the edge: these hairs have each a small globule of a pellucid liquor like dew, continuing even in the hottest part of the day, and in the fullest exposure to the sun; from which remarkable circumstance, their English name of *Sundew* is derived.——The species are,

1. Drosera Acaulis; *Stemless Sundew.* Flower radical, without any scape, solitary; leaves oblong. This plant is singular for having a sessile flower in the bosom of the root-leaves.—This and the following are natives of the Cape.

2. Drosera Cuneifolio; *Wedge-leaved Sundew.* Scapes radicate; leaves wedge-form, rounded. It resembles the third species, but is larger, and has sessile leaves rounded at the summit, but gently attenuated towards the base.

3. Drosera Rotundifolia; *Round-leaved Sundew.* Scapes radicate; leaves orbiculate; styles six. Root perennial, black; root-leaves many, forming a tuft, two or three lines in length and breadth, set with red hairs about the edge and on the upper surface, the under surface smooth; the petioles red, and half an inch or eight lines in length, ciliate at the base; scape erect, round, slender, simple, three or four inches in height; flowers in a kind of racemed spike, bent in at the top before flowering-time, they point one way, are alternate, erect, and from six to eleven in number; the peduncles are half a line or a line in length; corolla white; calix smooth; stigmas obtuse, white; bractes none. The flowers open from nine to twelve. The young leaves before they expand are rolled inwards, and at the same time bent in to the very peduncle.—In England it flowers in July and August; and is found on Hampstead Heath; at Battle's well, near Harefield, and Iver heath; on Hinton and Teversham moors, and Gamlingay bogs, in Cambridgeshire; on Malvern chace; Birmingham heath; Selborne, in Hampshire; Ludgvan Lee, on the Barton and Moors, and Senan, in Torvorian commons, Cornwall; Halston, in Northamptonshire; near Mansfield and Oxton in Nottinghamshire; and frequently in various parts of Scotland. The variety mentioned by Ray, was found by Mr. Willisel in Devonshire.—The whole of this plant is acrid, and sufficiently caustic to corrode the skin; some ladies, however, know how to mix the juice with milk, so as to make it an innocent and safe application to remove freckles and sun-burn. The unmixed juice will destroy warts and corns, if a little of it be frequently put upon them. These effects, however, show its internal use to be dangerous, although some authors very gravely tell us, that a water distilled from this plant is highly cordial and restorative! The leaves only, bruised and externally applied, will erode the skin, and bring on such inflammations as are not easily removed. This plant has the same effect upon milk as the *Pinguicula Vulgaris;* and, like that too, is supposed to occasion the rot in sheep. Is not, says Withering, the sour coagulated milk of the Syrians, called *labun,* or *leven,* at first prepared with some plant of this kind? In Great Britain this plant is called generally, *Sundew, Youthwort;* in the north parts, *Red-rot.*

4. Drosera Longifolia; *Long-leaved Sundew.* Scapes radicate; leaves ovate-oblong. Linnæus is of opinion that this is scarcely specifically distinct from the preceding species, since they only differ in the form of their leaves. This seems not to be so common as the round-leaved sort, although Mr. Woodward informs us that it is frequent in Norfolk; and Mr. Lightfoot, that it is so also in Scotland. On Brigstear moss, near Kendal, it grows thrice as large as any where about London: it is also found on Hinton Moor, near Cambridge; on Bagshot Heath, in Surry; and at Selborne, in Hants.—*Great Sundew,* which Mr. Hudson makes a distinct species, because it is larger, has eight styles, and four-valved capsules; it is common, as he informs us, in the northern counties, also in Devonshire, Hampshire, and Norfolk; three miles from Carlisle towards Scotland, where Mr. Dickson found it near Fort Augustus; near Ellesmere; and in Ireland. Another variety was found by Mr. Willisel, between Doncaster and Bautrey, in Yorkshire; and by Mr. J. Sherard on Westfield Down near Hastings. The three last species have the same property with *Dionæa Muscipula,* of entrapping small insects with their folded leaves; which was discovered by surgeon Whately, in August, 1780. On inspecting some of the contracted leaves, he observed a fly in close imprisonment; and on centrically pressing other leaves yet in their expanded form, with a pin, he observed a sudden elastic spring of them, so as to become inverted upwards, and as it were encircling the pin. The same account occurs in a German author, in July 1779: an ant was placed on the middle of a leaf, the insect endeavoured to escape, but was held fast by the clammy juice at the point of the hairs; in some minutes the short hairs on the disk of the leaf began to bend; then the long hairs, and laid themselves upon the ant; after a while the leaf began to bend; and in some hours the end of the leaf was so bent inwards as to touch the base: the ant died in fifteen minutes.

5. Drosera Capensis; *Cape Sundew.* Scapes radicate; leaves lanceolate, scabrous underneath. Root putting out spiral threads; flowers violet-coloured.—Native of the Cape.

6. Drosera Lusitanica; *Portuguese Sundew.* Scapes radicate; leaves subulate, convex underneath; flowers ten-stamined. The stem has a few leaves on it, and from two to four peduncled flowers at the end; capsule twice as long as the calix.—Found in Portugal by Tournefort.

7. Drosera Cistiflora; *Cistus-flowered Sundew.* Stem simple, leafy; leaves lanceolate. Stems a foot high, pubescent; leaves alternate, with glutinous hairs; flowers terminating, one to three, large, on peduncles; the bottom of the corolla dark; stamina black, the length of the calix; antheræ yellow, cordate; pistil black; germen ovate, and round the top, but not on the top of it; five black styles the length of the corolla; stigmas several times dichotomous, even into hairs.—Native of the Cape.

8. Drosera Indica. Stem branched, leafy; leaves linear; peduncles axillary, with two or three flowers.—Native of the East Indies. The Ceylonese call it *kandulaessa,* from *kandula,* a tear; the leaves being surrounded with drops, as in our European species; the stem is half a foot high, and very slender; the leaves extremely fine, and coming out alternately all over the stem and branches, bent upwards at the ends; the peduncles are the length of the leaves, or longer, and sustains three flowers or more, but the weaker only one.

9. Drosera Umbellata. Scapes rooted; leaves ovate; flower umbelled. Stem none; leaves next the ground, only on long petioles; scapes various, naked, five inches long, terminated by an umbellule of about five flowers, with corollas of five petals.—Native of China.

Besides the foregoing, there are two species, natives of New South Wales: the first, *Drosera Peltata,* whose stem bears triangular peltate leaves fringed with numerous glands, and several rose-coloured flowers; the second, *Drosera Dichotoma,* whose stalk is solitary, naked, corymbose, a foot or more high, bearing numerous, large, elegant white flowers. The leaves are all radical, stalked, once or twice forked, linear, narrow, acute, the upper side clothed with glandular hairs, the margins entire.

Dryandra; a genus of the class Diœcia, order Monadelphia.—Generic Character. *Male. Calix:* perianth, two-leaved; divisions ovate, acute, shorter than the corolla; *Corolla:* five-petalled, petals obovate-oblong, from reflex patulous, unguicular. *Stamina:* filamenta nine, united below into one body, unequal, shorter by half than the corolla. Antheræ minute. *Female. Pericarp:* tricoccous, or tetracoccous, three-grooved, or four-grooved, wrinkled, fleshy. *Seeds:* solitary, oblong. Essential Character. *Calix:* two-leaved. *Corolla:* five-petalled; (or calix five-leaved, resembling a corolla, surrounded by a two or three-leaved calicle.) *Stamina:* nine. *Fruit:* three or four grained.——The only known species is,

1. Dryandra Cordata. Stem arboreous, a fathom or more in height; branches round, with a wrinkled bark, dotted, smooth; leaves at the ends of the twigs approximate, alternate, petioled, cordate, acute, entire, five-nerved, the nerves branching, smooth, paler underneath, spreading, a hand in length and breadth; petioles almost the length of the leaf, round; flowers terminating in a panicle, the branches of which are dichotomous, or trichotomous, and patulous; petals yellow. From the seeds they express an oil for lamps and the table.—Native of Japan, flowering in May and June.

Dryas; a genus of the class Icosandria, order Polygynia.—Generic Character. *Calix:* perianth one-leaved; eight-parted; divisions spreading, linear, obtuse, equal, a little shorter than the corolla. *Corolla:* petals eight, oblong, emarginate, speading, inserted into the calix. *Stamina:* filamenta numerous, capillary short, inserted into the calix. Antheræ small. *Pistil:* germina many, crowded, small; styles capillary, inserted into the side of the germen; stigmas simple. *Pericarp:* none. *Seeds:* numerous, roundish, compressed, furnished with extremely long woolly styles. Essential Character. *Calix:* five to ten-cleft. *Petals:* five to eight. *Seeds:* tailed, hairy.——The species are,

1. Dryas Anemonoides. Five petalled: leaves pinnate, with all the pinnas distinct. This is a very small plant: the radical leaves are commonly ternate, compound, consisting of a middle leaflet longer than the rest, and two lateral ones: all the leaflets are deeply cut or divided, but vary much as to breadth and length, in different individual plants; sometimes the leaves have more than three divisions, they are of a bright green, and very smooth; the footstalk is round. The stalk is terminated by a single flower, which is large in proportion; the calix is outwardly green, and inwardly lanuginous, and of a silvery appearance; the corolla is pale yellow, the petals striated; the stamina are extremely numerous and short; the germina converge into a globe, and are coated with a thick white down. — Native of Siberia.

2. Dryas Octopetala. Eight-petalled: leaves simple. This delicate evergreen plant, with its snow-white blossoms, is a great ornament to alpine heights; the stalk and branches are woody and perennial, lying flat upon the ground, and spreading flat about the root in tufts; leaves evergreen, ovate, turned back at the edge, ending very obtusely, and sometimes emarginate, deeply and bluntly serrate, or more properly cre-

nate, hard and stiff, of a dark green wrinkled surface on the upper side, and hoary underneath, having woolly footstalks, and a large halbert-shaped stipule to each, embracing the stem: peduncles naked, downy, scattered with purple hairy glands, each bearing one flower, an inch in diameter, consisting generally of eight petals, but sometimes of ten or six, seldom of five; seeds oblong, gibbous on one side, straightish on the other, somewhat villose, reddish, brown, narrowing at bottom, ending at top in a feathered flexile tail, eight times the length of the seed; the corolla is frequently double.—Native of high mountains in Lapland, Denmark, Switzerland, where it was observed by Ray, on Thuiri, one of the highest points of mount Jura; the Grisons, Savoy, Austria, Carniola, Stiria, Carinthia, Germany, France, Italy, Siberia, Ireland, Scotland, and the north of England; as, between Gort and Galloway, where it was found by Mr. Heaton; and near Sligo in Ireland; Breadalbane, Isle of Skye; Ross-shire, Sutherland, and Argyleshire, in Scotland; Arncliff Clowder, in Kittendale, near Kilnsay; and near Settle, in Yorkshire. It flowers in June. No cattle will eat it. *Dryas Pentapetala*, mentioned by Sibbald as growing in the den of Bethaick, four miles from Perth, is not now to be found there: possibly the *Potentilla Argentea* was mistaken for it.

Drypis; a genus of the class Pentandria, order Tryginia.—Generic Character. *Calix*: perianth one-leafed, tubular, half five-cleft, permanent. *Corolla*: petals five; claws length of the calix, narrow; border flat; plates two-parted; divisions linear, obtuse; throat crowned with the two toothlets of each petal. *Stamina*: filamenta five, length of the corolla; antheræ simple, oblong, incumbent. *Pistil*: germen obovate, compressed; styles three, simple, patulous; stigmas simple. *Pericarp*: capsule roundish, covered by the calix, one-celled, small, clipped round. *Seed*: single, kidney-form, glossy. Essential Character. *Calix*: five-toothed. *Petals*: five. *Capsule*: clipped, round, one-seeded.——The species are,

1. Drypis Spinosa. The first steps are procumbent, four-cornered, brachiate; the last dichotomous, and flower-bearing. Fresh green branches push forth in the spring, from the dry ones of the former year, the extreme ones are dichotomous, and bear flowers; leaves subulate, somewhat three-cornered, mucronate, those at the subdivisions of the stem are lanceolate with three teeth on each side; peduncles shorter than the flower; calix erect; corolla crowned, purple or white; petals narrow, spreading; stamina erect: biennial.—Native of Barbary, Italy, Istria, &c. This plant in its adult state becomes shrubby. Johnson and Gerarde call it *Sperage Thistle*; the Italians have named it *erba ciuccia*, or ass's herb, because that animal feeds freely on it.

Duck's Foot. See *Podophyllum*.

Duck's Meat. See *Lemna*.

Duranta; a genus of the class Didynamia, order Angiospermia. Generic Character. *Calix*: one-leafed, tubular, somewhat truncated, five-cleft. *Corolla*: one-petalled; tube longer than the calix, somewhat curved; border patulous, five-parted, nearly equal, rounded. *Stamina*: filamenta four, the two longer ones within the tube; antheræ roundish. *Pistil*: germen inferior, roundish; style filiform, length of the stamina; stigma thickish. *Pericarp*: berry roundish, covered by the calix. *Seed*: kernels four, two-celled. Essential Character. *Calix*: five-cleft, superior. *Berry*: four-seeded. *Seeds*: two-celled. (According to Gærtner, calix five-toothed; corolla funnel-shaped, five-cleft; berry one-celled, containing four two-celled stones.)—The plants of this genus being natives of warm countries, require a stove to preserve them in England; they are propagated by seeds, which should be sown in small pots, and plunged into a hot-bed of tanner's bark; and when the plants are fit to remove, they must be planted each into a separate pot, filled with light earth, and plunged into the hot-bed, observing to shade them until they have taken new root, and afterwards treat them in the same manner as other plants from the same country. They may also be increased by cuttings, which put out roots very readily. They thrive best during winter in a temperate heat. In summer, place them in a warm sheltered situation in the open air.——The species are,

1. Duranta Plumieri; *Smooth Duranta*. Fruiting calices twisted. It grows fifteen feet high, with alternate branches, erect or reclining; spines awl-shaped, opposite, but very frequently wanting; leaves lanceolate, on short petioles, acute, bluntly and unequally serrate above the middle, smooth, opposite, two inches long; racemes loose, wide, reclining, both axillary and terminating; flowers slightly sweet-smelling, very many, blue, on very short peduncles; fruit yellow, the calix also then becoming yellow, and like a berry, the whole being changed, and different from its former shape.——Native of South America and the West Indies.

2. Duranta Ellisia. Fruiting calices erect. This shrub is a fathom in height or more, branched and even; branches long, reclining, quadrangular, subdivided, with axillary, opposite, ovate-lanceolate, acuminate, serrate, nerved leaves, smooth on both sides; racemes compound, terminating, brachiate, many-flowered; flowers on short peduncles, and blue. The specific character of this and the preceding, taken from the contortion of the calix above the fruit, is vague and insufficient, since the differences occur frequently in the same raceme; they are therefore in all probability not specifically distinct. Jacquin also remarks, that it is extremely like the first species, except that the fruiting calix is not twisted in the upper part, but continues convergent and erect. Notwithstanding this approximation, Dr. Patrick Browne made it a distinct genus, under the name *Ellisia*, from Mr. Ellis, the ingenious author of a treatise on Zoophites, or plant-like marine productions of an animal nature: he says that this shrub rises frequently to the height of six or seven feet; that the leaves are very like those of green tea; and that the branches, though sometimes beset with thorns, are often otherwise.—Native of the West Indies; in Jamaica it is frequently found in hedges between Kingston and San Jago de la Vega.

3. Duranta Mutisii. Leaves elliptic, quite entire. This differs from the two preceding species merely in the leaves.—It is a native of South America, and was found there by Mutis.

Durio; a genus of the class Polyadelphia, order Polyandria.—Generic Character. *Calix*: perianth one-leafed, pitcher-shaped, five-lobed; lobes rounded, deciduous. *Corolla*: petals five, added to the calix, and less than it, concave. *Stamina*: filamenta in five bodies, divided into seven, subulate, longer than the corolla; antheræ twisted; (or, according to Jussieu, filamenta five, flat at the base, seven or eight-cleft at the top; the divisions connate, subulate, bearing thirty-five to forty twisted antheræ.) *Pistil*: germen roundish, stipitate; style bristle-form, length of the stamina. *Pericarp*: pome roundish, on all parts muricated with many-sided dagger-points, five-celled, gaping open in five directions: cells one to five seeded. *Seeds*: large, ovate, involved in a mucous pulp, in a membranaceous aril. Essential Character. *Calix*: five-cleft, pitcher-shaped, inferior. *Corolla*: five-petalled, small. *Style*: one. *Stamina*: in five bodies. *Pome*: five-celled.——The only species is,

1. Durio Zibethinus. A lofty tree, with alternate flowers below the leaves; the leaves resemble those of the Cherry,

but are not dented at the edges, and on that account more resemble Nutmeg leaves; the flowers are borne in loose heads, they are large, and of a pale yellow white colour; the fruit is of the size of a man's head, and round or oblong, resembling in some degree a rolled up hedge-hog, with a hard bark or rind; the seeds are yellowish brown, their tunics white, of a soft, mucous, and very tender substance: these tunics constitute the eatable part of the fruit, which is esteemed one of the most delicious vegetable productions of India. Persons, however, not accustomed to eat it, are at first deterred from tasting it, from its unpleasant heavy smell, something resembling that of rotten onions; and the smell of the breath of those who eat it is infected also in a high degree; but when once a person has accustomed himself to eat this fruit, he generally considers it preferable to all others.—Native of Sumatra, Malacca, Java, Borneo, &c.

Duroia; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix*: perianth one-leafed, cylindric, truncate, contracted, very short, superior. *Corolla:* monopetalous; tube cylindric; border length of the tube, six-parted; divisions ovate, spreading. *Stamina*: filamenta none; antheræ six, oblong, within the tube. *Pistil*: germen inferior; style filiform, the length of the tube; stigmas two. *Pericarp*: pome globular, umbilicate, covered with erect hairs. *Seeds*: very many, nestling, oval, flat, very smooth, incumbent, in a double row. Essential Character. *Calix*; cylindric, truncate. *Corolla:* six-parted. *Filamenta*: none. *Pome*: hispid.——The only known species is,

1. Duroia Eriopila. A tree, with thick unequal branches, hirsute at the end; leaves terminating, opposite, approximating, many, subpetioled, a span in length, obovate, quite entire, rather obtuse, ribbed, pubescent above, netted underneath: petioles very short, hirsute; flowers at the ends of the branches, sessile, heaped, many, several of them abortive; corollas white. The flowers are frequently abortive, nay, there are some genuine male flowers without any germen; it should therefore be rather referred to the class Polygamia. Fruit somewhat larger than a turkey's egg, spherical, covered very thick with erect brown hairs, umbilicate with the hollow calix, and filled with numerous seeds lodged in the pulp, which is eatable, and compared by some to that of the European Medlar. It is well-flavoured, and much esteemed at Surinam; of which it is a native.

Dwale. See *Atropa*.

Dwarf Trees were formerly in much greater request than they are at present, for though they have many advantages to recommend them, yet the disadvantages attending them greatly overbalance; and since the introduction of espaliers into the English gardens, dwarf-trees have been little in esteem for the following reasons: 1. The figure of a dwarf-tree is very often so much studied, that in order to render the shape beautiful, little care is taken to procure fruit, which is the principal design in planting these trees. 2. The branches being spread horizontally near the surface of the ground, renders it very difficult to dig or clear the ground under them. 3. They take up too much room in a garden, especially when grown to a considerable size, so that nothing can be sown or planted between them. 4. They spread their branches close to the ground, and continually shade the surface of the earth, so that neither the sun nor air can pass freely round their roots, to dissipate noxious vapours, with which the circumambient air will become very replete, and these crude rancid vapours being drawn in by the leaves and fruit, will render the juices of the latter crude and unwholesome, as well as ill-tasted. It is also very difficult to get to the middle of these dwarf-trees in the summer, when their leaves and fruit are on the branches, without beating off some of the fruit, and breaking the young shoots; whereas the trees on an espalier can at all times be approached on each side to tie up the new shoots, or remove all that are luxuriant, which would soon rob the trees of their nourishment if suffered to remain. Add to this, the fruit-buds of all sorts of pears and apples, and most sorts of plums and cherries, are first produced at the end of the former year's shoot, which must be shortened to keep the dwarfs to their proper figure, so that the fruit-buds are cut off, and a greater number of branches are obtained than can be permitted to stand, so that all those sorts of fruit-trees whose branches require to be trained up at their full length, are very improper to train up as dwarfs; and the peaches and nectarines which will bear amputation, are too tender to be trained so in this country. These evils being entirely remedied by training the tree to an espalier, has jointly gained them the preference; however, if any one still feel disposed to have dwarf-trees, notwithstanding what has here been said, we shall lay down a few rules for their management: If you design to have dwarf Pear-trees, bud or graft them on Quince stocks; but as many sorts of Pears will not thrive if they are immediately budded or grafted on Quince stocks, so some of these sorts which will take freely, should be first budded on the Quince stocks; and when these have shot, the sorts you intend to cultivate should be budded into these, for free stocks are apt to make them shoot so vigorously, as not to be kept within bounds; these grafts or buds should be put in four or six inches above the surface of the ground, that the heads of the trees may not be advanced too high; and when the bud or graft has put out four shoots, the ends of the shoots should be stopped, in order to force out lateral branches. Two years after budding, these trees will be fit to transplant where they are to remain; for though many people choose to plant trees of a greater age, yet they seldom succeed so well as young ones. The distance these trees should be planted is twenty-five or thirty feet asunder, for less will not do if the trees thrive well. The ground between them may be cultivated for kitchen-garden herbs while the trees are young, but they ought not to be sown or planted too near the roots of these trees. In order to train the trees regularly, drive stakes into the ground round each tree, to which the branches should be fastened down with list in an horizontal position; for if they are suffered to grow perpendicularly, while young, they cannot afterwards be reduced to any tolerable figure without great violence; the necessary directions to be afterwards followed, are, not to suffer any branches to cross each other, and always in shortening any shoots, to take care and leave the uppermost eye outwards, whereby the hollowness in the middle of the tree will be better preserved; and be careful also to cut off every perpendicular shoot in the middle of the tree as soon as it appears. The other necessary rules will be found under the article *Pruning*. The sorts of Pears which answer best as dwarfs, are summer and autumn fruits, for winter Pears are not worth planting in dwarfs; they seldom bear well, and are always ill-tasted, and generally stony, because they are commonly grafted on Quince stocks. Apples are also planted in dwarfs, most of which are now budded or grafted on paradise stocks; but as these are for the most part of a short duration, they are not profitable, and are fit only for small gardens, as a matter of curiosity, producing fruit sooner and in greater plenty, than when they are upon Crab or Apple stocks. The distance these trees should be planted, if on paradise stocks, should be six or eight feet; and upon Dutch stocks, eighteen or twenty; but if on Crab stocks, twenty-five

or thirty feet asunder each way; which are managed in the same way as Pears. Some persons also plant Apricots and Plums for dwarfs, but these seldom succeed well, as being of a tender constitution; and those which will produce fruit on dwarfs, are much more likely to do so when trained on an espalier, where they can be better managed.—After what has been here said concerning dwarf-trees, we can hardly suppose that many persons will still continue to prefer them to espaliers; and we refer those with whom the objections here urged against the former have no weight, to the article *Grafting*, where they will find many corroborative proofs of the advantages arising from the latter, together with other useful hints upon the same subject.

Dyer's Weed. See *Genista* and *Resida.*

ECH

EARTH Nut. See *Arachis*, and *Bunium*

Earth Pea. See *Lathyrus.*

Earwort. See *Hedyotis.*

Ebenus; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, terminated by five filiform teeth, which are villose, and nearly equal. *Corolla:* papilionaceous, length of the calix; standard roundish, straight, entire; rudiments of wings obscure, crescent-shaped, gibbous, ascending at the tip. *Stamina:* filamenta diadelphous, all growing together into a sheaf, with tips distinct; antheræ roundish. *Pistil:* germen roundish, villose; style capillary; stigma terminal, acuminate. *Pericarp:* legume ovate. *Seed:* single, rough with hairs. Essential Character. *Calix;* with teeth, the length of the corolla; wings scarcely any. *Seed:* one, rough with hairs.—These plants are propagated by seeds, which should be sown in the autumn, in pots, and placed under a frame in winter, where they may be protected from frost. In the spring the plants will come up; they should be kept clean from weeds, and now and then refreshed with water. When they have acquired strength enough to be removed, they should be each planted in a small pot filled with light earth, and plunged into a moderate hot-bed, just to promote their taking new root; then they should be gradually inured to bear the open air, into which they should be removed the latter end of May, placing them in a sheltered situation, where they may remain till autumn, when they must be removed into shelter, for these plants will not live in the open air through the winter, nor should they be too tenderly treated, lest they draw up weak. They succeed best when placed in an airy glass-case, without fire in the winter, where they will have more sun and air than in a green-house. During winter the plants must be sparingly watered, but they often require to be refreshed in the summer. Among other hardy exotic plants they make a fine variety.——The species are,

1. Ebenus Cretica; *Cretan Ebony.* Leaves ternate, quinate, or pinnate, with two pairs of leaflets; spikes terminating. It rises with a shrubby stalk three or four feet high, with several side-branches; leaves at each joint, hoary, composed of five narrow lanceolate leaflets, which join at their tails to the footstalk, and spread out like the fingers of a hand; the branches are terminated by thick spikes of large purple flowers; the spikes are from two to three inches long, and make a fine appearance. It flowers in June and July, and in warm seasons will sometimes perfect seeds in England.—It grows in Crete, and some islands of the Archipelago.

2. Ebenus Pinnata; *Pinnated Ebony.* Leaves pinnate, with four pair of leaflets; spikes axillary, on very long peduncles.—It flowers in July, is biennial, and a native of Barbary and the Levant.

Ebony. See *Amerimnum*, and *Diospyros Ebenaster.*

Echinophora; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, with very many rays, the intermediate ones shorter; partial

ECH

with very many sessile flowers, the central one sessile, receiving the germina between the pedicels; involucre universal, with some sharp rays; partial turbinate, one-leafed, six-cleft, acute, unequal; perianth proper, five-toothed, permanent, very small. *Corolla:* universal, difform, rayed; floscules male, abortive, the central one of the umbel female; proper five-petalled; petals unequal, patulous. *Stamina:* filamenta five, simple; antheræ roundish. *Pistil:* germen oblong, inferior, clothed with an involucel; styles two, simple; stigmas simple. *Pericarp:* none, in place of which is a hardened mucronate involucre. *Seed:* single, ovate-oblong. Essential Character. Lateral flowers male, central hermaphrodite. *Seed:* one, immersed in an involucel.—These plants do not produce their seeds in our climate, but are increased by their creeping roots. Transplant them in the beginning of March, a little before they shoot. They require a warm situation, and a dry soil; or else you must cover them in winter, to prevent the frost from destroying them.——The species are,

1. Echinophora Spinosa; *Prickly Sea Parsnep.* Leaflets subulate-spiny, quite entire. Root perennial, creeping; stalks branching, five or six inches high, with short thick leaves, terminating in two or three sharp thorns, and opposite, in pairs; flowers in an umbel, on a naked peduncle, which arises from the side of the stalk; under the umbel an involucre composed of several leaves, terminating in sharp spines; corolla white.—It flowers in June; and is a native of the sea-coast of Europe, especially on the shores of the Mediterranean Sea. It was found by Mr. Ray on the sea-coast of Lancashire; and by Mr. Blackstone, between Feversham and Sea-salter in Kent.

2. Echinophora Tenuifolia; *Fine-leaved Sea Parsnep.* Leaflets gashed, unarmed. Root perennial; stalk nearly a foot and a half high; whence come out two opposite side-branches at every joint.—At the lower part of it are leaves finely divided, like those of the Carrot; and the flowers grow in small umbels at the extremities of the branches, having a short prickly involucre.—It flowers in July; and is a native of the sea-coast of Apulia.

3. Echinophora Trichophylla. Leaflets thread-shaped, elongated, undivided, scarcely spinous. The plant is smooth, and abounds with gum. The petals are whitish.—Native of the Levant.

Echinops; a genus of the class Syngenesia, order Polygamia Segregata.—Generic Character. *Calix:* common many-leaved, with scales, subulate, totally reflected, containing many flowers. *Perianth:* partial one-flowered, oblong, imbricate, cornered; leaflets subulate, loose above, upright, permanent. *Corolla:* one-petalled, length of the calix, tubular; border five-cleft, reflex, spreading. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular, five-toothed. *Pistil:* germen oblong; style filiform, length of the corolla; stigma double, somewhat depressed, rolled back. *Pericarp:* none. *Calix:* unchanged, larger. *Seeds:* single, ovate, oblong, narrower at the base, with obtuse tip; down

obscure. *Receptacle:* common globose, bristly. Essential Character. *Calix:* one-flowered. *Corolla:* tubular, hermaphrodite. *Receptacle:* bristly, *Down*. obscure. —These plants are easily propagated by seeds, which, if permitted to scatter, the plants will come up in plenty, and a few of them may be transplanted to the places where they are designed to remain and flower; they require no other culture, but to keep them clean from weeds; the second year they will flower, and produce seeds, and the roots will continue two or three years after. But if the seeds scatter, the plants will become troublesome weeds; to prevent which, the heads should be cut off as soon as the seeds are ripe. They will grow almost in any soil or situation.——The species are,

1. Echinops Sphærocephalus; *Great Globe Thistle.* Heads globular; leaves sinuate, pubescent. Root perennial; stalks many, four or five feet high; leaves long and jagged, divided into many segments, the jags ending in spines; they are of a dark green on their upper side, but woolly on the under. There are several globular heads of flowers on each stalk. The florets are commonly blue, but sometimes white; they come out in July, and ripen seed in August.—Native of France, Spain, Italy, Austria, Carniola, Germany, &c.

2. Echinops Spinosus; *Thorny-headed Globe Thistle.* Heads interspersed with long spines. This plant is of the same stature with the preceding, but the stem and leaves are more tender. The heads are like those of the first species; but the florets are white, and larger, with the jags reflex-hooked. Among the florets, every where come out spines, formed of unexpanded calices, four times the length of the florets, which at length are cloven in two.—Perennial, and a native of Egypt and Arabia.

3. Echinops Ritro; *Small Globe Thistle.* Head globular; leaves pinnatifid, smooth above. This has a perennial creeping root, sending up several strong stalks, two feet high, and branching; leaves cut into many fine segments to the midrib; each branch is terminated by a globular head of flowers, smaller than those of the first species, and of a deeper blue, but sometimes white; they appear in July. The roots are bitter, diuretic, and nourishing: the heads are eat by the horse, goat, &c.—Native of the south of France, Italy, and Siberia.

4. Echinops Strigosus; *Annual Globe Thistle.* Heads in bundles, lateral; calices barren; leaves strigose above. It is an annual plant, with a stiff white stalk, two feet high; leaves divided, ending in many points, which have spines; their upper side green, covered with brown hairs, their under side white, and woolly; the stalk is terminated by one large head of pale blue flowers, appearing in July.—Native of Spain and Portugal.

5. Echinops Græcus. Stem one-headed; leaves spiny, all pinnatifid and villose. Root creeping, and perennial; stalks about a foot high; leaves shorter, and much finer divided than the preceding sorts; they are hoary, and armed on every side with sharp thorns; the stalks are terminated by one middle-sized globular head of blue or white flowers, appearing at the end of June.—Native of Greece.

Echites; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, sharp, small. *Corolla:* one-petalled, funnel-form; border five-cleft, flat, spreading very much; nectary of five glands, standing round the germen. *Stamina:* filamenta five, slender, erect; antheræ stiff, oblong, acuminate, converging. *Pistil:* germen two; style filiform, length of the stamina; stigma oblong-headed, two-lobed, attached by a gluten to the antheræ. *Pericarp:* follicles two, extremely long, one-celled, one-valved. *Seeds:* very many, imbricate, crowned with long down. Essential Character. *Corolla:* contorted, funnel-shaped, with the throat naked. *Follicles:* two, long, straight. *Seeds:* downy.—These plants have a singularity in their habit, by which they may be known at first sight. The leaves are opposite, petioled, quite entire, veined, and shining; the third species only having them frequently rugged; common peduncles seldom longer than the leaves, lateral, and alternate, except in the tenth species; flowers scentless. The nectareous glands and the downy seeds are in follicles, which is of great importance in determining the character; while the corolla, which varies much in the different species, is of no consequence in this respect. The stigma in all is glued to the inside of the wall of the cone, formed by the antheræ, and which separates at the explosion of the pollen, whilst the outer wall of the cone continues undissolved; the fecundation of the greater part being accomplished within the closed tube of the corolla, but in the rest within the cone, stretched beyond the tube. The plants abound with an acrid milky juice. They have not yet been introduced into European cultivation; and being mostly inhabitants of the West Indies, they will require the protection of the bark-stove, and should be propagated and managed in the same way as the tender sorts of *Apocynum*, which see.——The species are,

1. Echites Biflora. Peduncles two-flowered. This is a branched shrub, full of milky juice, supporting itself by stems, partly erect, partly twining upon trees, and mounting them to the height of twenty feet; from which circumstance, it frequently acquires the air of a tree; leaves oblong, growing narrower to the base, obtuse at the end, with a small point, three inches long; peduncles sometimes, but rarely, three-flowered; flowers handsome, very white, with a yellow throat.—Native of the Caribbee islands, in salt marshes.

2. Echites Quinquangularis. Peduncles racemed; leaves ovate, acute, Stem twining, shrubby, somewhat scabrous; leaves three inches long; racemes simple; flowers about sixteen, green, with a yellowish border; the edge of the tube white, and in the form of a pentagon. It is not milky, like the preceding: flowers in October, and is a native of Carthagena in South America.

3. Echites Suberecta; *Savanna Flower.* Peduncles racemed; leaves subovate, obtuse, mucronate. This shrub differs much from all others of this genus. It abounds in milky juice, grows among other shrubs to the height of ten feet, but is only three feet, and sometimes scarcely a foot high, in savannas; stems scarcely twining, and climbing, the leaves more or less ovate, either smooth on both sides, or scabrous at the back. The peduncles support a few large, handsome, yellow flowers, hirsute on the outside, and in the tube. The follicles are slender, and brown. The flowers being of a bright yellow, and large, make a fine appearance. —It grows naturally in the savannas of the island of Jamaica, where it is chiefly known by the name of Savanna-flower. It is also very common in the island of St. Domingo, flowering from September to March. Browne declares all parts of it to be extremely poisonous; and an intelligent traveller has lately informed us, that it operates as a slow or quick poison, according to the dose; and that fatal accidents have happened from stopping breakers of rum with grass, in which this noxious weed has been concealed. The antidote for this poison, is expressed arrow-root juice: see *Maranta Arundinacea.*

4. Echites Agglutinata. Peduncles racemed; leaves ovate, emarginate, with an acumen; stems twining, shrubby; leaves four inches long; common peduncles the length of the leaves, often difform, sometimes bifid. The flowers are small, and white. When the follicles are separated, which is easily done,

a drop of watery glutinous liquor, such as the whole plant abounds with, flows out at the two points by which they had cohered.—It flowers in December, and is found on the mountains, near Cape François in St. Domingo.

5. Echites Torulosa; *Climbing Echites.* Peduncles subracemed; leaves lanceolate, acuminate, two inches long. This plant is so weakly, that it commonly sustains itself by the help of the neighbouring bushes, and frequently rises to a considerable height among them. The common peduncles support about six small yellow flowers, and the whole plant abounds in a milky gluten.—It flowers in March, and is often found at the foot of the mountains of Liguanea in the island of Jamaica.

6. Echites Umbellata; *Umbelled Echites.* Peduncles umbelled; leaves ovate, obtuse, mucronate; stem twining.—It climbs to the height of fifteen feet, by means of its shrubby, twining, pliant stems, which are woody and tuberous at the bottom, but round, green, and glossy above. The whole abounds in a clear glutinous juice. Leaves roundish, ovate, subcordate at the base, three or four inches long. The common peduncle has from four to seven flowers at the end, in a kind of umbel, with some stipules serving the purpose of an involucre. The flowers are large and handsome; the border white, and the tube green on the outside. Browne describes them to be of a pale yellow, with a longish slender tube. He remarks, that, like other plants of the same natural class, it is rather deleterious; and that there is a variety of it found in the drier savannas, which has pointed leaves, and very slender stalks.—It flowers from October to February, and is a native of Jamaica, Cuba, and St. Domingo.

7. Echites Trifida. Peduncles trifid, many-flowered; leaves ovate-oblong, acuminate; stems twining, shrubby; leaves three inches in length; common peduncles short, with difform pedicels; flowers large, pretty, the tube purple, and the border green. It climbs trees to the height of twelve feet, and the whole plant is milky.—It flowers in October, and is a native of South America, near Carthagena.

8. Echites Repens. Peduncles many-flowered, divided; leaves lanceolate, oblong. This is an elegant shrubby plant, not milky, with round, smooth, sarmentose stems; the older ones procumbent, and putting out roots; the younger subcrect, and thickened at the joints into discoid knots. The common peduncles are usually bifid, bearing elegant, tender, red flowers, which appear from October till December.—Native of St. Domingo.

9. Echites Corymbosa. Racemes corymbed; stamina standing out; leaves lanceolate-ovate, smooth, shining above, pale underneath, two inches long. This climbs up trees with its twining shrubby stems, twenty feet in height, and the whole abounds with a white glutinous milk; racemes terminating, branched, spreading, red; flowers numerous, small, red or purple; teeth of the calix very minute, coloured; corolla cylindric, very short; border reflex, with sharp segments; nectareous glands connate; filamenta from the bottom of the tube, longer than the corolla; germen twin, pubescent; style with a very slight longitudinal groove on each side, by which it may be easily split in two; stigma within the cone of the antheræ; follicles horizontal, reflex, roundish, obtuse, two-valved; seeds oblong, with a bristly down.—Native of the island of St. Domingo, where it flowers in November; and of the mountainous woods of Hispaniola, where it flowers in the spring. The French call it *gras de galle.*

10. Echites Spicatum. Spikes axillary, short; stamina standing out; leaves subovate. This plant abounds in a white milk, and climbs the trees to the height of sixty feet. Stems round, woody, pliant, twining, an inch in diameter, with alternate branches a foot and a half long, at different distances, and leafy their whole length; leaves oblong, veined, smoothish, acuminate, distich, half a foot long; spikes opposite, close, an inch and a half long, solitary, spreading, sometimes, but rarely divided in two; flowers numerous, white, small, subsessile.—Native of Carthagena in New Spain, where it is found in thick lofty woods, flowering in July and August.

11. Echites Caudata. Corollas funnel-form, with very long linear tips. It is a tree, with lanceolate-elliptic, naked leaves. The flowers are axillary, peduncled, erect, the size of those of Nerium or Oleander, funnel-form; border erect, terminating in linear tips longer than the whole corolla, a circumstance in which it differs from all other known plants.—Native of the East Indies.

12. Echites Scholaris. Leaves subverticilled, oblong; follicles filiform, very long; umbels compound. The branches of this tree are leafy only at the joints, where there are five or seven oval-lanceolate leaves, which are coriaceous, and transversely streaked. A few peduncles are produced among the leaves, of the same length with them. The flowers are very small, and the follicles in pairs, a foot and a half long, and therefore longer than any others that are known.—Native of the East Indies.

13. Echites Annularis. Stem twining; corollas salver-form, with an elevated ring on the tube; leaves a foot long; racemes bifid, peduncled, axillary; calicine leaflets oblong, erect, concave; tube of the corolla cylindric, longer than the calix; segments of the border roundish, emarginate; antheræ connate, within the throat; stigma obtuse, surrounded by a sharp ring. The nectary covers the germen with five small ovate scales.—Native of Surinam.

14. Echites Siphilitica. Leaves ovate, subpetioled, very smooth, ribbed; panicles dichotomous; flowers in spikes.—This tree yields a milky juice. The leaves are on short petioles, a long span and upwards in length, and sharp; peduncles axillary, divided into two branches, and these again into two shorter spikes, closely covered with flowers, and erect; corolla large, white, with a large flat border; follicles in divaricating pairs.—Native of Surinam; where a decoction of it is often used as a remedy in the venereal disease.

15. Echites Succulenta. Prickles in pairs, extrafoliaceous; leaves linear, tomentose underneath; corollas funnel-form.—Native of the Cape of Good Hope.

16. Echites Bispinosa. Prickles in pairs, extrafoliaceous; leaves lanceolate, smooth; corollas salver-form. This very strongly resembles the preceding, and both are very singular shrubs, succulent, milky, and two-spined.—Native of the Cape of Good Hope.

17. Echites Costata. Peduncles in cymes; leaves elliptic-lanceolate, acuminate.—Native of the Society Isles.

18. Echites Tomentosa. Leaves cordate-oblong, acuminate, both they and the stem rough-haired; flowers in racemes, hairy; stem twining, round, as are also the petioles; the rib, nerves, and edges of the leaves, rough-haired; leaves three inches long, a little narrowed towards the base, broader at top, cordate at the base, the sinus being closed by the incumbent lobes; they are somewhat rugged, nerved, veined, having hairs pressed close, and scattered over both surfaces, but more copiously, and of a greater length, on the rib and nerves, especially underneath; peduncles axillary, shorter than the leaf, rough-haired; flowers approximating, alternate, on short pedicels; segments of the calix lanceolate, attenuated, smooth; corolla two inches in diameter, or a little more, with ash-coloured hairs scattered over the outside, but very thick in the tube, where the filamenta are inserted; style filiform, the length of the tube.—Found by Von Rohr in Cayenne.

19. Echites Domingensis. Peduncles racemed; leaves cordate-ovate, somewhat rigid, of a different colour underneath; stem twining.—Native of the West Indies.

20. Echites Asperuginis. Peduncles racemed; follicles filiform; leaves oblong, acute, rough above; stem twining.—Native of the West Indies.

21. Echites Circinalis. Peduncles axillary, many-flowered, jointed; segments of the corolla waved; leaves elliptic; stem twining.—Native of the West Indies.

22. Echites Floribunda. Racemes corymbed; leaves ovate, acuminate; nerves parallel; branches almost erect.—Native of the West Indies.

23. Echites Difformis. Flowers small, greenish; calix angular at the base; corolla lined with a silky villus around the orifice; antheræ simple; style one, as long as the stamina; stigma annulate, two-lobed, viscid; germen surrounded at the base by a glandular five-toothed torus.—Native of South America.

Echium; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, upright, permanent; divisions subulate, upright. *Corolla:* one-petalled, bell-shaped; tube very short; border upright, gradually widened, five-cleft, obtuse; divisions generally unequal; the two superior ones longer; the inferior smaller, sharp, reflex; throat pervious. *Stamina:* filamenta five, subulate, length of the corolla, declined, unequal; antheræ oblong, incumbent. *Pistil:* germina four; style filiform, length of the stamina; stigma obtuse, two-cleft. *Pericarp:* none; the calix grown stiffer, guarding the seeds in its cavity. *Seeds:* four, roundish, obliquely acuminate. Essential Character. *Corolla:* irregular, with the throat naked. *Stigma:* deeply cloven. *Seed:* four, naked.—Most of these plants are herbaceous; some, however, are suffrutescent. The flowers are in spikes, or spike-panicled; in the spikelets, the flowers all point one way.——The species are,

1. Echium Fruticosum; *Shrubby Viper's Bugloss.* Stem shrubby; leaves lanceolate, attenuated at the base, villose, strigose, without veins; calicine leaflets lanceolate-acute. It has a shrubby stalk, two or three feet high, dividing at top into several branches; leaves sessile, hairy, light green; stamina not longer than the corolla. The flowers are produced singly between the leaves, at the ends of the branches; they are of a purple colour, and in shape much like those of the Cretan sort. It flowers in May and June, but does not ripen seed in England.—Native of the Cape of Good Hope. This plant is propagated by seeds, when they can be obtained, which should be sown in pots, filled with light sandy earth, soon after they are received. These may be exposed to the open air till the beginning of October, when the pots should be placed under a frame, to guard them from frost; but in mild weather, they should have the free air, to prevent the seeds from vegetating till the winter is past; for if the plants come up at that season, their stems will be weak and full of juice, and very liable to rot with damps; therefore it is much better if the plants do not come up till toward March, which is the usual time of their appearing, when the seeds are not forced by warmth. When the plants are fit to remove, they should be each planted into a small pot filled with light earth, and placed under a frame, to forward their putting out new roots; then they should be gradually inured to bear the open air, and may be placed abroad in a sheltered situation at the latter end of May, where they may remain till the beginning of October, at which time they must be removed into an airy glass-case, where they may enjoy the sun, and have free air in mild weather. During the winter season, these plants must be sparingly watered; for as their stems are succulent, too much moisture will cause them to rot. In the summer they should be set abroad in a sheltered situation, and treated in the same way as other plants from the same country.

2. Echium Candicans; *Hoary Tree Viper's Bugloss.* Stem shrubby; leaves lanceolate, nerved; they and the branches hirsute; calicine leaflets oblong, and lanceolate-acute; styles rough with hairs. This handsome shrub has woody stems, and branches which are somewhat tomentose, marked with linear transverse scars from fallen leaves; leaves a span long, approximating, lanceolate-subulate, attenuated at the base, to the insertion where it widens, marked with lines above, and veined underneath; veins very long, and simple; towards the panicle they are imbricate, and narrower at the base; flowers in a conical panicle, formed of many spikes at the ends of the branches; spikes pedicelled, simple, pointing one way, bending inwards; corollas small, subhirsute, blue. The whole plant is white, and as it were silvery, with a soft close shagginess covering the whole, hardly excepting the corolla.—Native of the high rocks of Madeira.

3. Echium Giganteum; *Gigantic Viper's Bugloss.* Stem shrubby; leaves lanceolate, attenuated at the base, hairy; hairs very short; bractes and calices strigose; stamina longer than the corolla. It is a very lofty shrub, with woody, round, hoary, smooth branches; leaves a span long, and the breadth of a finger, scabrous, veined; flowers pointing one way, and forming a very large, pyramidal, terminating thyrse, consisting of long-spiked peduncles; corollas obtuse, nearly equal, white.—Found by Masson on the rocks of Teneriffe.

4. Echium Strictum; *Upright Viper's Bugloss.* Stem shrubby, stiff, branching; leaves oblong-lanceolate, hairy; corollas somewhat bell-shaped; stamina longer than the corolla. It is distinguished, as its English name imports, by the uprightness and stiffness of the stem, by its petioled oblong leaves, and by the hairs of the stem being turned downwards; peduncles axillary at the top of the stem, solitary, naked, with three-parted spikelets, contracted into a head at the tip. The corolla is small and blue, with the stamina standing out.—It is biennial, and flowers most part of the year; and was found by Masson on the rocks of Teneriffe.

5. Echium Spicatum; *Spiked Viper's Bugloss.* Stems ascending, very simple; flowers in spikes; root-leaves very many, a hand in length, lanceolate-linear, very narrow; stems twice the length of the leaves, with a few smaller alternate hairy leaves; spike terminating, nearly a finger's length, compact; calices hoary; stamina longer than the corolla.—Native of the Cape of Good Hope.

6. Echium Argenteum; *Silvery Viper's Bugloss.* Leaves linear, hirsute, and whitish, patulous at the tip; stem branched determinately.—Native of the Cape of Good Hope.

7. Echium Capitatum; *Headed Viper's Bugloss.* Stem hairy; leaves hispid; flowers crowned closely into terminating heads; corollas regular, funnel-form; stamina twice as long as the corolla; and style double the length of the stamina.—Native of the Cape of Good Hope.

8. Echium Plantagineum; *Plantain-leaved Viper's Bugloss.* Root-leaves ovate, marked with lines, petioled; leaves above hairy, soft, hispid; root-leaves like those of Plantain, very entire, large; stem-leaves lanceolate, sessile; stems hairy, with soft, not strigose, hairs; brown dots under the hairs, as in the rest, but minute; corollas violet-coloured; bractes between the flowers, half cordate, the length of the calix, not subulate, not longer than the calix.—It flowers from July to October, is annual, and a native of Italy.

9. Echium Lævigatum; *Smooth-stalked Viper's Bugloss.* Stem even; leaves lanceolate, naked, scabrous about the edge and at the tip; corollas equal; the stems are also undershrubby, and about a foot in height; leaves smooth, except that they are scabrous with mucronate callous dots about the edge, along the keel, and at the tip above; racemes from the axils of the upper leaves, pointing one way, and smooth; calix smooth; corolla but slightly irregular; stamina declined; seeds muricate.—Native of the Cape of Good Hope.

10. Echium Italicum; *Wall Viper's Bugloss.* Stem herbaceous, hairy; leaves linear-lanceolate, strigose, hirsute, the lower ones nerved; corollas nearly equal; stamina longer than the corolla; the stalk is upright and hairy; the flowers are produced in short spikes on the side of the branches; they are small, and scarcely appear above the calices; the calices are very hairy, and cut into acute segments. Some plants have white flowers, others purplish.

11. Echium Rubrum; *Red Viper's Bugloss.* Flowers in a long spike made up of little short racemes; corollas nearly equal; leaves hispid; stem erect, about a foot high, rough, and covered with red points; radical leaves long and lanceolate, hairy, deepish green above, paler below, and with a strong back-nerve; stem-leaves smaller and narrower; spike of flowers about a foot long, consisting, as in the Common Echium, of a great many separate spikelets, or smaller flowering spikes, proceeding from the aloe of the small leaves, and at first coiled as usual, rather small than large, of a palish red, and with nearly equal and somewhat triangular segments; antheræ pale blue.—It grows plentifully in Hungary, where it is a native.

12. Echium Vulgare; *Common Viper's Bugloss.* Stem tubercled and hispid; stem-leaves sessile, four or five inches long, all lanceolate, quite entire, scabrous, and hairy on both sides; flowers in lateral spikes, numerous, those of each spike pointing one way, and closely wedged together. The whole plant is hispid; the stem often, and the leaves in some instances, beautifully spotted with red; the hairs on the stem rise from glossy purplish black tubercles; the root-leaves form a tuft, nearly two feet long, petioled. Corolla before it expands, of a fine red, afterwards of a bright blue, which varies to pale red and white; if the colour be blue, the stems are bluish, the stamina purple, and the bulbs from which the hairs spring are blood-red; but if the corolla be pale red, then the other parts of the flower are of the same colour, and the hair-bulbs are yellow; and if it be white, all the parts of the flower are of the same colour, and the hair-bulbs are green; the outside of the corolla is set with short hairs, and marked with five rising ribs, extending from the middle of each segment down to the base; the upper and lateral segments are rounded, the lowest somewhat pointed; the filamenta are red, and longer than the corolla, sometimes much longer, and sometimes very little longer, or barely equal to the upper segment; antheræ gray; style very hairy; germina imbedded in a fleshy receptacle. It is a showy plant; and such is the absurdity of fashion, that *if it were not common*, it would assuredly obtain admittance in our gardens. It is biennial, and appears abundantly once in three years, in the corn-fields of Cambridgeshire, where it is known by the name of *Cat's Tail.* Bees are fond of the flowers; but, unfortunately for those useful and interesting insects, the strong hairs of the corolla and style often tear their wings.—Hill informs us, that the leaves, especially those growing near to the root, make a good cordial by infusion, which operates by perspiration, and alleviates fevers, headaches, and all nervous complaints.

13. Echium Violaceum; *Violet-flowered Viper's Bugloss.* Corollas equal to the stamina; tube shorter than the calix; stem a foot high, branching at the top and bottom; the hairs are soft, and some of them rise from tubercles; these are hardly if at all discernible on the leaves, though they are on the stem, where they are intermixed with short hairs, not rising from tubercles; corolla deep blue, half as long again as the calix, at the bottom of the two upper segments, beset both within and without with hairs, which give it a whitish colour. Found near Norwich, in England.—Native of Austria and Germany. It flowers in July.

14. Echium Creticum; *Cretan Viper's Bugloss.* Stem procumbent; fruiting calices distant. It has trailing hairy stalks, about a foot long, putting out several side-branches; leaves lanceolate, hairy, about three inches long, and three-quarters of an inch broad, sessile; the flowers come out on slender spikes, upon long peduncles, from the axils; they are large, of a reddish purple, and turn to a fine blue when dried.—Native of the Levant. There is a variety with branching stalks, a foot and a half long, declining towards the ground, and covered with stinging hairs; leaves four inches long, and not more than half an inch broad, pretty much warted, and hairy: the flowers grow in loose spikes from the sides of the stalks, and also at the ends of the branches; they are of a reddish purple colour, but not so large as those of the preceding; and the stamina are longer than the corolla.—This plant is annual, and the most beautiful of the whole genus: to propagate it, the seeds must be sown every year where they are designed to remain, and the plants require no other culture but to keep them clear from weeds, and to thin them where they grow too close; they flower in July, and their seeds ripen in five or six weeks after. The seeds of the other sorts being sown in the spring, will, in the second summer after, produce flowers and seeds, after which they seldom continue. They delight in a rubbishy gravelly soil, and will grow upon the tops of old walls or buildings, where, when they have once established themselves, they will drop their seeds, and thereby maintain a succession of plants without any care; and on these places they will appear very beautiful.

15. Echium Orientale; *Oriental Viper's Bugloss.* Stem branched, about three feet high, an inch thick, pale green, hard, solid; stem-leaves ovate; flowers solitary, lateral; root above a foot long, and two inches thick, mucilaginous, and sweetish; the lower leaves are fifteen or sixteen inches long, and four or five inches wide, pointed, whitish-green, satin-like above, and cottony underneath, with a strong midrib; they diminish considerably along the stem, not being above half a foot in length; they are also less cottony than the former, and much more pointed: branches about half a foot long; both they and the top of the stem are rough with strong hairs, accompanied by leaves about an inch and a half in length. All these branches are subdivided into smaller ones, bending like a scorpion's tail, and loaded with flowers an inch and a half in length, of a pale blue colour, with two red bands on three of the segments, on a bright purple ground, scentless; calix almost as long as the corolla, rough with very large hairs; style almost as long as the corolla, slightly villose, and purple.—Found by Tournefort in the Levant.

16. Echium Lusitanicum; *Portugal Viper's Bugloss.* Corollas longer than the stamina; the lower leaves are more than a foot long, and two inches broad in the middle, gradually lessening to both ends, and covered with soft hairs; the stalks grow two feet high; the flowers are in short spikes from the sides of them.—Native of Spain and Portugal.

17. Echium Sericeum; *Silky Viper's Bugloss.* Leaves linear, awl-shaped; stem suffruticose, both hoary. Stems several, diffused, woody at the base, simple, a palm or more in height, soft at bottom, somewhat rugged at top, hoary, with

white hairs, pressed close, and placed on minute tubercles, the lower ones longer, the upper ones more dispersed. The lower leaves from two to three inches long, crowded, linear, ciliate below, gradually widening towards the top, dilated at the base, embracing, obtuse, hoary on both sides, with close short hairs placed on minute dots; the upper ones an inch long, and recurved. Spike terminating, pointing one way, hoary-haired; bractes ovate-lanceolate, obtuse; corolla villose on the outside; stamina longer than the corolla.—Native of Egypt.

18. Echium Setosum; *Hoary Viper's Bugloss.* Leaves linear-lanceolate; stem suffruticose, procumbent, both hispid and hoary; spike terminating, solitary; flowers at first crowded, but afterwards more remote; bractes ovate; corolla half an inch in diameter, hoary; stamina longer than the corolla; nuts small, ovate, acuminate, muricate.

19. Echium Glabrum; *Smooth Viper's Bugloss.* Leaves linear-lanceolate, smooth above, callous-dotted beneath on the outside; spikes alternate; branches scattered, a little compressed at top, purplish ash-coloured, with very slender appressed villose hairs; leaves sessile, firm, an inch long, even; spikes from the upper axils, erect, few-flowered, two inches long; bractes ovate-lanceolate, the length of the calix; calices hairy, with lanceolate segments, the same length with the tube of the corolla; stamina longer than the corolla.—Native of the Cape of Good Hope.

20. Echium Rosmarinifolium; *Rosemary Viper's Bugloss.* Leaves petioled, linear-lanceolate, reflex at the edge, hairy underneath, and hoary; branches round, scarred, hoary with the hairs; petiole very short; raceme terminating, short; leaflets of the calix linear, hairy; corolla almost regular, half as long again as the calix.—Native of the Cape of Good Hope.

21. Echium Sphærocephalum; *Round-headed Viper's Bugloss.* Leaves linear-lanceolate, strigose; heads solitary, terminating, globular, hairy, on short peduncles, with small flowers that are almost regular, and having stamina longer than the corolla; branches smooth.—Native of the Cape.

Eclipta; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common many-leaved; leaflets lanceolate, nearly equal, in a double series. *Corolla:* compound rayed; of the ray most plentiful, female; of the disk hermaphrodite: proper of the hermaphrodite tubular, four-cleft, upright, outwardly mealy; in the females very narrow, ligulate. *Stamina:* in the hermaphrodites; filamenta four, very short; antheræ cylindric. *Pistil:* in the hermaphrodites; germen oblong; style middling; stigma two-cleft, spreading. *Pericarp:* calix unchanged. *Seed:* in the hermaphrodites, oblong, compressed, notched, obtuse, unarmed; in the females, three-sided, oblong, notched, obtuse, unarmed. *Receptacle:* flattish, chaffy; chaffs very narrow. Essential Character. *Receptacle:* chaffy. *Down:* none; corollets of the disk four-cleft.—These plants are all propagated by seeds, sown upon a hot-bed in the spring; when they are fit to remove, they should be transplanted into a fresh hot-bed to bring them forward; they must be shaded till they have taken new root, and then treated as other tender annuals, being careful not to draw them up too weak. In June they may be taken up with balls of earth, and being planted in pots, are to be set in a stove, where they must remain, and be shaded and watered, in order to flower well.——The species are,

1. Eclipta Erecta; *Upright Eclipta.* Stem erect; leaves deflected at the base, and sessile; peduncles alternate, usually in pairs, longer than the leaves, one-flowered; flowers white; calix of five or six leaves; scales broad-lanceolate, the two larger somewhat hispid; flowers discoid; of the disk numerous, four-cleft, minute; of the ray very many, minute; seeds angular, thickish, naked, without any down; receptacle naked, not chaffy.—Native of the West Indies, and of the East Indies, Cochin-china, &c. Loureiro says, that in Cochin-china the leaves are not nerved, nor properly serrate, nor sessile; and that the flowers are not in pairs: he adds, that the juice is used for dyeing the hair both of men and quadrupeds, whence the natives call it *Ink-plant.* It flowers from July to September; and is an annual plant, although Linneus has marked it as biennial.

2. Eclipta Punctata; *Dotted-stalked Eclipta.* Stem erect, a foot and a half high, dotted; leaves flat; peduncles one-flowered, subterminating; flowers whitish, having no smell. The whole plant produces a green watery sap, which becoming black when exposed to the air, may be used as ink, and if it could be fixed would make a very fine dye. The negroes are said to increase the blackness of their skin by rubbing it with this juice. This resembles the first species; but the stem has white dots scattered over it.—It is annual, and a native of St. Domingo and Martinico.

3. Eclipta Latifolia; *Ovate-leaved Eclipta.* Stem erect, two feet high; leaves ovate, petioled; root annual; flowers terminating, solitary, on very short white peduncles; calix close, the length of the flower; ray of the corolla short, with subtrifid petals; in the disk four florets, which are five or six cleft; antheræ black; stigmas recurved; seeds oblong, subtrigonal; receptacle the length of the seeds.—It flowers in September and October, and is a native of the East Indies.

4. Eclipta Prostrata; *Trailing Eclipta.* Stem prostrate; leaves somewhat waved and petioled. It is often found erect, like the first species, with subsessile flowers, or at least on very short peduncles; the flowers come out alternately in pairs; calix simple; antheræ brown; seeds awnless and muricate, in four rows. It is an annual plant.—Native of the East Indies, Japan, Cochin-china, and the isle of Tanna in the South Seas.

5. Eclipta Sessilis; *Sessile-leaved Eclipta.* Stem erect; leaves slightly embracing, ovate, toothed; flowers axillary, sessile, discoid.—This is an annual plant, and a native of Jamaica.

Edgings.—The best and most durable plant for edgings in a garden, is Box; which, if well planted and rightly managed, will continue in beauty for many years. The best season for planting it, is either in the autumn or very early in the spring, for if it be planted later, and the season happen to turn out hot and dry, it will be very subject to miscarry, unless great care be taken to supply it with water. The best sort for this purpose is the Dwarf Dutch. Box-edgings are only planted upon the sides of the borders next the walks, and not, as the fashion formerly was, to plant the edgings of flower-beds, or the edges of fruit borders, in the middle of gardens, unless they have gravel walks between them, which makes it necessary to keep the walks clean, by keeping the earth of the borders from washing down into the walks during heavy rains.—It was also the custom to plant edgings of divers sorts of aromatic herbs, such as Thyme, Savory, Hyssop, Lavender, Rue, &c. but as these very soon grow woody, and therefore cannot be kept in due compass, and are also often killed in whole patches by hard winters, whereby the edgings are rendered incomplete, they are now seldom used for this purpose. Some persons make edgings of Daisies, Thrift, Catchfly, and other flowering plants; but these also require to be transplanted every year, in order to have them handsome, for they soon grow out of form, and are subject to decay in patches, so that there is not any plant which so completely answers the design as Dwarf Box.

Egg-plant. See *Solanum.*

Eglantine. See *Rosa.*

Ehretia; a genus of the class Pentandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, bell-shaped, half five-cleft, obtuse, very small, permanent. *Corolla:* one-petalled; tube longer than the calix; border five-cleft; divisions somewhat ovate, flat. *Stamina:* filamenta five, subulate, patulous, length of the corolla; antheræ roundish, incumbent. *Pistil:* germen roundish; style filiform, thicker above, length of the stamina; stigma obtuse, emarginate. *Pericarp:* berry roundish, one-celled. *Seeds:* four, convex on one side, cornered on the other. Essential Character. *Berry:* two-celled. *Seeds:* solitary, two-celled; stigma emarginate.—These plants are too tender to thrive abroad in England, where they require a moderately warm stove in the winter; but when they have acquired strength they may be placed in the open air during the heat of the summer, but it should be in a sheltered situation; and when the evenings grow cold in the autumn, they must be removed into shelter. They are propagated by seeds, when they can be obtained, which should be sown in small pots, and plunged into a hot-bed. They may also be increased by layers, but these are long before they put out roots.——The species are,

2. Ehretia Tinifolia; *Tinus-leaved Ehretia.* Leaves oblong-ovate, quite entire, smooth; flowers panicled. It is an upright tree, from twenty to thirty feet high, with an oblong thick head; branches unarmed, roundish, subdivided; leaves alternate, veined, blunt, about four inches long, on short petioles; panicles terminating, oblong, large; flowers numerous, white, small; calix five-parted, with minute ovate segments; corolla a little larger than the calix, with acute segments, finally rolled back; filamenta longer than the corolla; style scarcely shorter than the stamina, awl-shaped, bifid; stigmas simple; berry spherical, at first yellow, then black; seeds two, hemispherical, two-celled.—It flowers in January and February, and is a native of Cuba and Jamaica, where it is pretty common in the lower lands, being known by the name of *Bastard Cherry-tree.* It generally rises to the height of sixteen or twenty feet; and produces small berries, which seldom exceed the largest of our European currants in size, and serve to feed the poultry, and are even eaten by the pooror sort of people.

2. Ehretia Spinosa; *Thorny Ehretia.* Thorny. This tree has a trunk three or four inches in diameter, dividing almost close to the ground, usually in three parts, which run up twenty-five or thirty feet high; these having put out a few similar boughs in their progress, scarcely attain the length of ten feet before they are bowed back to the ground, and require support from the boughs of the neighbouring trees; they have many very short lateral branches, scatteringly disposed; their bark is ash-coloured and smooth; strong, woody, short, very thick, awl-shaped spines are scattered over the trunk, principal boughs, and secondary branches, the oldest of which frequently put forth from their middle a perpendicular leafy branchlet of the same length with themselves; flowers small, with yellowish corollas.—It flowers in August, bears fruit in October, and is a native of Carthagena in New Spain, where it is known by the name of *Cacara-cacara,* but differs much in habit from the preceding description.

3. Ehretia Bourreria; *Oval-leaved Ehretia.* Leaves ovate, quite entire, smooth; flowers in a kind of corymb; calices smooth. This small inelegant tree has an adust habit, and is often found fifteen feet high in the island of Curaçoa, though in Martinico it seldom exceeds five; trunk unequal, with a chinky bark; branches very many, irregular; leaves alternate, petioled, quite entire, various, obtuse, acute, or emarginate; on rocks smooth, elsewhere rugged; differing in size; racemes corymbed, terminating; flowers sweet; corollas white, with roundish segments; antheræ oblong; calix in the fruit cloven; berries shining, saffron or orange coloured, pulpy, sweet, succulent, more quadrangular as they are larger, eaten by children and the natives.—Native of the West Indies, growing from the crevices of rocks, where there is no soil. According to Dr. Browne, it grows in the savannas of Jamaica, where it is called *Poison Berries,* and by the French *Bois Cabril Batard.*

4. Ehretia Exsucca; *Dry-fruited Ehretia.* Leaves wedge-form, lanceolate, with the edge reflex. This small tree is fifteen feet in height, sometimes erect, and sometimes supporting itself on other trees; leaves ovate, acute, very smooth, alternate, petioled, two inches long; racemes branched, subcorymbed, subterminating; flowers having a slight degree of sweetness, much larger than in the preceding species; corollas white, with heart-shaped segments; antheræ ovate, and large; berries green, four-cornered, slightly four-grooved, ending in a blunt point, without any pulp, becoming finally of a reddish black colour, dividing into four parts, with the seeds sticking in them, and continuing a long time on the tree.—It is often found in the neighbourhood of Carthagena in New Spain, in mountain woods, where it flowers from May to August, and ripens seed in October.

5. Ehretia Virgata. Leaves oblong, entire, rugged on the upper surface; branches filiform; flowers terminating, scattered; calices hirsute.—Native of Hispaniola.

Ehrharta; a genus of the class Hexandria, order Monogynia or Digynia.—Generic Character. *Calix:* glume one-flowered, two-valved, ovate, concave, shorter than the corolla, patulous; one valve a little larger than the other, and membranaceous. *Corolla:* double, longer than the calix, scarcely gaping; outer two-valved; valves oblong, complicate, keeled, retuse, transversely wrinkled, villose on the outside of the base; inner compressed, two-edged, of two valves, which are folded, membranous, keeled, unequal. Nectary two-leaved, very small; leaflets jagged and ciliate, involving the genitals. *Stamina:* filamenta six, capillary, very short; antheræ upright, linear, emarginate, shorter than the corolla. *Pistil:* germen ovate, minute, smooth; styles two, very short, erect, contiguous; stigmas long, approaching each other, at length divaricated, each consisting of two opposite feathery rows. *Pericarp:* none. *Seed:* single, ovate, smooth. Essential Character. *Calix:* a two-valved one-flowered glume. *Corolla:* double, each two-valved; the outer corolla notched at the base.——The species are,

1. Ehrharta Mnematea. Beardless: outer corolla rugose, obtuse, beardless; panicle simple, lax; stem simple; margin of the leaves cartilaginous and crisped; flowers tinged with purple, on capillary drooping stalks.—Native of the Cape.

2. Ehrharta Panicea. Beardless: outer corolla smooth, somewhat rugged, obtuse; panicle slightly branched, drooping; stem subdivided. It has the habit and small green flowers of a Panicum or Poa.—Native of the Cape.

3. Ehrharta Ramosa. Beardless: outer corolla rough, abrupt; panicle close; stem much branched, rather shrubby. The calix is nearly as long as the corolla.—Native of the Cape.

4. Ehrharta Melicoides. Beardless: outer corolla very smooth and obtuse; panicle widely spreading; glumes of the corolla peculiarly bare and rounded.—Native of the Cape.

5. Ehrharta Calycina. Beardless: outer corolla somewhat hairy, obtuse, with a short point; panicle close, nearly simple; stem branched.—Native of the Cape.

6. Ehrharta Geniculata. Awned: outer corolla hairy; one valve awned; panicle close; stem decumbent, bent at the joints. This species is distinguished from the last by its crisped leaves and pointed awned corolla.—Native of the Cape.

7. Ehrharta Longiflora. Awned: outer corolla rugged, hispid; both valves awned; panicle rather lax, branched. This is a large species, with the habit of an Avena. The length of the awns varies.—Native of the Cape.

8. Ehrharta Gigantea. Awned: outer corolla hairy; valves both awned; panicle close, somewhat whorled; stem remotely jointed; calix very membranous, half as long as the corolla. This is one of the largest species, being six feet high; the flowers also are more hairy and larger than any other.—Native of the Cape.

9. Ehrharta Bulbosa. Awned: outer corolla with obovate, emarginate, rugged, short-awned glumes; panicle lax. The root of this species is more bulbous than of some others. The number of stamina vary from three to four or more.—Native of the Cape.

Ekebergia; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, tomentose, four-parted; divisions ovate, obtuse. *Corolla:* petals four, oblong, obtuse, tomentose on the outside, a little longer than the calix; nectary a ring surrounding the base of the germen. *Stamina:* filamenta ten, very short, pubescent; antheræ ovate, acute, upright. *Pistil:* germen superior; style cylindric, very short; stigma capitate. *Pericarp:* a globular berry. *Seeds:* five, oblong. Essential Character. *Calix:* four-parted. *Petals:* four. *Nectary:* like a garland, surrounding the germen. *Berry:* containing five oblong seeds.——The only known species is,

1. Ekebergia Capensis. A tree resembling the Ash, with abruptly or unequally pinnate leaves; the common petiole flatted; the flowers panicled and axillary, they are small and whitish. The wood of this tree is hard, and used for many utensils.—Native of the Cape.

Elæagnus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-cleft, superior, straight, bell-form, outwardly scabrous, inwardly coloured, deciduous. *Corolla:* none. *Stamina:* filamenta four, very short, inserted into the calix below the divisions; antheræ oblong, incumbent. *Pistil:* germen roundish, inferior; style simple, a little shorter than the calix; stigma simple. *Pericarp:* drupe ovate, obtuse, smooth, with a dotted tip. *Seed:* nut oblong, obtuse. Essential Character. *Corolla:* none. *Calix:* four-cleft, bell-form, superior; drupe below the calix.——The species are,

1. Elæagnus Angustifolia; *Narrow-leaved Oleaster.* Leaves lanceolate. A tree, branching from the bottom, growing sometimes to the height of three fathoms, with a trunk the thickness of a man's arm or thigh, elegant in its appearance, especially from the silvery brightness of the leaves; bark smooth, brown; wood pale, prettily veined with gray and brown, but not hard; branches and branchlets slender, frequent, alternate, smooth, unarmed, or having thorns, especially in young trees. The flowers come out at the middle leaves of the smaller branches, usually solitary, or two together, sometimes, but very seldom, three from each axil, in which case one or two are on shorter peduncles, and barren, having no germen, though they have a style and antheræ; drupe always solitary, oblong, hoary, white when young, thicker and yellowish when ripe, enclosing within a sweet pulp a woody, gray, furrowed nut. In the deserts near the Volga, the fruit is hardly bigger than the berries of the Barberry, whereas in the more southern parts it is of the size of the Cornelian Cherry. Mr. Miller specifically distinguishes the Thorny from the Unarmed Narrow-leaved Oleaster. The latter, he says, is that which is most commonly preserved in the English gardens. The leaves are more than four inches long, and not half an inch broad; they are very soft, and have a shining appearance like satin. The flowers come out at the footstalks of the leaves singly, or two, and frequently three, at the same place; the outside of the calix is silvery and studded, the inside of a pale yellow; it has a very strong scent. The flowers appear in July, and are sometimes succeeded by fruit. Mr. Miller conceives the thorny Olæagnus to be the common sort, which grows naturally in Bohemia, and of which he saw some trees in the curious garden of the famous Boerhaave, near Leyden. The leaves of this are not more than two inches long, and about three-quarters of an inch broad in the middle; they are white, and have a soft cottony down on their surface; at the footstalk of every leaf comes out a pretty long sharp thorn; the leaves being alternate, the spines come out on each side of the branches. The flowers are small, and have a strong scent when fully open. Native of the Levant.—This species is extremely hardy, and sets the frost at defiance. It is not, however, of very long duration; young plants, therefore, should be raised, once in three or four years, by seeds or layers.

2. Elæagnus Orientalis; *Oriental Oleaster.* Leaves oblong, ovate, opake. This has the appearance of the foregoing species, but the leaves are twice as broad, ovate-oblongish, soft to the touch on both sides, pale underneath, but neither surface shining or silvery. In its stature and manner of growth, this tree resembles a middle-sized Willow, as it does also in the hoariness of its leaves, and the division of its branches. This, and the *Spinosa* of Linneus, do not seem to differ, except as a garden-tree does from a wild one, or the thorny variety of the preceding species from the unarmed.—Native of the mountains of Persia, from Caucasus to Derbent; found in abundance on the shores of the Caspian sea, and also in the Levant. This plant requires the protection of a green-house.

3. Elæagnus Latifolia; *Broad-leaved Oleaster.* Leaves ovate. This rises with a woody stem to the height of eight or nine feet, dividing into many branches; leaves silvery, with several irregular dark-coloured spots; they are alternate, and continue all the year.—Native of the East Indies and China. This sort requires a warm stove to preserve it in this country; for it is too tender to live in the open air, except for a short time in the warmest part of summer. It may be raised from the seeds.

4. Elæagnus Crispa; *Curled-leaved Oleaster.* Leaves lanceolate-oblong, obtuse, waved; flowers solitary. This is an uprigh ttree; branches and branchlets alternate, round, divaricate, upright, ash-coloured, scabrous with dots; the last twigs angular, and whitish; leaves alternate, petioled, entire, above naked, brownish, dotted, with a middle longitudinal furrow, silvery underneath, from erect patulous, an inch and a half in length; petiole furrowed above, scarcely a line long; flowers not in the axils, but scattered over the last twigs, solitary, and peduncled; peduncle capillary, shorter than the flower.—Native of Japan.

5. Elæagnus Multiflora; *Many-flowered Oleaster.* Leaves obovate, obtuse; flowers axillary, aggregate; peduncles longer than the flower; stem shrubby, little branched; branches and branchlets alternate, few, round, ferruginous, brown, spreading, scabrous with dots; leaves from each bud, many, alternate, petioled, entire, upright, above half naked, with scaly silver dots, wholly covered with silvery

scales underneath, unequal, about an inch in length; petioles capillary, a line in length; flowers many, peduncled from a bud among the leaves; peduncles capillary, loose, silvery, an inch long; calix club-shaped, oblong.—Native of Japan.

6. Elæagnus Umbellata; *Umbelled Oleaster.* Leaves obovate, obtuse; flowers axillary, aggregate; peduncles shorter than the flower. Stem shrubby; branches and branchlets alternate, round, upright, ferruginous, brownish, scabrous with dots; leaves from alternate buds, many, petioled, patulous, rather naked above, with silvery dots, underneath silvered all over, half an inch in length; petioles capillary, scarcely a line long; flowers many, from a bud among the leaves, in a kind of umbel, peduncled, drooping; peduncles capillary, nodding, scarcely a line in length; calix ovate.—Native of Japan.

7. Elæagnus Glabra; *Smooth-leaved Oleaster.* Leaves ovate-oblong, acuminate; flowers axillary, subsolitary. Stem arborescent; branches roundish, almost naked, brown; branchlets angular, reddish, ash-coloured, scabrous with dots, alternate, from erect patulous; leaves alternate, petioled, entire, from spreading erect, above green, smooth, underneath reddish, scaly, with ferruginous dots interspersed, an inch and a half in length; petioles semicylindric, channelled above, half an inch long; flowers axillary, solitary, and in pairs, peduncled, upright; peduncles shorter than the flower, capillary.—Native of Japan.

8. Elæagnus Macrophylla; *Silver-leaved Oleaster.* Leaves rounded-ovate, silvery. This is an upright thornless tree; branches round, streaked, tubercled, with the deciduous branchlets ash-coloured, scabrous with dots, upright; branchlets angular, alternate, like the branches; leaves alternate, petioled, entire, from erect patulous, above smooth, green, beneath silvery, an inch in length; petioles semicylindric, above channelled, upright, half an inch long; flowers axillary, aggregate, peduncled, almost upright; peduncles four or more, the length of the flower.—Native of Japan.

9. Elæagnus Pungens; *Prickly Oleaster.* Branchlets becoming thorns; leaves oblong, waved; flowers axillary, in pairs. This is an upright tree a fathom in height, with a brown scabrous bark; branches round like the trunk, flexuose, leafless, spreading, branchlets alternate like the branches, leafy, stiff, spinescent at the end; leaves alternate, petioled, somewhat obtuse, entire, above smooth, green, beneath silvery, with scales interspersed with ferruginous dots, from reflex spreading, an inch long, stiff; petiole half an inch in length; flowers in the axils of the leaves, about two, distinct, upright; pedicels shorter than the flower.—Native of Japan.

10. Elæagnus Argentea. Unarmed: leaves undulated, oval-oblong, smooth on both sides, and covered with silvery scales: flowers aggregate, nodding; berry large, subglobose, covered with silvery scales. This shrub, 8 to 12 feet high, is found on the banks of the Missouri, and at Hudson's Bay.

Elæis; a genus of the class Diœcia, order Hexandria.—Generic Character. *Male. Calix:* perianth six-leaved; leaflets concave, upright. *Corolla:* one-petalled, six-cleft, upright, sharp, length of the calix. *Stamina:* filamenta six, subulate, length of the corolla; antheræ oblong, sharp. *Female. Calix:* as in the male, (according to Gærtner, nine-leaved, with the inner leaflets longer.) *Corolla:* six-petalled. *Pistil:* germen ovate; style thickish; stigmas three, reflex. *Pericarp:* drupe fibrous, ovate, somewhat angulated, oily, (superior, berried, one-celled, according to Gærtner.) *Seed:* nut ovate, obscurely three-sided, with three holes, three-valved, one-celled. Essential Character. *Male. Calix:* six-leaved. *Corolla:* six-cleft. *Stamina:* six. *Female. Calix:* six-leaved. *Corolla:* six-petalled. Stigmas three. Drupe fibrous. Nut one to three valved. ——The only species known and fully described is,

1. Elæis Guineensis. Leaflets long, narrow, and not so stiff as most of the Palms. The footstalks of the leaves are broad at their base, where they embrace the stem, diminish gradually upwards, and are armed with strong, blunt, yellowish thorns, which are largest at their base. The flowers come out among the leaves at the top of the stem; some bunches having only male flowers, others only female, the latter of which are succeeded by oval berries, bigger than the largest Spanish olives, but of the some shape; they grow in very large clusters, and are of a yellowish colour when ripe. From this fruit, the inhabitants of the West India islands draw an oil, in the same manner as if it were extracted from olives. They also obtain a liquor from the body of the tree, which, when fermented, has a vinous quality, and will inebriate. The leaves are wrought by negroes into mats, on which they repose. The West Indians call this tree the Oily Palm, and Negro's Oil; the fruit having been first imported from Africa by the negroes. It grows in great plenty on the coast of Guinea, and also in the Cape de Verd Islands, but was not found in any of our American colonies, till carried there by the negroes, who now propagate it in great plenty. The French call it *Palmier*. Gærtner mentions another Elæis, which he names *Melanococca*, from the blackness of the nuts, but thinks to be probably only a variety of the above. The shell, however, is much smaller, and not so much bellied, but rather oblong, and suddenly contracted at the tip into an oblique dagger-point, it is also thinner, and elegantly variegated on the outside with testaceous streaks irregularly confluent, and with alternate streaks like the others, but of a coal black; when broken, it appears of a sooty black colour, and the seed is ovate-oblong, and brown. Jacquin also describes another veiny thorny Palm, which has somewhat of the same habit as the Elæis Guineensis, and is called *Gigri* in the island of Martinico. The fruit is eatable, of an acid flavour, globular, slightly depressed, acuminate by means of the style, scarlet, and shining. The pulp is small, red, soft, and not fibrous, surrounded by a very thin pellicle. Nut brown, with three obscure holes, from which run lines in a stellate order, like veins, over the whole surface; kernel cartilaginous and hollow. A Palm occurs also about Carthagena in New Spain, which the natives call *Corozo*, and make both an oil and a butter of the fruit. The pericarp is shining, and yellow on the outside, supported by a three-leaved calix, and a three-petalled corolla, permanent, and shining. It is but little fibrous, not thick, and contains a pleasant oil. Its form is ovate, obscurely three-cornered. Nut black and shining, of the same form, with three obscure holes at the base; kernel roundish, cartilaginous, very hard, solid, with the fruit slightly cloven.—To propagate the species first described, it must be kept constantly in the bark-stove, otherwise it will make no progress. In about twenty years it will be too tall for most of our stoves. It is propagated by seeds; for the sowing and management of which, see *Cocos* and *Phœnix*.

Elæocarpus; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, spreading, permanent, five-parted; leaflets linear-lanceolate, concave, sharp. *Corolla:* petals five, with claws, multifid, laciniate, the extreme jags capillary, equal, scarcely longer than the calix, inserted at the base of the nectary. *Stamina:* filamenta twenty to thirty, capillary, very slender, short, inserted into the nectary; antheræ shorter than the corolla, upright, linear, scabrous, two-valved at the tip; valves spreading, with about five ciliate hairs, very slender, from reflex expanding, unequal. *Pistil:* germen somewhat

globular, villose, sitting on the nectary; style filiform, longer than the stamina; stigma sharp. *Pericarp:* drupe oblong, of a smooth even surface. *Seed:* nut oblong, grooved, and tubercled; shell subtrivalvular; kernel subtrigonal. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled, jagged; antheræ two-valved at the tip. *Drupe:* with a curled shell.——The species are,

1. Elæocarpus Serratus. Leaves alternate, lanceolate-elliptic, serrate; racemes axillary; branches round, warted, smooth; leaves petioled, three inches long, bluntly serrate, smooth, nerved, and veined; racemes axillary; flowers distant. Linneus observes, that they are simple, loose, solitary, the length of the leaves, which have a double gland at their base.—Native of several parts of the East Indies.

2. Elæocarpus Dentatus. Leaves alternate oblong, tooth-serrate at top; racemes axillary; flowers one-styled; branches round, dotted, smooth, with pubescent branchlets; leaves petioled, two inches long, sharp at the base, smooth on both sides, except on the midrib, nerved above, somewhat veined underneath; petioles villose.—Native of the islands of the South Seas.

3. Elæocarpus Dicera. Leaves opposite, ovate, doubly serrate; racemes compound; flowers four-styled. Branches round, a little compressed at top; leaves petioled, smooth, veined at top, two inches long; racemes three inches long, erect.—Native of the East Indies.

4. Elæocarpus Copalliferus. Leaves quite entire; panicle terminating. Leaves large, ovate, coriaceous, very entire, with transverse nerves; flowers in panicles: calix superior; the divisions linear-oblong, obtuse, tomentose on both sides; petals longer than the calix, ovate, entire; stamina forty or more; antheræ filiform at the tip; germen conic, streaked, tomentose; style angular; fruit a conic, fleshy, resinous, one-celled pome. The long linear antheræ, terminated by cirrhose threads, seem to furnish a better character than the torn petals. It yields the copal resin, of which there are nevertheless several sorts.—Native of the East Indies.

5. Elæocarpus Integerrimus. Leaves lanceolate; quite entire; flowers heaped, axillary. A middle-sized tree, with spreading branches; leaves smooth, petioled, alternate; flowers many, golden, sweet-smelling; calix five-leaved, with lax leaflets; petals lacerated, longer than the calix; germina ten, roundish, minute, placed round the base of the style; drupe small, black, subovate, subacute, ripening singly, the rest of the germina proving abortive.—Native of Cochin-china, where it is also cultivated for the sweetness and beauty of the flowers.

6. Elæocarpus Oblongus. Drupe berried, superior, ovate-oblong, or subcylindric, smooth, covered with a soft fleshy bark; shell stony, oblong, muricate, and curled, with irregular tubercles, having three spurious sutures, never opening, one-celled, testaceous; seed oblong, attenuated to both ends, obscurely three-cornered, ferruginous.—Native of the East Indies.

Elæodendrum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets roundish, blunt, concave, spreading very much, small, permanent. *Corolla:* petals five, roundish, blunt, concave, spreading very much, twice as long as the calix. *Stamina:* filamenta five, subulate, bent back, arising from a gland beneath the germen; antheræ roundish, erect. *Pistil:* germen roundish, conical, placed on a gland; style conical; stigma obtuse, bifid. *Pericarp:* drupe ovate. *Seed:* nut ovate; shell thick and very hard, two-celled; kernels oblong, compressed. Essential Character. *Corolla:* five-petalled. Drupe ovate, with a two-celled nut. ——The species are,

1. Elæodendrum Orientale. This is a moderate-sized twiggy shrub or tree, a native of the Oriental regions; with the leaves ovate-lanceolate, smooth, sometimes slightly waved, and sometimes even a little inclined to a subserrated appearance on the upper parts of the shoots; flowers borne towards the ends of the branches, standing by twos and threes, of a pale green colour, sweet-smelling, supported on short pedicels, each of which springs from a somewhat longer common pedicel. The lower shoots, or those nearest the ground, appear to be somewhat procumbent, and have narrower and longer leaves in proportion than the upper ones; the nerves or midribs of these leaves are also of a reddish colour.

2. Elæodendrum Argan. Branches spiny; leaves ovate, obtuse. It is a middle-sized tree, with short thickish spines at the ends of the branches. Leaves solitary, and in bundles, an inch long, petioled, quite entire, coriaceous, others decrease towards the petiole, so as to be almost spatulate; flowers in the axils of the leaves and spines, heaped, sessile; calix inferior; leaflets a little unequal, hirsute, and brown on the outside, with the edges smooth and whitish; petals half ovate, entire, greenish with white edges; filamenta longer than the corolla, compressed, fastened to the base of the petals; antheræ ovate; drupe dry; nut very hard and smooth, pale brown, divided longitudinally by a white line, and having a single kernel in each cell; the calix and style abide after the petals are fallen, but are wanting in the fruit; one of the cells in the nut is generally abortive. It is called *Argan* by the Moors, who express an oil from the fruit, which the Europeans employ in a variety of manufactures, and the Moors for the table.—Native of the woods of Morocco.

Elate; a genus of the class Monœcia, order Triandria.——Generic Character. *Male Flowers. Calix:* spathe two-valved; spadix branching. *Corolla:* petals three, roundish. *Stamina:* filamenta three, simple; antheræ adnate. *Female Flowers,* in the same spadix with the males. *Calix:* spathe common with the males. *Corolla:* petals three, roundish, permanent. *Pistil:* germen roundish; style subulate; stigma sharp. *Pericarp:* drupe ovate, acuminate. *Seed:* nut ovate, grooved. Essential Character. *Male. Calix:* three-toothed. *Corolla:* three-petalled; antheræ six, sessile. *Female. Calix:* one-leafed. *Corolla:* three-petalled. *Pistil:* one: stigmas three. *Drupe:* one-seeded.——The only known species is,

1. Elate Sylvestris; *Prickly-leaved Elate.* Fronds pinnate; leaflets opposite. This Palm grows to the height of about fourteen feet, the trunk being covered with an ash-coloured crust, closely united with a very hard whitish wood; pinnate leaves break out from the top of the trunk only, in a decussated order, the old ones dropping off as the young ones break forth; the midribs are green, smooth, and shining, flat within, convex without, with long stiff spines at bottom; leaflets opposite, on short petioles, numerous, oblong, rounded, acuminate, close, smooth, of a shining green, closed at the base towards the inside, finely streaked longitudinally; the flowers are concealed in stiff, green, coriaceous spathes, they are small, several on the same peduncle; petals whitish-green; stamina whitish, lanuginose; they have no smell, but a rough taste; the fruit is oblong-round, small, like a wild plum, with a hard woody point at top, covered with the calix at bottom, first green, then red, but when ripe of a reddish brown, or blackish and shining, covered with a thin rind that is easily broken, and having a whitish sweet farinaceous pulp within; the nut or stone is oblong, rufous, marked longitudinally with a deep furrow, and containing a whitish bitter kernel: the fruits grow on green smooth shining branches, near a yard long, and two fingers broad, flat, stiff, and woody, whence

a clear austere liquor flows when they are cut or wounded. The poorer sort of people chew the nut in the same manner with the Areca nut, with the leaf of the Betel and quick-lime. The elephant is very fond of the fruit-branches, which are very sweet; the leaves, fruit, &c. are very astringent, and are looked upon as powerful in stopping fluxes.—Native of the East Indies. For its propagation and culture, see *Coccus* and *Pœnix*.

Elaterium; a genus of the class Monœcia, order Monandria.—Generic Character. *Male Flowers. Calix:* none. *Corolla:* one-petalled, salver-shaped; tube cylindric; border five-cleft; divisions lanceolate, channelled on the back, the incisures furnished with a toothlet. *Stamina:* filamentum single, columnar; antheræ linear. *Female Flowers. Calix* and *Corolla:* as in the male. *Pistil:* germen inferior, echinate; style columnar, thickening; stigma capitate. *Pericarp:* capsule inferior, echinate, leathery, filled with pulp, uniform, one-celled, two-valved, elastic. *Seeds:* several. Essential Character. *Male. Calix:* none. *Corolla:* salver-shaped. *Female. Calix:* none. *Corolla:* salver-shaped. *Capsule:* inferior, one-celled, two-valved.——The species are,

1. Elaterium Carthaginense. Leaves cordate, angular; stems round, smooth, herbaceous, diffused, scandent, with tendrils bifid and lateral. Leaves very finely serrate, smooth underneath, somewhat rugged above, petioled, alternate, numerous; peduncles of the male flowers axillary, solitary, many-flowered, spreading, almost the length of the leaves, racemed or subumbelled; female peduncle from the same axil, solitary, one-flowered, short; corolla white, without scent in the day, but smelling sweet at night; fruit green, an inch and a half long, having but little watery pulp, smelling like Cucumber; when ripe it opens elastically with a very gentle touch, and disperses its seeds; or when approaching to maturity, if it be held some time in the hand closed, it will do the same.—Native of Carthagena in New Spain, covering entire shrubs with its stalks, and flowering in October and November.

2. Elaterium Trifoliatum. Leaves ternate, gashed; capsule kidney-shaped, rough with hairs, two-valved, opening with a spring, and therefore of this genus.—Native of Virginia.

Elatine; a genus of the class Octandria, order Tetragynia.—Generic Character. *Calix:* perianth four-leaved; leaflets roundish, flat, size of the corolla, permanent. *Corolla:* petals four, ovate, obtuse, sessile, spreading. *Stamina:* filamenta eight, length of the corolla; antheræ simple. *Pistil:* germen orbicular, globose-depressed, large; styles four, upright, parallel, length of the stamina; stigmas simple. *Pericarp:* capsule orbicular, globose-depressed, large, four-celled, four-valved, flatted. *Seeds:* several, mooned, upright, surrounding the receptacle in the manner of a wheel.——The species are,

1. Elatine Hydropiper; *Opposite-leaved Waterwort.* Leaves opposite. This is a very small annual aquatic plant, being hardly a span in length; stem very tender, creeping; the shoots erect and leafy; leaves ovate-lanceolate, quite entire, sessile at the joints; flowers solitary, much smaller than in the second species, alternate, on very short peduncles, at the axils of the leaves on the branches, and close to them on the stem; petals white, purplish, or rose-coloured; styles none; stigmas very small; antheræ globular; capsules smaller than in the second.—Native of Denmark, Sweden, Switzerland, Silesia, and France, where it is found in ditches and other wet places, flowering in summer.

2. Elatine Alsinastrum; *Whorl-leaved Waterwort.* Leaves in whorls; stem decumbent, creeping at bottom, then erect, pellucid, brittle, six or seven inches in length, branched, round, the thickness of a quill, at the lower joints thick set with roots hanging in the water, having at the rest whorled, sessile, entire leaves, four to six in a whorl, at top only three, the emersed leaves ovate-lanceolate, the immersed ones linear, or even capillaceous, bright green, reflex; flowers axillary, two or three, sessile; calix very small, greenish; petals three or four, white, a little larger than the calix; stamina seven or eight, very short; capsule a little flatted, the partitions growing to the axils, and opposite to the sutures of the valves; seeds numerous, very small, somewhat cylindric, marked with longitudinal streaks, and transverse ones much finer, in a beautiful kind of net-work, bent a little, and ash-coloured. It flowers in June and July.—Native of Abo, Leipsic, Silesia, Switzerland, near Paris, and Montpellier; in England, in ditches, and also on the bogs of the common by the road from Eltham to Chisselhurst.—See *Antirrhinum.*

Elder. See *Sambucus.*

Elder, Marsh, or *Water.* See *Viburnum.*

Elecampane. See *Inula.*

Elegia; a genus of the class Diœcia, order Triandria.—Generic Character. *Male. Calix:* spathes within spathes, remote, one-valved, coriaceous, lanceolate, deciduous; spadix filiform, jointed, with an ament at each joint; ament loose, with pedicelled florets, distinguished by a bracte; bracte bristle-shaped, membranaceous, flat, longer than the florets; perianth proper, of six bristle-shaped, chaffy, loose leaflets. *Corolla:* none. *Stamina:* filamenta three, very short; antheræ incumbent, oval, larger than the perianth. *Female, on a distinct individual. Calix:* spathe as in the male, but shorter. *Spadix:* as in the male; ament with a compound raceme; perianth proper six-leaved; valves, the three outer lanceolate, channelled, petaloid, equal. *Corolla:* none. *Pistil:* germen somewhat oblong; styles three, filiform, the length of the perianth; stigmas simple. *Pericarp:* (according to Thunberg) a capsule of three cells. *Seed:* several, oblong.——The only known species is,

1. Elegia Juncea.—This plant is a native of the Cape of Good Hope, and has the habit of a rush; the stems are several, about a foot high, round, smooth, filled as if it were a rush; hard, strong, very simple, scarcely so thick as a quill, with a simple joint; there are scarcely any leaves, but two or three leafy sheaths towards the root, imbricated over each other, and of a brown colour; there is also a rudiment of a similar sheath towards the middle of the stem; the spathe is terminal, and divided into other interior ones, which are also compound; the parts of fructification are not very easily made out, but are most clear in the female flowers.

Elephantopus; a genus of the class Syngenesia, order Polygamia Segregata.—Generic Character. *Calix:* involucre of three broad sharp leaflets, many-flowered, large, permanent, without an umbel; perianth partial, four-flowered, oblong, imbricate; scales lance-subulate, mucronate, upright, of which the four longer are equal. *Corolla:* compound, tubular; corollets hermaphrodite, five or four, equal, disposed in a single circle; proper one-petalled, tubular; border narrow, five-parted, nearly equal. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen ovate, crowned; style filiform, length of the stamina; stigmas two, slender, spreading. *Pericarp:* none. *Calix:* unchanged. *Seeds:* solitary, compressed; down bristle-form. *Receptacle:* naked. Essential Character. *Calix:* four-flowered. *Corolla:* tubular, hermaphrodite. *Receptacle:* naked. *Down:* bristle-form.—These plants are propagated by seeds, which should be sown on a hot-bed in the spring; and when the plants are come up, they must be transplanted into pots filled with fresh light earth, and plunged into a hot-bed of tanners' bark, observing to water and shade them until they

have taken root, when they must have a large share of fresh air admitted to them in warm weather, besides requiring to be frequently refreshed with water.——The species are,

1. Elephantopus Scaber; *Rough-leaved Elephant's Foot.* Leaves oblong, scabrous. This from its perennial root sends out many oblong rough leaves, which spread near the ground; between these in the spring arises a branching stalk, little more than a foot high; the side-branches are short, and generally terminated by two heads of flowers, each on a short peduncle; the florets are of a pale purple colour.—According to Dr. Browne, in the East Indies it is accounted a good vulnerary, and is much used in consumptive cases; the leaves are frequently used instead of Carduus Benedictus, among the inhabitants of the French West India islands. If this plant be set in a pot, and sheltered in the winter from frosts, it may be preserved for several years, and will flower annually. —Native of the East Indies, in moist shady places.

2. Elephantopus Tomentosus; *Woolly-leaved Elephant's Tooth.* Leaves ovate, tomentose; root-leaves four inches long and three broad, having many transverse nerves; they spread flat on the ground, and from among them rises a stiff stalk about a foot high, dividing into several branches, and terminated by two flowers composed of several florets, enclosed in a four-leaved involucre, having two of the leaflets alternately larger than the two others; this involucre being longer than the florets, they do but just appear within the two larger leaves; and the flowers make little appearance.—Native of South Carolina.

3. Elephantopus Spicatus. Leaves ovate-lanceolate, serrate, scabrous; bundles of flowers sessile, lateral; stem branched. It generally rises to the height of fifteen or twenty inches, sometimes more; the common receptacles of the flowers rise singly from the axils of the upper leaves, and seem disposed in the form of a spike, but there are seldom more than four florets in each; the seeds are crowned with four little bristles.—Native of Jamaica, Hispaniola, and Guiana: biennial.

4. Elephantopus Angustifolius. Stem-leaves linear-lanceolate, entire, villose; flowers glomerate, in sessile and peduncled bundles. Stem simple; root large, oblong, whence rises a single, round, striated, hollow stalk, about two feet high, having sessile leaves set on it alternately, the lower part whereby they are joined to the stalk having a membrane enclosing it; they are about five inches long, and half an inch broad near the top where broadest, and round, are of a pale green colour, and wrinkled; towards the top the flowers come out in a spike, enclosed in an involucre of a few dry brown membranes; these are followed by small channelled seeds, having much pappus on them.—Native of Jamaica.

5. Elephantopus Carolinianus. Leaves oval, narrowed at the base, and with the branching stem pilose.—Native of Maryland and Virginia.

Ellisia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; divisions sharp, gaping. *Corolla:* one-petalled, funnel-form, smaller than the calix: border five-cleft. *Stamina:* filamenta five, shorter than the tube; antheræ roundish. *Pistil:* germen roundish; style filiform, short; stigma two-cleft, oblong. *Pericarp:* capsule bag-form, leathery, two-valved, two-celled: the calix then very large, flat, star-form. *Seeds:* in each cell two, globose, black, hollow-dotted, but one seed over the other, scarcely separated by a transverse partition. Essential Character. *Corolla:* funnel-form. narrow; berry dry, two-celled, two-valved. *Seeds:* two, dotted, placed over each other.——The species are,

1. Ellisia Nyctelea; *Cut-leaved Ellisia.* Root annual; stem herbaceous, brittle, dichotomous very much branched, diffused, prostrate, round; leaves alternate, petioled, pinnatifid, during foliation imbricate backwards; the divisions sharp, with a tooth on each side; peduncles opposite to the leaves, one-flowered, spreading, elongated, pubescent; flowers drooping; corolla white, with minute purple dots on the inside of the divisions; the position of the seeds is singular.—It flowers in July and August, and is a native of Virginia.

2. Ellisia Ambigua. Decumbent and branching; stem glabrous, somewhat glaucous; leaves hirsute, lyrate-pinnatifid, subsessile; segments sublanceolate, angularly toothed or lobed; racemes opposite the leaves, both lateral and terminal; flowers small, scarcely longer than the calix. Annual.—In alluvial soils on the banks of the Missouri.

Elm. See *Ulmus.*

Elymus; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* receptacle common, lengthened into a spike; glume four-leaved, two-ranked, two subulate leaflets being placed under each spikelet. *Corolla:* two-valved; valve exterior larger, acuminate, awned, interior flat; nectary two-leaved; leaflets oblong, sharp, ciliate. *Stamina:* filamenta three, hair-form, very short; antheræ oblong, two-cleft at the base. *Pistil:* germen top-shaped; styles two, divaricated, hairy, inflected; stigmas simple. *Pericarp:* none; corolla involving the seed. *Seed:* single, linear, convex on one side, covered. Essential Character. *Calix:* lateral, two-valved, aggregate, many-flowered. —For the propagation and culture of plants of this genus, see *Grass.*——The species are,

1. Elymus Arenarius; *Sea Lyme Grass.* Spike upright, close; calices tomentose, longer than the floret; leaves reedy, glaucous or whitish, involute and mucronate, channelled and rigid; stems two or three feet high and more, strengthened by three or four joints; spike tomentose, linear, eight or nine inches long, as large, but less compact than a full-sized wheat-ear; spikelets two, straight, two-flowered, awnless. Like Arundo Arenaria, it prevents the sea-sand from blowing about, by means of its matted roots. Dr. Withering conjectures, that it may possibly admit of being made into ropes, as the Stipa Tenacissima is in Spain.—It is perennial; flowers from June to August; and is found on the sea-coast in many parts of Europe.

2. Elymus Sibiricus; *Siberian Lyme Grass.* Spike pendulous, close; spikelets in pairs, longer than the calix; stems tall, round, and smooth; leaves moderately broad, and commonly distinguished by a kind of glaucous powdery complexion on the under sides; the awns are moderately long, and slightly flexuose. Flowering in June and July.—Perennial, and a native of Siberia.

3. Elymus Philadelphicus; *Philadelphia Lyme Grass.* Spike pendulous, patulous; spikelets six-flowered, the lower ones ternate. This strongly resembles the following species: perennial.—Native of Philadelphia.

4. Elymus Canadensis; *Canadian Lyme Grass.* Spike nodding, patulous; lower spikelets ternate, upper binate. The leaves of this species are bluish, especially underneath; the awns also of the corolla, when the seed is ripening, from spreading become reflex, which in the other species is not common. It is perennial; flowers in July and August; and is a native of Canada and Virginia.

5. Elymus Caninus; *Bearded* or *Dog's Lyme Grass,* or *Wheat Grass.* Spike nodding, close; spikelets straight, without any involucre, the lowest double; leaves bare of hairs underneath; sheaths smooth. It is perennial, and flowers in June and July.—It is found in woods and hedges in the north of England, and between Greenwich and Woolwich;

near Croydon; Ripton woods, Huntingdonshire; and Stokenchurch woods, Oxfordshire.

6. Elymus Tener; *Pliant Elymus.* Spike pendulous; florets double; culm two feet high, smooth and even, with red joints.—Native of Siberia.

7. Elymus Virginicus; *Virginian Lyme Grass.* Spike erect; spikelets three-flowered; involucre streaked. The spike is larger than that of a common ear of barley.—Perennial, and a native of Virginia.

8. Elymus Europæus; *Wood Lyme Grass,* or *Barley Grass.* Spike upright; spikelets two-flowered, equal to the involucre; culm upright, stout, two feet high and more, having four or five joints. The leaf at each of these is about a span in length, and a quarter of an inch or more in breadth, smooth to appearance, but roundish to the touch, especially round the edges; sheaths hairy.—Native of Germany and Switzerland; and found on calcareous soils in woods near Berkhamstead, in Hertfordshire; Marlow and Hambleton, in Buckinghamshire; Henley and Stokenchurch, in Oxfordshire; Ripton woods, in Huntingdonshire; on rocks opposite to Matlock Baths; and frequently in the north. It is a coarse Grass, like most of those which grow in woods, and is sometimes, like them, drawn up to a great height. Perennial, and flowering in June.

9. Elymus Caput Medusæ; *Portugal Lyme Grass.* Spikelets two-flowered; involucres bristle-form, spreading very much; culm narrow, a foot high; spike oblong; partial involucres four-leaved, spreading very much, or reflex, the length of the florets with their awns.—Annual; flowering in July; and a native of the coasts of Spain and Portugal.

10. Elymus Hystrix; *Rough Lyme Grass.* Spike upright; spikelets without involucre, spreading. Annual; flowering in England in July and August.—Native of the Levant.

11. Elymus Giganteus. Spike erect, close; spikelets in sixes, six-flowered, villose; calices awl-shaped, smooth, longer than the spikelets; culm the thickness of the middle finger; leaves involute, strict.—Native country unknown.

Embothrium; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals four, linear, oblique, with the tip broader, roundish, concave, staminiferous, after fecundation revolute. *Stamina:* filamenta four, very short, on each petal one or none; antheræ oblong, within the cavity of the petal, largish. *Pistil:* germen linear, ascending, inflex; style none; stigma roundish, plain in front, behind concave, large. *Pericarp:* follicle round, one-celled. *Seeds:* four or five, ovate, compressed, with a winged membrane on one edge. Essential Character. *Corolla:* four-petalled. *Antheræ:* sessile, sitting on the tips of the petals. *Follicle:* round.—The species are,

1. Embothrium Umbellatum. Umbels axillary, very simple, peduncled; leaves oblong, veinless; antheræ sessile. This is a handsome shrub, with small red flowers in solitary umbels.—Native of New Caledonia.

2. Embothrium Coccineum. Thyrses terminating, sessile; antheræ pedicelled; leaves obovate, veined, or oblong-ovate, ending in a cusp.—The whole of this plant is smooth; stem shrubby; leaves scattered, having one nerve branching on both sides, on short petioles, dilated at the base, and reddish; buds red, with lanceolate reflex scales; flowers in spikes, terminating; corolla scarlet, tubular, incurved, with an anthera lying in the broad end of each of the four petals; seeds in the follicle imbricate, with a sharp wing.—Found in Terra del Fuego by Forster, and in the straits of Magellan by Commerson, who named it *Ixora.* The common name is *Catas.* Several other species have been observed in Peru and Chili.

3. Embothrium Speciosissimum. This magnificent shrub is a native of New Holland; it grows to the height of eight or ten feet, with several simple, wandlike, round branches, clothed with numerous, large, alternate, bright green leaves, from four to six inches long, obovate, and blunt, but tipped with a small point; they are more or less serrated on the sides. The flowers grow in a very dense simple head on the top of each branch, and the head is surrounded at the base with numerous lanceolate leaves, or rather bractes, constituting the involucre, which, like the flowers themselves, are of a rich sanguine red.

4. Embothrium Silaifolium. The stems, which are several, grow three or four feet high or more, are upright, and alternately branched, and have alternate leaves, which in shape resemble those of the Peusedanum Silaus; the upper and lower leaves are, however, more simple: the flowers stand in a long, loose, terminal spike, and are white, with the tips of the petals revolute.—Native of New Holland.

Empetrum; a genus of the class Diœcia, order Triandria.—Generic Character. *Male. Calix:* perianth three-parted; divisions ovate, permanent. *Corolla:* petals three, ovate-oblong, narrower at the base, larger than the calix, withering. *Stamina:* filamenta three, capillary, very long, hanging forwards; antheræ upright, short, two-parted. *Female. Calix:* perianth as in the male. *Pistil:* germen superior, depressed; style scarcely any; stigmas nine, reflex, expanding. *Pericarp:* berry orbiculate, depressed, one-celled, larger than the calix. *Seeds:* nine, jointedly placed in a circle, on one side bulging, on the other cornered. Essential Character. *Male. Calix:* three-parted. *Corolla:* three-petalled. *Stamina:* long. *Female. Calix:* three-parted. *Corolla:* three-petalled. *Styles:* three to nine. *Berry:* three to nine.—These little shrubs are seldom propagated in gardens, unless for variety sake; but they may be cultivated in shady places, and will thrive well in a stiff soil. These plants should be procured from places where they grow naturally, for the seeds remain a year in the ground before they vegetate, and are very slow in their growth. If they are planted on a moist boggy soil in autumn, they will get root in the winter, and will require no farther care than to clear them from the weeds; for these low shrubs commonly grow upon the tops of wild mountains, where the soil is peaty, and full of bogs.——The species are,

1. Empetrum Album; *White-berried Heath.* Erect: berry guarded at the base by the calix, fleshy, white, shining; seeds two or three, seldom more, bony, on one side convex and obscurely furrowed, on the other angular or flattish.—Native of Portugal.

2. Empetrum Nigrum; *Black-berried Heath, Crow* or *Crake-berry.* This is a small decumbent shrub. The outer bark is deciduous, and of a brown colour, the inner yellow; branches rough with the remains of the petioles. The terminating bud consists of five membranaceous leaflets, hairy at the edge; this puts forth five little branches, of which four are in a whorl. The leaves are in fours, they are somewhat three-cornered, with a white linear keel, and petioled; flowers axillary, sessile, solitary, surrounded by a bracte resembling an outward three-parted calix; calix whitish; petals purple; filamenta very long, and purple, with brownish black antheræ. The female is like the male, but the stem is redder; the leaves deep green, in fives; pistil black; berries brownish-black when ripe.—Native of the northern parts of Europe, generally in elevated situations, both on dry, barren, and moorish or boggy soils. It is found in the moors, from the Baltic to the Eastern Ocean, in Kamtschatka, and the American isles. The mountains of Lapland, and the mines

of Fahlun in Sweden, also produce it; and here it has been known to survive, when every other plant had perished with cold. In Warwickshire, Staffordshire, Derbyshire, and the northern counties of England, it is common; and the Scottish Highlanders, with their children, eat the berries; but they are no desirable fruit, and, if taken in large quantities, are said to bring on a slight headache. The Russian peasants, however, eat them; and the Kamtschadales gather great quantities of them to boil with their fish, or to make a sort of pudding with the bulbs of their Lilies. They are esteemed antiscorbutic, and diuretic. Grouse and heath-cocks feed upon them, and they give their excrement a tinge of purple. When boiled in alum-water, they afford a dark purple dye, and are said to be used in dyeing otter and sable skins black, when boiled with fat. Cattle do not seem to browse on this shrub. Linnæus says, it flowers in April with the Elm.

Empleurum; a genus of the class Monœcia, order Tetrandria.—Generic Character. *Male Flowers. Calix:* perianth one-leafed, bell-shaped, four-toothed, permanent. *Corolla:* none. *Stamina:* filamenta four, awl-shaped, longer than the calix, patulous; antheræ oblong, subquadrangular, retuse. *Female Flowers* on the same plant. *Calix:* as in the male. *Corolla:* none. *Pistil:* germen superior, oblong, compressed, terminated by a leafy erect process; style none; stigma placed on the lateral toothlet of the germen, cylindric, deciduous. *Pericarp:* capsule oblong, compressed, crowned by a leafy process, one-celled, opening along the straighter margin. *Seed:* solitary, oblong, covered with a subcoriaceous bivalve aril. Essential Character. *Male. Calix:* four-cleft. *Corolla:* none. *Female. Calix:* four-cleft, inferior. *Corolla:* none; stigma cylindric, placed on the lateral toothlet of the germen; capsule opening on the side. *Seed:* one, arilled.——The only known species is,

1. Empleurum Serrulatum; *Cape Empleurum.* This is a shrub with wandlike even branches; leaves like those of a willow, alternate, subpetioled, linear-lanceolate, even above, beneath longitudinally wrinkled, smooth, quite entire on the edge, but appearing to be serrate by pellucid dots; peduncles few-flowered, lateral, much shorter than the leaves; flowers small, reddish, most of them male; capsules usually solitary, incurved, with a beak of the same length.—Native of the Cape.

Enargea; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong-ovate, concave, acute; three outer and three inner all marked below the middle with two green spots. *Stamina:* filamenta six, half the length of the corolla. *Pistil:* germen roundish. *Style:* three-cornered, thick. *Pericarp:* berry subglobular, three-celled. *Seeds:* four or five, globular. Essential Character. *Calix:* none. *Petals:* six, oblong-ovate, concave, acute; three outer and three inner green-spotted. *Berry:* three-celled, with four or five globular seeds.——The species are,

1. Enargea Marginata. A handsome little plant, a span high, erect, branched, angular; leaves alternate, nearly sessile, an inch or more in length, elliptical, acute, entire, their edges rough with minute spines; flowers terminal, solitary; petals white, ribbed, the three outer elliptical, the three inner broader and obovate; berry the size of a pea.—Native of Terra del Fuego.

2. Enargea Buxifolia. A shrub two or three feet high, with the aspect of Box. Leaves with numerous transverse veins, an inch long, their edges rough, with minute teeth near the point; flowers terminal, large, and handsome; the three outer petals elliptic, flat, an inch long; the three inner obovate, thrice as long, all veined.—Found by Commerson in the straits of Magellan.

Enchanter's Nightshade. See *Circæa.*

Endive. See *Cichorium.*

English Mercury. See *Chenopodium.*

Epacris; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, equal, permanent; divisions lanceolate. *Corolla:* one-petalled, funnel-form; tube gradually widening into a five-cleft border; divisions ovate, acute, villose above; nectary five obovate emarginate scales, fastened to the germen, and pressed close. *Stamina:* filamenta five, very short in the throat of the corolla; antheræ incumbent. *Pistil:* germen roundish, five-streaked; style cylindric, short; stigma capitate. *Pericarp:* capsule globular-flatted, five-celled, five-valved, gaping. *Seeds:* numerous, very small. Essential Character. *Corolla:* funnel-form, villose. *Nectary:* scales fastened to the germen. *Capsule:* five-celled, five-valved.——The species, all natives of New Zealand, are,

1. Epacris Longifolia. Arboreous: leaves subulate, sheathing; racemes upright; flowers opposite; capsule superior, subturbinate, rounded, five-cornered; partitions inserted in the middle of the valves, and corresponding with the depressed grooves on the outside of the capsule.

2. Epacris Juniperina. Arboreous: leaves scattered, linear, acute, spreading, sessile; racemes drooping; flowers alternate. The fruit of this plant is a small, superior, juiceless, spherical berry, terminated by a short awl-shaped style; the rind is coriaceous, thin, and black; the pulp fungous, rather solid, white, and five-celled.

3. Epacris Pumila. Herbaceous: leaves ovate-oblong, imbricate; flowers sessile, subsolitary.

4. Epacris Rosmarinifolia. Shrubby: leaves linear, obtuse, rigid, sheathing; flowers solitary, lateral.

Ephedra; a genus of the class Dicœcia, order Monadelphia.—Generic Character. *Male. Calix:* ament compounded of one-flowered scales, few, roundish, concave, length of the perianth; perianth proper, one-leafed, half two-cleft, roundish, inflated, small, compressed; divisions obtuse. *Corolla:* none. *Stamina:* filamenta seven, coalescing into a subulate pillar, divided at the tip, longer than the calix; antheræ roundish, turned outwards, of which four are inferior, the other three superior. *Female. Calix:* perianth five-fold, one placed on another, with alternate divisions, in an ovate figure, each one-leafed, somewhat ovate, two-parted, the exterior ones smaller. *Corolla:* none. *Pistil:* germen two, ovate, size of the last perianth, on which they are placed; styles simple, filiform, short; stigmas simple. *Pericarp:* none; calicine scales all thickened, succulent, constituting a divided berry. *Seeds:* two, ovate, sharp, on one side convex, on the other flat, compressed by the calix converging them on every side. Essential Character. *Male. Calix:* of the ament two-cleft. *Corolla:* none. *Stamina:* seven. *Antheræ:* four inferior, three superior. *Female. Calix:* two-parted, five-folded. *Corolla:* none. *Pistil:* two. *Seeds:* two, covered with a berried calix.——These plants may be propagated by offsets, which they send forth in great plenty; for the roots creep under ground, and send forth suckers, which may be taken off to transplant in the spring. They love a pretty moist strong soil, and will endure the cold of our ordinary winters very well in the open air. ——The species are,

1. Ephedra Distachya; *Great Shrubby Horse-tail,* or *Sea Grape.* Peduncles opposite; aments in pairs. It is a shrub, says Pallas, varying wonderfully according to its situation, sometimes a foot or eighteen inches high, sometimes only a finger's height, or even lower, prostrate or ascending; trunk fibrous, woody, often thicker than a finger, with some

branches spreading on the ground, and others, which are short and woody, rising and subdivided copiously into rush-like branchlets. The male plant is usually taller, with the aments of the upper joints commonly in pairs, opposite, on a peduncle issuing from one of the scales. The male aments are ovate, composed of three pairs of scales, decussately imbricate, somewhat fleshy, concave, rounded, greenish; in the bosom of each scale is a two-valved corolla, somewhat membranaceous, putting forth a stamina, standing out beyond the scales, having seven or eight globular yellow antheræ in a kind of raceme. Female aments usually solitary, larger, ovate-acute, composed of four pairs of scales, the upper ones gradually smaller. These scales, in a flourishing plant, when ripe become turgid, succulent, and of a beautiful scarlet colour, having two ovate-acute brownish-gray seeds, between the upper and most swelling scales. In dry soils, the scales continue almost the same, juiceless, yellowish-gray when ripe, with immature fruits, which have usually one seed only, and that barren. It is found in most of the southern parts of the vast Russian dominions; is common from the Volga to the Lena, and southward to Persia and India. The berries ripen in July and August; they are sweetish, mucose, and leave a little heat in the throat. They are eaten by the Russian peasants, and by the wandering hordes of all Great Tartary; the Calmucs and other Tartars also use them medicinally, in catarrhs, rheumatisms, &c.—Native of Siberia.

2. Ephedra Monostachia; *Small Shrubby Horse-tail.* Peduncles several; aments solitary. It flowers from September to November, strongly resembles the preceding, and is a native of most parts of Europe.

Ephielis: a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, spreading; segments roundish, acute. *Corolla:* petals five, having claws, roundish, spreading, emarginate, with the point, the length of the calix; nectary of ten scales, a pair to each petal fastened to the base, roundish, villose, smaller than the petals. *Stamina:* filamenta eight, bristle-shaped, longer than the corolla, inserted into a gland; antheræ four-cornered, roundish. *Pistil:* germen ovate, surrounded by a gland; style none; stigma blunt. *Pericarp:* capsule oblong, compressed, grooved on both sides, one-celled, two-valved. *Seeds:* two, kidney-form, fastened to one of the valves in the middle, one above the other. Essential Character. *Calix:* five-parted. *Petals:* five, with claws. *Nectary:* ten scales, two to each petal. *Capsule:* oblong, one-celled, two-valved, two-seeded.——The only known species is,

1. Ephielis Guianensis. This tree is fifty or sixty feet high, very much branched at top: the middle branches, or those in the centre, being the highest, and standing perpendicularly; the lower ones are more inclining and horizontal, and spread out to a great distance; they divide into many branchlets, furnished with alternate leaves, each of which is pinnated; the pinnules opposite, from four to six in number, entire, oval, pointed, of a smooth surface, and of a bright green; these pinnules or leaflets are sometimes eight inches in length. The flowers grow from the bosoms of the leaves, on long pedicels, divided at their extremities into several smaller ones; they are very small, and white.—The tree is a native of the forests of Guiana, and flowers in the month of October.

Epibaterium; a genus of the class Monœcia, order Hexandria.—Generic Character. *Male Flowers. Calix:* perianth double, deciduous; outer six-leaved, very small, flat; inner three-leaved, three times the size of the other, with ovate spreading leaflets. *Corolla:* petals six, less than the inner calix, roundish; three outer interposed between the calicine leaflets, three inner. *Stamina:* filamenta six, capillary, bowed inwards, the length of the petals; antheræ roundish, *Female Flowers*, on the same plant. *Calix* and *Corolla:* as in the male. *Pistil:* germina three, subglobular; styles three, bowed inwards, very small; stigmas compressed, spreading. *Pericarp:* drupes three, subglobular, mucronate with the permanent styles. *Seed:* nut kidney-form, compressed, slightly grooved. Essential Character. *Calix:* double; outer six-leaved, small; inner three-leaved, large. *Petals:* six, three outer, between the calicine leaflets, three inner. *Drupes:* three, subglobular, mucronate, with three permanent styles enclosing a kidney-form nut.——The only known species is,

1. Epibaterium Pendulum; native of St. Jago.

Epidendrum; a genus of the class Gynandria, order Diandria.—Generic Character. *Calix:* spathes vague; spadix simple; perianth none. *Corolla:* petals five, oblong, extremely long, very spreading; nectary tubular at the base, top-shaped, placed downwards within the petals, with an oblique two-cleft mouth; the superior lip very short, three-cleft, the inferior lengthened into a point. *Stamina:* filamenta two, very short, sitting on the pistil; antheræ covered by the upper lip of the nectary. *Pistil:* germen slender, long, twisted, inferior; style very short, fastened to the upper lip of the nectary; stigma obscure. *Pericarp:* silique extremely long, columnar, fleshy. *Seeds:* numerous, extremely small. Essential Character. *Nectary:* turbinate, obliquely reflex. *Corolla:* spreading. *Spur:* none.——Of the propagation of this genus of plants, Mr. Miller remarked, that by any art yet known they cannot be cultivated in the ground; but if that were possible, many of them would produce very fine flowers of uncommon forms. He informs us, that he had three species sent him from America, which he carefully planted in pots, and placed in a stove, where they just displayed their flowers, and soon after perished. Since Mr. Miller's time, however, many species of this fine and very singular genus have been introduced into our gardens, and some of them cultivated with success, by the superior skill of modern practice, which despairs not of rearing and preserving any plants, where expense is not regarded. It, however, certainly requires great skill and attention, to overcome the united difficulties which attend the cultivation of plants, which are at the same time of the Orchis tribe, and parasitical. Dr. Smith says, We have scarcely seen any one species of this genus, except in a dry state, before the year 1787, when the twenty-fourth species flowered for the first time in the stove at Kew; nor was it till October 1788, that the sixty-third species exhibited its fragrant and elegant bloom in the same rich collection. They are all cultivated in the stove, with very great heat: being mostly parasitical, they flourish best with fragments of half-rotten bark at their roots. They may be increased by parting their roots, or what are commonly called offsets, of which they have in general an abundance.——The species are.

* *Climbing.*

1. Epidendrum Vanilla; *Vanilla*, or *Vanilloe.* Leaves ovate-oblong, nerved, sessile, cauline, tendrils spiral; stem trailing, somewhat like common ivy, but not so woody, fastening itself to whatever tree grows near it, by small fibres or roots, produced at every joint, by which it may receive nourishment, when cut or broken off from the root a considerable height above ground. The leaves are as large as those of the Common Laurel, but not quite so thick; they are placed alternately at the joints, which are six or seven inches asunder, and are of a lively green colour above, but paler underneath. The stems

shoot into many branches, which also fasten themselves to the boughs of trees, and thus rise to the height of eighteen feet or more, spreading quite over smaller trees. The flowers are of a greenish yellow colour, mixed with white, and are succeeded by fruit six or seven inches long. The pods grow in pairs, are generally the thickness of a child's finger, and about five or six inches in length; they are green at first, then yellowish, and turn of a brownish cast as they ripen. The stalk is moderately slender, and throws out a long winding tendril, opposite to each of the lower leaves, by which it sticks to the branches or bark of the tree; but after it gains the top, these become useless, and the place of each is supplied by a yellow leaf. The manner of growth and flowering, the size of the flowers, fruit, and lens-shaped dark shining seed, without any aril, distinguish this from the other species. When the fruit turns of a yellowish colour, and begins to open, they gather it, and lay it in small heaps to ferment two or three days, in the same manner as is practised for the cocoa or chocolate pods; then they spread them in the sun to dry, and flat them with their hands, when they are about half dried; and afterwards rub them over with the oil of Palma Christi, or of the Cocoa; then they expose them to the sun again to dry, and afterwards they rub them over with oil a second time; then they put them in small bundles, covering them with the leaves of the Indian Reed, to preserve them. These plants produce but one crop of fruit in a year, which is commonly ripe in May, fit for gathering, for they do not let them remain on the plants to be perfectly mature, because then they are not so fit for use; but when they are about half changed yellow, they esteem them better for keeping than when they are changed to a dark brown colour, at which time the fruit splits, and shews a great quantity of small seeds, which are enclosed within it. While the fruit is green, it affords no remarkable scent; but as it ripens, emits a most grateful aromatic odour. When the fruit begins to open, the birds attack it, and devour all the seeds very greedily, but do not eat any other part of the fruit. Those which are brought to Europe are of a dark brown colour, about six inches long, and scarcely an inch broad; they are wrinkled on the outside, and full of a vast number of black seeds, like grains of sand, of a pleasant smell, like balsam of Peru. In England the Vanilla fruit is only used as an ingredient in chocolate, to which it gives a pleasant flavour to some palates, but which to others is equally disagreeable. The Spanish-American physicians employ it in medicine, and esteem it grateful to the stomach and brain, for expelling wind, as a diuretic, an antidote against poison, or a cure for the bite of venomous animals. The Spaniards, French, and Italians, not only use the Vanilla to give chocolate a delicate smell and agreeable flavour, but also to perfume snuffs and other substances. It yields a great quantity of oil and volatile salt.—Mr. Miller has another species, which he calls *Vanilla Axillaris*, distinguished by its oblong, blunt, compressed, jointed leaves, and axillary flowers. It was sent him from Carthagena in New Spain, where it naturally grows. It has a climbing stalk, sending out roots from the joints like the other, and mounting to a great height. The leaves, which come out singly at each joint, are oblong, smooth, and jointed. The flowers come out from the side of the branches; they are shaped like those of the great Bee Orchis, but are longer; the helmet is of a pale pink; and the lip is purple. There are two or three varieties of the Common Vanilla, differing in the colour of the flowers, and length of the pods.

2. Epidendrum Flos Æris. Stem columnar, somewhat branched; leaves lanceolate; petals linear, obtuse. This plant is parasitical. The flowers resemble a spider.—Native of Java.

** *Stem upright, leafy.*

3. Epidendrum Tenuifolium. Leaves on the stem subulate, channelled.—Native of Malabar in the East Indies.

4. Epidendrum Spatulatum. Leaves on the stem oblong, alternate, obtuse, veinless; lip of the nectary bifid and divaricate.—Native of the East Indies.

5. Epidendrum Furvum. Caulescent: leaves imbricate, lanceolate; racemes axillary.—Native of the East Indies.

6. Epidendrum Coccineum. Leaves on the stem ensiform, obtuse; peduncles one-flowered, axillary, crowded. This is an elegant parasitical plant; roots round, numerous, fibrous, ash-coloured; stems several, scarcely attaining to a foot in height; before these spring, the flowers come forth in the axils of the root-leaves; they also come out from the axils of the stem-leaves successively as the stems advance; flowers void of scent, the whole, with the germen, scarlet, agreeing in character with the eighth species, except that the petals are ovate, acuminate, and concave.—Native of Martinico, where it is found in moist woods, particularly by the side of torrents: also in Jamaica, where, however, it is not common.

7. Epidendrum Secundum. Leaves on the stem oblong, emarginate; stem compressed; spike directed one way; tube of the nectary length of the corolla. Parasitical: roots fibrous, white; stem round at bottom, gradually compressed, leafy, pendulous; leaves sessile, sheathing, alternate, spreading in two rows; the outmost tip emarginate, veinless; peduncle scape-form, often two feet long; flowers terminating, in form of a corymb, nodding one way, pale red or brown. It varies with a rounder and more compressed stem; leaves broader, or more acuminate; flowers terminating, or breaking out on the side; and tube of the nectary shorter or longer than the petals.—Native of the mountainous woods of Martinico and Jamaica.

8. Epidendrum Lineare. Leaves on the stem distich, linear, obtuse, emarginate; stem simple, from one to two feet long, erect, filiform, leafy, compressed a little, smooth. Parasitical: roots filiform, creeping, strict, white; sheaths radical, withering, whence the stems appear to be jointed; leaves alternate, approximating, sessile, sheathing, slightly streaked, smooth on both sides; sheaths of the leaves compressed; spike scarcely the length of the leaves; flowers in a sort of spike, sessile, alternate, imbricate, from six to ten, small, and blood-red; spathes sheathing under the flowers, coloured; corolla three-cornered, gibbous at the back; the three outer and the two inner petals almost equal, oblong, concave, blunt; the two outer in front vaulted, compressed at the tip; nectary of the same shape with the inner petals, erect, embracing the column at the base, having two dark purple spots at the edge, concave, blunt at top, blood-red: seeds extremely minute, dusty, and bristly; and, according to Jacquin, irregularly shaped like saw-dust.—It flowers in spring, and is a native of the woods in Martinico, and other of the West India Islands.

9. Epidendrum Punctatum. Leaves lanceolate, nerved: sheathes imbricate; scape panicled, and corollas dotted. The sheaths of the leaves, the panicle, and the petals, are dotted; hence the name.—Native of America.

10. Epidendrum Caudatum. Leaves lanceolate, nerved; scape panicled; petals spotted, tailed, two very long.—Native of America.

11. Epidendrum Ovatum. Leaves on the stem ovate, acute, stem-clasping, nerved: scapes panicled.—Native of the East Indies.

12. Epidendrum Ciliare. Leaves oblong, veinless; lip of the nectary three-parted, ciliate, the middle segment linear; stem two-leaved. This elegant plant is a foot and a half

high, and grows parasitically on the trunks of vast trees, from which it hangs down towards the ground; roots thick, fibrous, numerous; stem simple, smooth; leaves two, obtuse, quite entire, shining, veinless, coriaceous, flat, alternate in two rows, half a foot in length, erect like a hare's ears, each arising from an oblong, thick, striated, spongy body, forming the base of the stem; spike loose, composed of about ten handsome white flowers, four inches in diameter, all pointing one way. —Native of Martinico.

13. Epidendrum Nocturnum. Leaves oblong, veinless; lip of the nectary three-parted, quite entire, the middle segment linear; roots round, thick, filiform, whitish; stem from one to two feet high, simple, erect, round, many-leaved, smooth; leaves sheathing, alternate, subdistich, from two to three inches long, oblong, entire, thickish, veinless, shining; flowers terminating, two or three, sessile, large, whitish yellow; spathes a few, ovate, compressed; petals almost equal, lanceolate linear, spreading, the two inner narrower and white; seeds resembling saw-dust.—It smells very sweet during the night; and is a native of the mountain woods in Martinico and Jamaica, but not very common in the latter.

14. Epidendrum Cucullatum. Leaves subulate; scape one-flowered; lip of the nectary ovate, ciliate, acuminate; petals elongated.—Native of America.

15. Epidendrum Teres. Stem sheathed with the rudiment of the leaves, decumbent; leaves columnar, alternate, fleshy, sharp, a finger's length; roots several, filiform, flexuose, creeping.—Native of Japan.

** *Scape naked; Leaves radical.*

16. Epidendrum Nodosum. Leaf single, subradical; spadix containing about four flowers; roots thick, numerous, filiform, strict, whitish, knee-jointed; stem one-leafed, thick, round, sheathed, a foot high, thickened towards the roots, knotted; sheaths closed, alternate, closely surrounding the stem, keeled, streaked, membranaceous, whitish; petals three outer, lanceolate linear, long, spreading, two inner linear: germen very long, round, filiform; stigma moistened in front under the cavity of the antheræ; capsules an inch long, oblong, pendulous, six-grooved, three-valved, many-seeded; seeds dusty, bristly.—It flowers in the spring, and is a native of the West Indies, where it is usually found near the sea-coast.

17. Epidendrum Carinatum. Leaves oblong, obtuse, compressed, jointed.—Native of this Philippine islands, growing upon trees.

18. Epidendrum Aloifolium; *Aloe-leaved Vanilla.* Leaves oblong, obtuse, broader at the end; root thick, fungous, crinite, knobbed, parasitical; leaves several from the knob of the root, from two to three feet long, and two fingers' broad, smooth, shining, brownish green, thick; flowering-stems several, undivided, round, green, shining; three of the petals are narrow, oblong, a fine red colour within, with white edges, on the outside white and green, in streaks, with a tinge of red; nectary yellow, with red lines. It grows on different trees.—Native of Malabar.

19. Epidendrum Guttatum. Leaves lanceolate, channelled; petals wedge-shaped, retuse. From a matted root this sends out several leaves three inches long, and not a quarter of an inch broad, almost triangular, and of a yellowish green colour; from the midst of these comes the flowering-stalk; each flower is made up of four little white petals, spotted with brown, and one large one with fewer spots, on which is a small yellow hood, and opposite to it one like it of a blue colour, on pedicels an inch long, round the top of the stalk. —Native of Jamaica, where it grows on the Ebony trees.

20. Epidendrum Juncifolium. Leaves subulate, furrowed; scape and petals dotted; lips without dots, dilated.—Native of America.

21. Epidendrum Scriptum. Leaves ovate-oblong, three-nerved; flowers racemed, spotted.—Native of the East Indies.

22. Epidendrum Retusum. Leaves linear, retuse at the end, in two rows; flowers racemed, spotted. It is three feet in height; root white, woody, bent in, curled, fixing itself into the bark of trees by its capillary hairy fibres; stem rising between two rows of leaves, simple, shining, smooth, marked with rings; the leaves which come out from the top of the stem, and, when dry, constitute the stem itself, are oblong, narrow, equally thick and broad on every side, folded together, smooth, shining, without any visible veins or nerves; flowering-branches ten or twelve together, rising straight from among the leaves, green, rigid, accompanied at the base by abundance of very minute whitish buds, gradually enlarging, but not opening till they have acquired a considerable size; all the flowers opening together invert the stem, and resemble a fox's tail; they are on whitish peduncles, issuing from a small acute bracte, stiff, thick, oblong, irregular, whitish, spotted with red, blue, and lucid colours.—Native of Malabar, where it flowers in April and October, the flowers continuing two months; and a branch set in water will flower for a month.

23. Epidendrum Amabile. Leaves broad-lanceolate, veinless, like Crinum or Squills, fleshy, half a foot long; petals lateral, orbiculate; roots thick, like packthread; stem two feet high, naked, surrounded by a few acute very short scales; flowers snow-white, like those of Orchis Susannæ, the size of Narcissus flowers; the two side-petals are orbiculate, the three others are ovate; cowl three-leaved, the two side ones long, the middle hastate, bifid, with two awl-shaped, bristled. Osbeck observed it in the East Indies. Rumphius also saw it growing on the branches of trees on the coast of Java. The flowers are large and odoriferous: when laid in a room, they do not wither for several days, and fill it with a most agreeable perfume. On the island of Ternate, none but princesses are allowed to wear this precious flower.

24. Epidendrum Cochleatum. Leaves oblong, double, smooth, streaked, growing on the bulb, involved in membranaceous sheaths; scape many-flowered; nectary cordate; roots filiform, strict, whitish; flowers terminating, four or five, large, subsessile; petals linear, acuminate, reflex, yellowish: nectary lip heart-shaped, blunt, concave, dark blood-red, streaked with white at the base, yellow at the tip.—It flowers here in January and February, and is a native of the mountainous parts of Jamaica. This is the first of the tribe that ever flowered in England. It is cultivated in a stove, in rotten bark, contrived so as to imitate its natural situation in the clefts of aged trees, with occasional supplies of water.

25. Epidendrum Tuberosum. Leaves broad-lanceolate, nerved, membranaceous, growing on the bulb; scape sheathed; nectary boat-form, bifid.—Native of America.

26. Epidendrum Pusillum. Leaves ensiform, somewhat fleshy, acute, all radical; scape few-flowered, between each of the leaves solitary, the length of the leaves, with three or four minute leaflets scattered over them; root fibrous; plants little more than an inch high; flowers terminating, one or two, from a three-valved glume, the three uppermost petals spreading, oblong, the uppermost very small, the two inner toothed; lip trifid, the side lobes subcordate, the middle larger, bifid: or, according to Allamand; petals ovate-oblong, acute; upper lip of the nectary ampullaceous, tubular, emarginate, lower very large, sinnate, with four lobes on each side, opposite, equal; capsule spherical, six-keeled.—Observed by Dhalberg in Surinam.

27. Epidendrum Ensifolium. Stem round, even; leaves ensiform; petals lanceolate; lip lanceolate, recurved, dotted; root perennial, consisting of a few thick fleshy fibres. Leaves radical, several, equitant, erect, clothed with some brown permanent scales at the base, rigid, rather sharp-pointed, with a rough margin towards the top, channelled, nerved, smooth on both sides, when dry becoming longitudinally striated; stalk growing on the outside of the leaves, and not quite so long, erect, simple, brown, bearing from four to six flowers, and furnished with three or four alternate, sheathing, acute, striated, brown scales, and compressed towards the top; flowers alternate, sessile, a little drooping; bractes solitary, resembling the scales on the stalk, but smaller. The flowers have a sweet lemon-like odour, pungent, but not strong, most powerfully perceived at night, or on entering the hot-house in a morning: on account of this perfume the plant is much cultivated in China.—Native of China and Japan.

28. Epidendrum Monilliforme. Stem round, jointed, streaked, necklace-form, naked, quite simple; leaves linear, acute.—This is a parasitical plant, with white flowers, observed at Misima in Japan, by Thunberg, during his travels through that country; who says it was tied up in bundles, and hung out before a house. It can live several years without water, or other nourishment, and yet grow and flower all the while.

29. Epidendrum Ophioglossoides. Stem one-leafed; flowers racemed, pointing one way.—Native of America.

30. Epidendrum Ruscifolium. Stem one-leafed; flowers from the sinus of the leaf, aggregate; roots numerous, filiform, rigid, whitish. Stems aggregate, often united at the base, filiform, a foot high, erect, sheathed, smooth; leaf terminating, ovate-lanceolate, half the length of the plant, acuminate, entire, keeled, channelled at the base, compressed, smooth, thick, veined; sheaths of the stem long, acuminate, streaked, withering; peduncles short, two-flowered.—Native of the high mountains of Jamaica, where it is found on the trunks of old trees; and in the thick woods of Martinico.

31. Epidendrum Graminifolium. Stem one-leafed; flowers from the sinus of the leaf in pairs.—Native of America.

32. Epidendrum Capense. Scape naked; leaves imbricate in two rows, linear, obtuse; flowers directed one way; horn very long: parasitical.—Native of the Cape of Good Hope.

33. Epidendrum Fuscatum; *Brown Epidendrum.* Stems simple; leaves oval; peduncle terminating, elongated, scaly; lip of the nectary five-lobed, the middle lobe minute. Flower-stalk erect, very long, simple, compressed, with many knotty joints, smooth, green, but entirely covered with brown, membranaceous, sheathing scales, which are alternate, sharpish, compressed, keeled, and ribbed; spike terminating, erect, forming a globose dense head of many small flowers; bractes solitary under each flower, lanceolate, concave, acute, purplish-green, one-third the length of the germen; flowers pale greenish purple, with a faint herbaceous smell.—Native of Jamaica.

34. Epidendrum Tripterum; *Triangular-fruited Epidendrum.* Leaves from a bulb and from the root sword-shaped; stalks radical, sheathed, many-flowered; germen three-winged; lip equal to the petals; roots of a few thick, fleshy, long, and nearly simple fibres, slightly downy; bulbs above ground, numerous, ovate, but little compressed, smooth, green, somewhat glaucous, an inch long; stalks thrice as high as the bulbs, erect, thickly covered at the base with smaller, concave, bluntish, reddish scales, imbricated in a two-fold order, in the upper part roundish, ending in a cluster of many flowers; flowers on footstalks, spreading, white, and scentless.—Native of Jamaica.

35. Epidendrum Barringtoneæ; *Large-flowered Epidendrum.* Leaves broad-lanceolate, nerved, arising from a bulb; peduncles radical, mostly single-flowered; lip fringed; column with a cover; root consisting of numerous branched fleshy fibres, brown, downy, and divaricating; bulbs several above the surface, large, ovate, slightly compressed, smooth, green, with an unequal and somewhat furrowed surface; flower-stalks three inches high, nearly erect, bearing one flower, rarely two, round, green, smooth, clothed with four or more sheathing alternate scales, which are ovate, concave, green, with a rusty-coloured powdery down; flowers from the uppermost scale, a little drooping, and inodorous; petals lanceolate, obtuse, somewhat succulent, slightly spreading, greenish, towards the tips of an olive brown, the two innermost rather the smallest, the two lowermost lengthened out at the base, and united into a short blunt pouch; lips of the nectary arising from the back part of the inside of this pouch, unconnected with every thing above, somewhat shorter than the petals, covered on its upper side with an oblong, yellowish, deeply-furrowed callosity, inversely heart-shaped in front; its margin is three-lobed, the lateral lobes small, acute, entire, erect, thin, and transparent; nectary very large, of a rusty brown, blunt, hollowed above, swelling below, pale, and beautifully fringed all round the margin; column of the fructification white, elongated at the base, connected by its back to the pouch of the corolla, and by its forepart at the bottom to the lip of the nectary, incurved, and blunt at the top, behind obtusely keeled, flat, and with two slight furrows before; cover pointed, obscurely three-celled within; stamina red, close together; antheræ red, two on each filamentum, obovate, yellow; stigma large, very much excavated; germen somewhat longer than the pouch of the flower, green, nearly cylindrical, with six furrows. This is the most distinguished of the species hitherto introduced among us, not only on account of its size, but its singularity.—Native of Jamaica.

36. Epidendrum Claviculatum. Stem climbing, round, branching; leaves sessile, half stem-clasping, acute, concave, recurved, rigid. This plant hangs down from the branches of trees, and creeps up others to the height of forty feet. *Observe.* The stem is jointed at the distance of five inches, and at every joint there are fibres three or four inches long, catching hold, by their broad viscid end, of any part of a tree they come near; it is about three-quarters of an inch in diameter, very smooth, round, and deep green, solid, juicy, and sometimes branched; here and there, opposite to the tendril, comes out a thin membranaceous leaf, from a broad beginning, ending in a point.—Native of Jamaica and Hispaniola.

37. Epidendrum Ramosum. Stem very branching, suffrutescent; leaves linear, emarginate; racemes terminating, compressed. This plant is a foot and a half high, leafy, parasitical; roots fibrous; branches compressed a little, smooth, ash-coloured; leaves oblong, obtuse, coriaceous, rigid, veinless, entire, shining, sheathing at the base, dirty green, alternate, an inch and a half long; spathes cordate-ovate, acute, converging; spikes loose, distich, an inch and a half long, generally four-flowered; flowers small, inelegant, greenish; petals somewhat rigid, equal in length, the three outer lanceolate, the two inner linear; lower lip of the nectary oblong-cordate, acuminate, concave, rigid, the length of the petals, of which it occupies the place of the third interior one; antheræ roundish.—Native of Martinico and Jamaica.

38. Epidendrum Nutans. Stem simple; leaves ovate-lanceolate, nerveless, stem-clasping; spike terminating, nod-

ding; lip of the nectary three-lobed, the middle lobe three-toothed.—Native of Jamaica.

39. Epidendrum Umbellatum. Stem simple; leaves ovate, emarginate, stem-clasping, veinless; flowers terminating, umbelled. Parasitical; smooth, seldom a foot in height: roots round, fibrous, ash-coloured, numerous; stems round, leafy, commonly horizontal, or pendulous; leaves oblong, coriaceous, pale green, sheathing, clothing the whole stem, alternate, an inch or an inch and a half in length, mostly difform; spadix very short, concealed within the sinus of the terminating leaf, with about five leaves; spathes very few; flowers somewhat fetid, greenish-white, rigid.—Common in the vast woods of Martinico, and in Jamaica.

40. Epidendrum Anceps. Leaves cordate-lanceolate, stem-clasping, horizontal; raceme terminating, compressed, ancipital, subflexuose; flowers distich; inner petals capillary, with a three-lobed lip.—Native of Jamaica.

41. Epidendrum Rigidum. Leaves oblong, obtuse, sheathing; raceme terminating, compressed, ancipital; flowers distich, larger than the spathes; lip entire, cordate-ovate, acute. Parasitical; a foot high; roots fibrous, ash-coloured, round, numerous; stems simple, round, leafy, ending in a very loose distich spike, four-flowered.—Native of woods in Martinico and Jamaica.

42. Epidendrum Diffusum. Leaves oblong, stem-clasping; stem ancipital; panicle terminating, very much branched, diffused; lip entire, acuminate.—Native of Jamaica.

43. Epidendrum Montanum. Leaves lanceolate, flat, recurved, spreading, submembranaceous; raceme terminating, simple; flowers pointing one way; lip trifid.—Native of Jamaica.

44. Epidendrum Serrulatum. Stems aggregate, subdiphyllous; leaves lanceolate, keeled, serrulate, raceme terminating; flowers distich.—Native of Jamaica.

45. Epidendrum Teretifolium. Leaves semicylindric, stem one-flowered; lip three-sided at the tip.—Native of Jamaica.

46. Epidendrum Globosum. Leaves cylindric; channelled; flowers terminating, subsolitary; lip ovate, acute; capsules globular. Roots fibrous, round, ash-coloured, numerous, parasitical; stem cespitose, quite simple, two or three inches high, round, smooth, leafy, ending in a spadix, bearing one flower, seldom two, very seldom three, whence there are very few spathes; leaves awl-shaped, acute, smooth, shining, somewhat rigid, sessile, alternate, an inch long; flowers small, scarcely coloured, erect.—Native of the woods of Martinico and Jamaica.

47. Epidendrum Sertularioides. Stem filiform, creeping, jointed; leaves lanceolate; peduncles one-flowered, from radical sheaths.—Native of Jamaica.

48. Epidendrum Testæfolium. Stem creeping; leaves incumbent, elliptic, concavo-convex, keeled; flowers sessile under the leaves.—Native of Jamaica.

49. Epidendrum Undulatum. Leaves elliptic, acute; scape sarmentose, very much branched; petals ovate, clawed, obtuse; lip dilated, emarginate, waved. This is parasitical, and the largest of the kind; roots large; stalk round, tough, brown, crooked, six feet high, with joints at every eight or nine inches' distance, where are branches standing straight out, with several flowers on peduncles an inch long; leaves many, smooth, dark green.—Native of Jamaica.

50. Epidendrum Variegatum. Leaves lanceolate, keeled, channelled, cartilaginous, serrate on the edge; sheaths imbricate; scapes sheathing, with a simple raceme; lip cruciate, two-lobed. This is an elegant parasitical plant: roots round, ash-coloured, fibrous; leaves radical, awl-shaped, acuminate, keeled, somewhat rigid, coriaceous, obtusely angular on the back, with acute angular margins, pale green, sometimes rugged, with rust-coloured dots, sometimes without, and quite smooth, from an inch and a half to six inches in length; scape round, slender, from a foot to two feet in length; flowers sweet-smelling, elegantly variegated with purple, violet, yellow, and red; petals four.—Native of the woods in Jamaica and Hispaniola.

51. Epidendrum Utricularioides. Leaves lanceolate, marked with lines, flat; scape panicled; lip large, heart-shaped; horn very short.—Native of Jamaica and Hispaniola.

52. Epidendrum Triquetrum. Leaves three-sided, cultrate, compressed at the tip, lanceolate, acute; scape simple; lip heart-shaped, ovate; sides emarginate.—Native of Jamaica.

53. Epidendrum Sessile. Leaves compressed at the base, broader at the top, lanceolate-linear, obtuse, veinless; peduncles radical, very short, one-flowered.—Native of Jamaica.

54. Epidendrum Flabelliforme. Leaves compressed at the base, dilated at top, ovate-lanceolate, acute, flat, nerved; peduncles one-flowered, elongated.—Native of Jamaica.

55. Epidendrum Subulatum. Leaves awl-shaped, grooved; peduncles sheathed, radical, many-flowered.—Native of Jamaica.

56. Epidendrum Satyrioides. Leaves subulate, cylindric; scape few-flowered; corollas ventricose at the base in front.—Native of Hispaniola.

57. Epidendrum Tribuloides. Leaves pedicelled, lanceolate, obtuse, emarginate; peduncles very short; capsules globose, echinate.—Native of Jamaica.

58. Epidendrum Corniculatum. Leaves pedicelled, wedge-shaped, oblong; peduncles radical, one-flowered; corollas acuminate, curved.—Native of Jamaica.

59. Epidendrum Lanceolatum. Leaves pedicelled, lanceolate, acute; peduncles from radical sheaths, two-flowered.—Native of Jamaica.

60. Epidendrum Angustifolium. Leaf linear, growing upon the bulb; scape panicled.—Native of Jamaica.

61. Epidendrum Palmifolium. Leaves broad lanceolate, nerved, membranaceous, growing on the bulb; peduncles radical, sheathed, many-flowered; nectary boat-shaped, entire, reflex.—Native of Jamaica.

62. Epidendrum Altissimum. Leaves lanceolate, growing on the bulbs; scape very much branched, sarmentose; petals oblong, lanceolate, acute; lip obcordate, shorter than the petals. This is an elegant parasitical plant: roots round, fibrous, ash-coloured, numerous; leaves acute, ensiform, oblong, veinless, shining, quite entire, thickish, an inch wide, and half a foot long, keeled at the base, in other parts flat, each springing from a joint, or an ovate-compressed smooth tuber, sometimes as big as a goose-egg, which is placed on the base of another root-leaf or two, like the others; between this and the joint arises a solitary, round, smooth scape, of a rust colour, slender, inclined, four feet high, racemed at top, clothed at the peduncles and joints with membranaceous, lanceolate, ash-coloured spathes; peduncles two or three flowered, alternate, in two rows; flowers without scent, yellow, with brown spots, numerous; petals oblong, distinct, acute at both ends, waved, nearly equal.—Native of the woods of Martinico.

63. Epidendrum Fragrans. Leaf broad-lanceolate, nerveless, growing on the bulb; scape many-flowered, abbreviated; lip heart-shaped; nectary pale, streaked with red. The flowers have a sweet smell.—It flowers in October, and is a native of Jamaica.

64. Epidendrum Sanguineum. Leaves in pairs, oblong, growing on the bulb; scape many-flowered, subflexuose; lip

roundish, waved, emarginate; horn adnate. It has many thick white fibres, like those of Leeks, or the tendrils of Ivy, taking firm hold of the bark of trees, and matted together; these send out one thick, greenish, roundish, compressed, bulbous, or tuberous leaf, of an inch diameter, covered with some brown withered filamenta; from the top of this come two smooth, striated, hollow, hard, pale green leaves, three inches long and one broad, between which springs out a naked, brown, jointed, round, smooth stalk, about a foot high, near the top of which stand several long, reddish, purple flowers. —Native of Jamaica, where it is found in the savanna woods, growing upon the Ebonies and other trees.

65. Epidendrum Labiatum. Leaves radical, oblong; middle bulb solitary, one-leafed; scapes few-flowered; lip oblong, with a fleshy corpuscle growing to it at top.—Native of Hispaniola.

66. Epidendrum Polybulbon. Stem creeping, bulb-bearing; bulbs two-leaved, one-flowered; flower peduncled; lip heart-shaped.—Native of Jamaica.

67. Epidendrum Proliferum. Caulescent: leaves distich, subimbricate, ovate; bulbs from the sheaths of the leaves two-leaved; flowers axillary, sessile.—Native of Jamaica.

68. Epidendrum Vestitum. Stem leafless, imbricate all round with sheaths, roundish, bulb-bearing; bulbs growing on the leaf; flowers crowded from the sheaths of the stem.—Native of Jamaica.

69. Epidendrum Vomiforme. Caulescent: leaves growing on the bulbs, ovate-acuminate, convex, channelled, three-sided beneath; scapes from the bosom of the leaves.—Native of Jamaica.

70. Epidendrum Echinocarpon. Stem compressed, decumbent, one-flowered; leaves imbricate all round, distich, ovate; capsules muricate. Roots small, branched, fibrous; stems pendent, simple; leaves alternate, numerous, small, reflex, quite entire, subtomentose, stem-clasping. From the axils of the leaves, flowers solitary, on very short peduncles; corolla of a coral red colour, the upper and the two lower petals of the same size and figure, the two lateral ones larger and wider; nectary small, three-lobed, the two upper lobes rounded and concave, the lower emarginate; capsule red, ovate, warted.—Native of Guiana, where it is found on the trunks of old trees, which are sometimes found quite covered with it.

71. Epidendrum Trichocarpon. Stem compressed, round, rooting; leaves imbricate all round, distich, linear; capsules tomentose.—Native of Jamaica.

72. Epidendrum Glaucum. Stem compressed, almost upright, many-flowered; leaves imbricate all round, distich, broad lanceolate, very smooth, glaucous beneath; capsules naked.—Native of Jamaica.

73. Epidendrum Graminoides. Stem erect, compressed, many-flowered; leaves imbricate all round, distich, remote, linear; peduncles longer.—Native of Jamaica.

74. Epidendrum Micranthum. Stem one-leafed; leaf broad lanceolate; raceme very long, filiform; flowers pointing one way, roundish, six-cornered.—Native of Jamaica.

75. Epidendrum Trigoniflorum. Stem one-leafed; leaf oblong-lanceolate; raceme the length of the leaves; flowers mostly pointing one way, three-cornered. This is a small parasitical plant, only about four inches high; roots fibrous, whitish, numerous; leaf cauline, acute, quite entire, coriaceous, rigid, veinless, flat, shining, two or three inches long; flowers small, directed all to the same side, without scent, on short peduncles, of a dirty yellow colour.—Native of the mountain woods in Jamaica and Martinico.

76. Epidendrum Racemiflorum. Stem one-leafed; leaf ovate; raceme longer than the leaves; flowers pointing one way, inner petals ovate.—Native of Jamaica.

77. Epidendrum Alpestre. Stem one-leafed; leaf ovate-lanceolate; racemes loose; keels of the capsules muricate.—Native of Hispaniola.

78. Epidendrum Laxum. Stem one-leafed; leaf oblong; raceme the length of the leaves; inner petals awl-shaped; lip ovate; capsules naked.—Native of Jamaica.

79. Epidendrum Ovale. Stem one-leafed; leaf ovate, acuminate; raceme pressed close, many-flowered; petals roundish, the inner ones remote in front at the base; capsules pedicelled.—Native of Jamaica.

80. Epidendrum Pulchellum. Stem one-leafed; leaf roundish, acute; raceme loose, few-flowered; petals acuminate, ciliate, the inner one crossed at the tip.—Native of Jamaica.

81. Epidendrum Tridentatum. Stem one-leafed; leaf ovate-acute, three-toothed at the tip; raceme many-flowered; flowers three-sided, acuminate; petals of the nectary erect, bowed inwards.—Native of Jamaica.

82. Epidendrum Cochlearifolium. Stem one-leafed; leaf orbiculate, concavo-convex; raceme few-flowered.—Native of Jamaica.

83. Epidendrum Funale. Leafless, filiform, rooting: peduncle two-flowered; lip two-lobed; horn very short, awl-shaped.—Native of Jamaica.

84. Epidendrum Filiforme. Leafless, filiform, rooting: peduncles subtriflorous; lip ovate; horn very short, headed at the tip.—Native of Hispaniola.

85. Epidendrum Concretum. Leaves radical, lanceolate-acute; nectary concrete with the petals. This plant is parasitical, and only a foot high; roots fibrous, whitish, thick, round, long; leaves radical, two, three, or four, lanceolate-acute, coriaceous, flat, stiffish, quite entire; scape simple, compressed, erect, ten-flowered, or thereabouts; common peduncles few, lateral, few-flowered; flowers small, sessile. —Native of Martinico.

86. Epidendrum Cebolleta. Leaf radical, single, awl-shaped, knot-rooted; raceme compound. It is a parasitical plant; roots round, fibrous, numerous.—Native of Carthagena, especially in the woods on the coast. The leaf of this plant is smooth and fleshy, a finger in thickness at the bottom, and from one to two, or sometimes four feet in length, ending at the base in a knot or roundish tubercle, permanent after the leaf is decayed. The natives call it *Cebolletas*, (Cibouls,) or little bulbs, and make use of the tubercles, triturated with salt, in violent contusions, fractures, &c. It is entirely void of smell.

87. Epidendrum Spathulatum. Leaves bifarious, alternate, approximating, præmorse, with a double tip, coriaceous, scarcely a foot long; peduncles axillary, almost erect, sometimes pendulous, round, smooth, jointed, woody at the joints, bracted, undivided half way, a foot and a half long, within the raceme angular; pedicels spreading very much, scattered, bracted at the base, round, smooth, white, the length of the flowers; bractes oblong, pressed close, acute, rust-coloured; petals united at the base to the nectary, flat; two lateral spreading very much, ovate, broad, acute, larger; three inferior obovate, the middle one largest, all snow-white, with a large rose-coloured one at the end.—Native of the East Indies.

88. Epidendrum Variegatum. Leaves alternate, spreading, sheathing, ovate-acute, three-nerved, waved, smooth, variegated; stem none; scape erect, a palm high, solitary, seldom two, angular, striated, smooth, coloured, terminated by an oblong raceme; peduncles simple, subalternate, spreading very much, roundish, club-shaped, striated, coloured, scarcely the length of the flowers.—Native of the East Indies.

89. Epidendrum Calceolariæ. Leaves bifarious, alternate, remote, spreading very much, awl-shaped, thick, smooth; roots capillaceous, numerous, flexuose, whitish; stems many, crowded, roundish, flexuose, jointed, perennial, scarcely a span high; racemes terminating, simple; flowers remote.—Native of the East Indies.

90. Epidendrum Hexandrum. Leaves bifarious, alternate, spreading, a little sessile, ending in sheaths, somewhat removed, lanceolate, emarginate, with a point, rigid; root capillaceous, flexuose, white, parasitical; stems several, round, naked a little way above the root, the rest covered with oblong, tubular, acute, striated, rigid, whitish scales. The whole plant is scarcely a foot high; the leaves are smooth, and the flowers white.—Native of the East Indies.

91. Epidendrum Ophrydis. Leaves alternate, sheathing, from erect spreading, ovate, acute, quite entire, nerved, smooth; a little bulbed on the surface, membranaceous, shorter than the scape, ending in tubular, keeled, smooth sheaths; roots fibrous, filiform, hirsute, white, fixed in the ground; scape erect, clothed with sheaths and leaves, round, grooved, acute, red, with recurved, linear, acute, smooth, green, long stipules, scattered over it, a foot high or more; spike erect, cylindrical, closely set with blood-red flowers, a palm and a half in length, the thickness of the middle finger.—Native of the East Indies.

92. Epidendrum Supplex. Leaves crowded, sword-shaped, sheathing, compressed, quite entire, acute, smooth, fleshy. This plant grows upon trees by capillaceous fibres, a little compressed; stem none; spikes terminating, naked at the base, filiform, longer than the leaves, scarlet.—Native of the East Indies.

93. Epidendrum Orchideum. Leaves bifarious, alternate, sessile, spreading, lanceolate, quite entire, acute, smooth, fleshy, rigid. This plant is parasitical by means of filiform, branched, smooth, green fibres; stems simple, pendulous, jointed, leafy, flexuose, sheathed, thicker than the roots, two feet long, and a little more slender at the base; flowers above the leaves usually solitary; spathes heart-shaped, small, somewhat fleshy, yellow, caducous; petals lanceolate, yellow, with large darker spots; the two upper ones ascending, the middle one spreading from the lower petals; the two lateral ones larger, more reflexed towards the back, narrower, all concavo-convex.—Native of the East Indies.

94. Epidendrum Pusillum. Shoots in bundles, appressed, a span long; racemes solitary, simple, upright, compressed, naked at bottom, toothletted towards the tip, smooth; roots capillaceous, few, white; parasitical; shoots in bundles, pressed close to the bark, little branched, sometimes jointed, unequal, a span long, hoary, green; racemes half an inch long, green rust-colour; flowers alternate, spreading; petals fastened to the nectary, erect, linear-lanceolate, acute, a little longer than the nectary, equal, yellow; nectary truncated at the base.—Native of the East Indies.

95. Epidendrum Complanatum. Leaves alternate, sessile, spreading, linear, moon-shaped, retuse, smooth; upper surface concave; lower keeled, fleshy; roots filiform, very long, whitish-green, parasitical; stem, with the long roots, commonly pendulous, roundish, sheathed with leaves, simple, short; leaves scarcely a span in length; petals linear, acute, pendulous, smooth, narrow, yellow.—Native of the East Indies.

96. Epidendrum Clavatum. Leaves alternate, sessile, spreading, a little linear, club-shaped, with two unequal teeth at the end, smooth, flat, having a large nerve, depressed above, permanent beneath; roots filiform, white, parasitical; stems at the threads of the roots pendulous, round, sheathed with leaves, short; leaves bright green; spikes short, opposite to the leaves, spreading very much, peduncled, club-shaped; peduncles roundish, smooth, with a few coloured dots, woody, scarcely the length of the leaves; bractes solitary, pressed close, heart-shaped, smooth, rigid towards the middle of it; corolla six-petalled, or more properly one-petalled, five segments spreading, linear-lanceolate, nearly equal, yellow, long.—Native of the East Indies.

97. Epidendrum Subulatum. Leaves alternate, erect, sessile, awl-shaped, cylindric, smooth, acute; sheaths obtuse, margined, smooth, with minute dark purple dots, short; roots filiform, smooth, white, parasitical; stems simple, erect, round, smooth, sheathed, short; leaves a span long; nectary in the disk of the flower, surrounded by the lower petals, semicylindric, obtuse, smooth, snow-white, with the edge of the blunt apex of a most elegant carmine colour; antheræ two, sessile on the truncated concave body, enclosed in the scalelet, yellow; silique filiform, smooth, roundish.—Native of the East Indies.

98. Epidendrum Nudum. Stem none; peduncles simple, one-flowered, with two or three smooth membraneous tubular sheaths, investing the younger peduncles with an oblique mouth, caducous; roots filiform, branched, smooth, green, parasitical; peduncles several, round, woody, sheathed, jointed; corolla monopetalous, irregular; tube erect, capillaceous, with hairs scattered over it, snow-white, long; border double, lower four-parted.—Native of the East Indies.

99. Epidendrum Tomentosum. Leaves from the bulbs usually four, seldom two or three, alternate, almost erect, bifarious at the base, half sheathing the bulb, oblong, quite entire, acute, concave, recurved at the tip, smooth, eight-nerved, fleshy; roots parasitical, filiform, round, clothed with scales, flexuose from one bulb to another, the thickness of a goose-quill, putting out bristle-shaped thickish fibres, especially below the bulbs, of a chestnut colour; bulbs above the root almost erect, sessile, obovate, compressed, wrinkled, terminated by leaves, scarcely the size of a hen's egg; flowers racemed, distich, subalternate, peduncled; peduncles spreading, round, covered with a chestnut nap, shorter than the spathes; corolla irregular, consisting of double petals; the outer monopetalous, navicular, ascending.—Native of the East Indies.

100. Epidendrum Bidentatum. Leaves sheathing each other, three or four, seldom five, sword-shaped, bifarious, sessile, quite entire, with two sharp toothlets at the tip, smooth on both sides, keeled at the back; roots filiform, slightly complicated, a little flexuose, smooth, whitish-green, very long; stem scarcely any; corolla six-petalled, fastened to the germen below the nectary; the two lateral ones are obliquely ovate, erect, smooth, yellow; the three surrounding the back of the nectary, erect, of these the two more lateral ones are lanceolate, the third outer one is broader and ovate; filamentum single, fastened to the truncated body, flat, membranaceous, white, short; silique oblong, angular.—Native of the East Indies.

101. Epidendrum Lycopodioides. Stems crowded at the roots, pendulous, simple, compressed; leaves alternate, bifarious, sheathing one another at the base, pressed close above the sheaths, lanceolate, acute, a little margined, smooth, fleshy; roots simple, filiform, slender, flexuose, scariose, hoary, green, fastened to the bark of the Mangostan-tree; stems three or more, sometimes, but seldom, above a foot long; spikes terminating, solitary, peduncled, cylindric, acute, resembling spikes of Wolf's Claw Moss, (Lycopodium,) but not so thick, and two inches long; flowers sessile, closely approximating, covered with heart-shaped, ciliate, appressed,

membranaceous, pale green, caducous spathes; corolla six-petalled, unequal, fastened to a coloured germen, the uppermost petal spreading very much, pressed close to the spike, ovate, sometimes obcordate, concave; the two upper lateral ones reflex towards the back of the upper one, ovate, smaller, the two lower lateral ones more spreading, incumbent on the lower, ovate, acute, very small, a little thicker, and more coloured; the lower petal flat, heart-shaped, a little less than the uppermost; the whole corolla orange-coloured; filamenta none; germen club-shaped; silique ovate.—Observed by Kœnig at Malacca, growing upon the Tamarind.

102. Epidendrum Longiflorum. Leaves growing to the bulbs, solitary, subpetioled, erect, lanceolate, retuse; margin quite entire, recurved, smooth, fleshy, rigid, brittle; roots in bundles, filiform, flexuose, parasitical; stems creeping, filiform, unequal, with a whitish bark; leaves more than a palm in length, and two-thirds of an inch in breadth; bulbs sessile, incumbent, straightish, solitary, ovate, grooved, wrinkled, scarcely more than half an inch in length, yellowish green; scapes solitary by the side of the bulbs, simple, erect, round, smooth, jointed, scaly, shorter that the leaves; petals unequal; the two upper ones approximating, linear, oblong, curved at the base, and spreading, a little concave, ciliate at the edge, nerved, having very small hairs scattered over them; the two side ones upright, oblong, flat, membranaceous, small, scarcely longer than the truncated nectary. In the morning the flowers are spread out, and hence two petals are long, straight, and upright; in the afternoon they are pendulous.—Native of the East Indies.

103. Epidendrum Flabellum. Leaves solitary, one from each bulb, erect, petioled, lanceolate, oblong, quite entire, emarginate, a little recurved, obscurely nerved, smooth, fleshy, rigid; roots filiform, flexuose, simple, parasitical; stem none; bulbs above the roots closely crowded, ovate, quadrangular, wrinkled, the size of sparrows' eggs; leaves a palm long, and two-thirds of an inch broad; petioles semicylindric, channelled, a little twisted, short; peduncle at the base of the bulb pressed close by a sheath, and another sheath above the base, the rest naked, ending in an umbel in an erect flat semicircle, with from six to nine flowers in a row; pedicels erect, but spreading towards the end, a little curved to one side, round, smooth, coloured; corolla four-petalled, unequal; the upper petal erect, linear-lanceolate, with two teeth at the tip, and a large ovate hole at the base, where it appears to be tubular on account of the edges being bent back; it is white, with a purple base, and more than an inch long; the two side-petals are erect, obliquely lanceolate, a little incurved at the tips, the edges yellow, recurved, and ciliate, with golden hairs; they are longer than the nectary, and of a blood-red colour; the lower petal spreading, ovate, acute, inflated, striated, ciliate, membranaceous, scarcely so long as the side ones, of a yellow-red colour; antheræ double, subglobular, yellow, small.—Native of the East Indies.

104. Epidendrum Saaronicum. Leaves alternate, subbifarious, sessile, spreading, lanceolate, flattish above, even, streaked slightly, and having five more evident nerves, beneath smooth, with a small groove along the mid-rib, but no streaks, emarginate, fleshy, rigid; roots filiform in bundles below the bulbs on the stems, parasitical, flexuose, smooth, woody, whitish green, shining; stems subscandent, variously branched, compressed a little, smooth, jointed, sometimes sheathed, ferruginous, green, long; bulbs at the base of the branches; racemes terminating, simple, sometimes, though rarely, a foot and a half in length; flowers nodding; sheaths solitary, sessile, with scalelets between; corolla boat-shaped, five-petalled, snow-white. It flowers in the morning, shutting after noon, during several days.—Native of the East Indies.

105. Epidendrum Plantaginifolium. Leaves bifarious, sheathing each other, erect, linear, three-sided, slightly channelled, sharpish, smooth, fleshy, narrow at the base, next the sheaths; roots fibrous, flexuose, parasitical; stem none; sheaths membranaceous, striated, margined, smooth, the breadth of the leaves, short; spike axillary, simple, peduncled, bifarious, erect, longer than the leaves; peduncle erect, smooth, compressed, a little jointed in the middle, having a large, oblong, acute, membranaceous, caducous bracte; the upper one has two or three alternate smaller bractes; flowers on very short alternate pedicels, having involucres at the base, which are lanceolate-ovate, acute, solitary, appressed, membranaceous, whitish, much longer than the pedicels; corolla six-petalled, three outer larger, all spreading a little, concave, membranaceous, whitish; nectary a truncate body, very small, covered by an inflated, semiglobular membrane; antheræ two, twin, fastened to a single filamentum, oblique, ovate-oblong, obscurely angular, smooth; seeds very numerous, white, thrown out to a considerable distance by very slender elastic threads or hairs.—Observed by Kœnig in a wood near Malacca, upon the upper boughs of very lofty trees.

106. Epidendrum Sessile. Leaves scattered from sessile bulbs, spreading, subpetioled, retuse above, smooth, a little channelled, beneath convex, fleshy; stems scandent, branched, round, filiform, scaly; flowers among the scales in pairs, seldom solitary, approximating to the stem, small. Instead of a calix, an ovate, acute, keeled, scalelet, fastened to the germen, inflated, membranaceous, white, short; corolla six-petalled; three outer almost erect, ovate at the base, with lengthened tips, slightly awned, equal, whitish, stiffish; two inner lateral, fastened to the side of the nectary, erect, ovate, oblong, quite entire, rounded at the tip, flat, membranaceous, white, subtransparent, much shorter than the outer ones; the sixth or third inner petal is fastened to the upper tip of the nectary, ascending, lanceolate, recurved, a little channelled, longer than the two other interior ones, callous, yellowish; style none.—Native of the East Indies.

107. Epidendrum Liliifolium. Leaves from the bulbs subpetioled, erect at the base, more spreading at the tip, linear-lanceolate, sharpish, smooth, keeled at the back, membranaceous, scarcely rigid; roots filiform, flexuose, white, parasitical; bulbs crowded, ovate, angular, grooved, pale green, terminated by two, or seldom three leaves, the size of a lark's egg; leaves dark green, scarcely a palm and a half long, and four lines wide; flowers from eighteen to thirty, pedicelled, remote, the lower ones more so, alternate; petals, the four outer spreading very much, the lower and upper linear, acute, a little incurved at the tip, concave, the side ones broader, rounded at the tips, concave, more coloured, purple, all equal in length, somewhat fleshy, purple at the tips, the rest white.—Native of the East Indies.

108. Epidendrum Calceolariæ Terrestre. Leaves spreading, bifarious, sessile, ending in sheaths, oblong, lanceolate, quite entire, slightly and obliquely emarginate, above even, shining, beneath smooth, with from nine to fourteen nerves, rigid; the lower ones short, broader; the upper longer, and scarcely an inch broad; roots creeping in the ground; stem simple, erect, round, sheathed, compressed, a little smooth, jointed; the interstices shorter than half the length of the leaf, from three to four feet long, and half the size of a goose-quill; sheaths at the joints closely involving the stem, membranaceous, striated, two-keeled, blunt at the mouth, having one toothlet opposite to the leaf, a little shorter than the

internodes; sheaths radical, and below the middle of the stem, semiovate at the mouth, keeled on the back; flowers terminating on two or three alternate compressed spathes, toothletted in two rows on the edge, flexouse, naked; germen cylindric, less than half the length of the flowers, which are larger than those of the White Narcissus.—Found in the swampy parts of thick woods near Malacca.

109. Epidendrum Flos æris. Leaves from bulbs, ovate-oblong, acute, flat, fleshy. This climbs variously on trees; flowers subspiked, solitary, alternate, somewhat remote, sessile on the germen, spathaceous, boat-shaped. This is suspected to be the same as the second species; and is therefore named after it.—Native of the East Indies.

110. Epidendrum Triste. Leaves cylindric, empty; sheaths fistulose; peduncles opposite to the leaves, corymbed, perforating the sheath; lip of the nectary entire, spathulate, heart-shaped.—Native of New Caledonia.

111. Epidendrum Crispatum. Leaves cauline, round, filiform, subincurved, empty, sessile; raceme quite simple; lip of the nectary with the middle segment revolute, waved, crenate.—Native of the Society Islands in the South Seas.

112. Epidendrum Equitans. Leaves equitant, ensiform, compressed, keeled, acuminate; scape naked; raceme spiked, nodding, filiform.—Native of the Society Isles.

113. Epidendrum Myosurus. Leaves sheathing at the base, obliquely divaricate, linear, obtuse, channelled; scape naked; raceme spiked, nodding, filiform.—Native of the Society Islands.

114. Epidendrum Biflorum. Leaves distich, linear-lanceolate, acute; peduncles two-flowered, solitary, perforating the sheaths of the leaves; lip of the nectary trifid, acuminate.—Native of the Society Islands.

115. Epidendrum Autumnale. Leaves cauline, lanceolate, nerved, crowded, sheathing; peduncles terminating, scaly, panicled; lip of the nectary erect, retuse.—Native of New Zealand.

116. Epidendrum Fasciola. Leaves rooting, parasitical, bundled, linear, waved; scapes several, racemed; lip of the nectary slipper-shaped, with a spur.—Native of the Society Islands.

117. Epidendrum Umbellatum. Runners creeping; leaves oval, fleshy, petioled; petioles fixed into ovate, angular-keeled apophyses: scape rooted; umbel simple, one-sided, lowest petals elongated.—Native of the Society Islands.

118. Epidendrum Resupinatum. Leaves cauline, petioled, ovate, acuminate, quite entire, plaited, kecled, five-nerved; raceme simple, spiked; flowers inverted; lower lip of the nectary toothed.—Native of the Society Islands.

119. Epidendrum Clypeolum. Leaf radical, roundish, cordate, cowled at the base, reflex and sharp at the tip; scape almost erect, racemed; lower lip of the nectary orbiculate, emarginate, very large.—Native of the Society Islands.

120. Epidendrum Nervosum. Scape angular; leaves ovate, nerved; lip entire, reflex; flowers at the top of the scape in spikes, alternate, drooping, purple; spike sharp, angled, erect, smooth, about a span long. A very short, ovate, purple bracte under each flower; upper petal ovate, reflex in the middle, grooved, emarginate, forming a helmet twice as broad as the others.—Native of Japan, where it is found between Osacca and Jedo, flowering in May and June.

121. Epidendrum Striatum. Scape angular, smooth; leaves sword-shaped, nerved; petals lanceolate; lip oblong, flat; flowers on the top of the scape in racemes, several, drooping; bractes like the leaves, gradually diminishing. The two upper petals equal, ovate, the length of the calix, yellow, with a purple line, concave.—It flowers in June; and is a native of Japan.

122. Epidendrum Tesselatum. Roots simple or branched, thick, smooth, long, contorted; fibres issuing from the lower naked part of the stem, and from among the lower leaves, adhering firmly to the bark of the tree; stem perennial, simple, one or two feet long, as thick as the little finger, crooked, the upper part covered with leaves, the lower naked, withering away at the lower extremity; flowers on axillary racemes, from five to ten in number, remote, facing two ways, beautifully waved, and striated, with various shades of a greenish yellow; petals oval, spreading, equal, scolloped; nectary length of the petals. This plant is a very beautiful parasite, found flowering during the wet season upon trees among the Circar mountains.

123. Epidendrum Præmorsum. Leaves remote, alternate, facing two ways, linear, channelled, smooth, very firm, and bitten, jointed just above their sheath-like base, about six inches long, and one inch broad; spike before the leaf, or leaf opposed, short, straight, thick, many-flowered; flowers surround every part of the spike, small, variegated with red and yellow.—Native of the East Indies.

124. Epidendrum Pendulum. The root consists of many fleshy fibres like the two last, but issuing from one head; stem none; leaves radical, three to five, alternate, facing two ways, from one and a half to three feet long, three or four inches at bottom involved in chaffy sheaths, the rest forming the raceme, pendulous, many-flowered; petals lanceolate, spreading, equal, striated with rose-colour and yellow; nectary red, lower lip three-parted.—Native of the East Indies.

125. Epidendrum Vanda. This handsome plant attaches itself chiefly to the highest Amras and Bilsa (the *Mangifera* and *Cratæva* of Linneus). Its leaves are excavated upwards, to catch and retain dew. It is an air plant, and will live (says Sir W. Jones) in a pot without earth or water.

126. Epidendrum Magnoliæ. Roots succulently fibrous, creeping, clasping round the smoother forked trees; stems cespitose, simple, two-leafed, four or five inches high; leaves striated, rigid, and coriaceous; scapes many-flowered; flowers yellow; petals spreading, linear, and obtuse, the inner ones much narrower; lip obcordate, spreading, obtusely three-lobed, scarcely the length of the tube.—Mostly on the trunks of Magnolia Grandiflora, from South Carolina to Florida.

Epigæa; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth double, approximating, permanent. *Exterior Perianth:* three-leaved; leaflets ovate, lanceolate, acuminate, the exterior large. *Interior Perianth:* five-parted, upright, a little longer than the exterior; leaflets lanceolate, acuminate. *Corolla:* one petalled, salver-form; tube cylindric, as long as the calix or longer, hirsute within; border spreading, five-parted; lobes ovate-oblong. *Stamina:* filamenta ten, filiform, length of the tube, affixed to the base of the corolla; antheræ oblong, sharp. *Pistil:* germen globose, villose; style filiform, length of the stamina; stigma obtuse, subquinquefid. *Pericarp:* capsule subglobose, depressed, five-cornered, five-celled, five-valved. *Seeds:* very many, roundish, receptacle large, five-parted. Essential Character. *Calix:* outer three-leaved, inner five-parted. *Corolla:* salver-form; capsule five-celled.——The species are,

1. Epigæa Repens; *Creeping Epigæa*, or *Trailing Arbutus*. Leaves cordate-ovate, entire, flat, sharp; corollas cylindric. This is a low plant, with a trailing shrubby stalk, which puts out roots at the joints, and, when in a proper soil and situation, multiplies very fast. The stalks are garnished with oblong rough leaves, which are waved on their edges. The flowers are produced at the end of these branches, in loose bunches; they are white, and divided at the top into

five acute segments, which spread open in the form of a star. It flowers in July, but does not produce fruit in England.—Native of Virginia and Canada. This plant is easily propagated by its trailing stalks, which put out roots at the joints, and may be cut off from the old plant, and placed in a shady situation and a moist soil: the best time for this is in autumn, that the plants may be well rooted before the spring. If the winter should prove very severe, it would be proper to lay a few dried leaves, or some light covering, over them, which will defend them from the injuries of the frost; and after they are well rooted, they will require no farther care but to keep them clean from weeds.

2. Epigæa Cordifolia; *Heart-leaved Epigæa.* Leaves heart-shaped, roundish, serrate, convex, hispid, rigid; corollas ovate.—Native of Guadaloupe.

Epilobium; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-parted, superior; divisions oblong, acuminate, coloured, deciduous. *Corolla:* petals four, roundish, outwardly wider, emarginate, expanding, inserted into the divisions of the calix. *Stamina:* filamenta eight, subulate, the alternate ones shorter; antheræ oval, compressed, obtuse. *Pistil:* germen cylindric, extremely long, inferior; style filiform; stigma four-cleft, thick, obtuse, rolled back. *Pericarp:* capsule extremely long, cylindric, streaked, four-celled, four-valved. *Seeds:* numerous, oblong, crowned with down; receptacle extremely long, four-cornered, free, flexile, coloured. *Observe.* In some the stamina and pistil are upright, in others bent downwards to the lower side. Essential Character. *Calix:* four-cleft. *Petals:* four. *Capsule:* oblong, inferior. *Seeds:* downy.—This genus consists of hardy perennials, which, though not destitute of beauty, are in general only considered as weeds, and, excepting the first species, seldom find admission into gardens. They propagate spontaneously both by seeds and runners, and require to be restrained, rather than increased by the hand of art, but may be advantageously admitted to fill up remote shady corners, or decorate rock-work.——The species are,

* *Stamina bent down.*

1. Epilobium Angustifolium; *Narrow-leaved* or *Rosebay Willow-herb.* Leaves scattered, linear-lanceolate, quite entire, veined; flowers unequal; root creeping; stem upright, from three to six feet high, branched at top, round, and pubescent; branches and leaves alternate; flowers purple, showy, growing in a kind of long spike on purple peduncles, the length of the germen, bending down before the flowers open, but afterwards erect, seldom more than four or five blown together on the same spike; the two lowermost petals somewhat remote from each other. From the similitude of the leaves of this species to those of the Willow, this plant obtained the name of *Willow-herb,* or *French Willow.* It was formerly much planted in gardens; but as it overruns all the neighbouring plants by means of its creeping roots, it has generally been cast out; however, in low moist places, or in great shade, this plant will make a good appearance while it is in flower, which will continue nearly a month, unless the season be very hot. It is a native of most parts of Europe, from Lapland to Italy, but is not common in Great Britain, though it may be found on Maizehill beyond Greenwich, and in other places near London. Mr. Miller found it wild in great plenty near Alton in Hampshire, in Charlton forest, and several other woods in Sussex: it is also found about Birkhampstead in Hertfordshire, in several parts of Yorkshire, and many places in Scotland. Gerarde informs us, that he had plants of this species from Yorkshire, and that they grew in his garden, and were very goodly to behold, for the decking up of houses and gardens.—The young shoots are said to be eatable, although an infusion of the plant produces a stupifying effect. The pith, when dried, is boiled, and becoming sweet, is by a proper process made into ale, and this into vinegar, by the Kamtschadales; it is also added to the Cow-Parsnep, to enrich the spirit that is prepared from that plant. As fodder, goats are said to be extremely fond of it, and cows and sheep to eat it. The down of the seeds, mixed with cotton or fur, has been manufactured into stockings, &c.

2. Epilobium Angustissimum; *Linear-leaved Willow-herb.* Leaves scattered, linear, obscurely toothletted, veinless: petals equal, quite entire. This has been confounded with the preceding species. It differs, however, in its woody stem, its very narrow leaves with salient glands on their edges, the much more lively colour of the flower, shorter siliques, and has an entirely different air. Haller says, that the stem is only a foot or eighteen inches high, with a branch from almost every axil; the flowers almost the same with the foregoing, but the leaves totally different. Villars informs us, that the flowers do not come in a spike, like those of the preceding, but terminate the stem, and are fewer in number. It is an Alpine plant, but is common low down in the beds of the Alpine torrents, as in the Vevaise and the Grande Eau, near Aigle; it is also found in Provence; flowering in July and August.

3. Epilobium Latifolium; *Broad-leaved Willow-herb.* Leaves alternate, lanceolate-ovate; flowers unequal. This differs from the first species, in having flowers twice the size; the leaves broader, regularly alternate, not scattered, very smoothly tomentose on both sides. The stem is round, erect, and from eighteen inches to two feet in height.—Native of Denmark, Silesia, and Siberia.

** *Stamina upright, regular; Petals bifid.*

4. Epilobium Hirsutum; *Large-flowered Willow-herb.* Leaves ovate-lanceolate, half stem-clasping, hirsute; stem branching very much, from three to six feet high; root creeping, sending out from the upper part runners of a considerable thickness, which spread widely, and propagate the plant; flowers large, showy, purple or flesh-coloured, somewhat bell-shaped, and hanging down a little, on peduncles, solitary, alternate.—Native of most parts of Europe, by the sides of ditches, ponds, lakes, and rivers, flowering in July and August. The leaves, and particularly the top-shoots, when slightly bruised, have a delicate cool fragrance, resembling scalded codlings, whence its name of *Codlings and Cream:* but this fragrance is very soon lost after the plant is gathered. It is also called *Great Hairy-codded Loosestrife.* Horses, sheep, and goats eat it; and, if it were found to be an acceptable fodder, it might be advantageously cultivated in wet situations.—It varies with white flowers, and also with variegated leaves, in which state it is sometimes sold by the gardeners; but having a creeping root, it is very liable to increase too much.

5. Epilobium Villosum; *Hoary Willow-herb.* Leaves oblong, lanceolate, toothed, pubescent; stem columnar, villose. This species invariably differs from the foregoing in its corolla, root, and pubescence. The corolla is in general not more than one-third of the size; the root does not creep; and both stem and leaves are covered with numerous soft hairs, which give the whole plant a hoary appearance. It is also smaller, and less branched, than the preceding species, but grows in the same places, and flowers at the same time.

6. Epilobium Montanum; *Mountain* or *Wood Willow-herb.* The root has, on its upper part, little buds of a bright red colour; stem from one to three feet high, upright, red, cylindric; down scarcely perceptible; sometimes branched at

top, but often single; leaves oppusite, except the uppermost, on very short petioles uniting at the base, sharp at the end, finely serrate, with unequal teeth, somewhat hooked, smooth on the upper side, on the under paler, and very slightly hairy; the downiness is just perceptible on both surfaces, according to Withering, but most underneath. The bottom leaves are often of a bright red colour; calicine leaflets four, lanceolate, with a conspicuous midrib, slightly hairy on the outside, and at the edges; petals obcordate, deeply emarginate, pale purple, veined with deeper purple lines.—It flowers from June to August, is a native of Europe, found in woods and hedges, sometimes in moist meadows, but oftener in dry gravelly soils, in courts, neglected walks, upon walls, and also upon old trees, particularly Willows.

7. Epilobium Tetragonum; *Square-stalked Willow Herb.* Leaves lanceolate, toothletted, the bottom ones opposite; stem four-cornered; flowers small, purple. One of the most striking characters of this is the apparent squareness of the stalk, which arises from projecting lines running from the leaves down to it; to this we may add the narrowness of its leaves, the uncommon length of its pods, and its undivided stigma, which was first noticed by Kay. It flowers in July and August.—Native of Europe, the East Indies, China, and Cochin-china. It is not uncommon in Great Britain, being generally found in marshes, and by the sides of rivulets and ditches, as in the lane from Newington to Hornsey-wood; near Bungay, in Suffolk; and at Alconbury, in Huntingdonshire.

8. Epilobium Palustre; *Marsh Willow-herb.* Leaves opposite, lanceolate, quite entire; petals emarginate; stem erect, six inches high; calix a little hairy on the outside; petals reddish, or pale purple, emarginate, not cloven in the middle; the antheræ, when they are shedding their pollen, adhere firmly to the stigma; stigma thick, club-shaped, yellowish white, slightly cloven at top into four parts; siliques pedunculed.—Native of Europe, on marshes, bogs, and by the side of lakes.

9. Epilobium Alpinum; *Alpine Willow-herb.* Leaves opposite, ovate-lanceolate, quite entire; siliques sessile; stem creeping. This plant is hardly a span high, decumbent at bottom, then upright, and bears one or two flowers at the top.—Native of the mountains of Lapland, Denmark, Switzerland, Silesia, Savoy, Dauphiny: and in Britain, on Cheviot-hills, near Settle; about Buckbarrow-well; and many parts of Scotland; by the sides of rivulets, and in sandy places.

10. Epilobium Fruticosum. Stem shrubby, very much branched, six feet high; leaves quite entire, alternate, hirsute; peduncles one-flowered; flowers superior, yellow; capsule columnar, eight-cornered, crowned with the permanent calix; seeds not pappous.—Native of Cochin-china.

11. Epilobium Glabellum. Leaves oblong, toothed, obtuse, the bottom ones opposite; stem roundish, erect.—Native of New Zealand.

12. Epilobium Rotundifolium. Leaves opposite, roundish, toothletted.—Native of New Zealand.

13. Epilobium Parviflorum. Leaves opposite, lanceolate-serrate, sessile, both they and the stem villose.—Native of Germany.

14 Epilobium Alsinefolium. Stem creeping; leaves ovate, acute, toothed; siliques the length of the stem.—This is very nearly allied to the ninth species in its size, habit, disposition of the leaves, flowers, and siliques: the flowers are bright red, a little emarginate, and middle-sized; the siliques are few and small. Both this and the ninth species grow upon the summits of the highest mountains, near the snow, and have their siliques often as long as their stems.

Epimedium; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate, obtuse, concave, expanding, small, placed directly below the petals, caducous, according to Jussieu, with a single bracte at the base of them. *Corolla:* petals four, ovate, obtuse, concave, expanding; nectaries four, cup-form, with obtuse bottoms, of the size of the petals, and leaning on them, affixed by the edge of the mouth to the receptacle. *Stamina:* filamenta four, subulate, pressing on the style. Antheræ oblong, erect, two-celled, two-valved, gaping from the base towards the tip, with a free dissepiment. *Pistil:* germen oblong; style shorter than the germen, length of the stamina; stigma simple. *Pericarp:* silique oblong, acuminate, one-celled, two-valved. *Seeds:* very many, oblong. Essential Character. *Nectaries:* four, cup-form, leaning on the petals. *Corolla:* four-petalled. *Calix:* very caducous; fruit a silique.——The only known species is,

1. Epimedium Alpinum; *Alpine Barrenwort.* It has a creeping perennial root; from which arise many stiff smooth stalks about nine inches high, cylindric, simple, near the root surrounded with scales, at top trichotomous; leaves once and twice ternate, pendulous, heart-shaped, ending in a point, serrate, the serratures ending in a hair, pale green on the upper side, gray on the under; flowers drooping with dark red petals, and yellow pellucid nectaries.—Native of the Alps and Apennines, also of Japan. It flowers in April and May, and even later in shady places: it is common in English gardens. The inhabitants of the northern parts of Europe give a decoction of the herb, in milk, to the females of domestic animals when going after the male; and they say that it effectually quenches those desires which nature excites at that season. Hill says, that a strong decoction of the roots, given to women of robust habits, have been often known to succeed, even in cases which have baffled all the efforts of regular practice. It may be increased by the roots, and succeeds best in the shade, where it must every year be reduced, otherwise it will spread its roots so as to interfere with the neighbouring plants. Although it is by no means showy, it deserves to be admitted into gardens on account of its beauty and singularity.

Equisetum; a genus of the class Cryptogamia, order Filices.—Generic Character. Fructifications disposed into a long ovate-oblong spike; each orbiculate, gaping at the base, with several valves, connected by a flat shield-shaped top.—Though the genus of the Horse-tails be inhabitants of the water, or at least flourish best where they can lodge their perennial creeping roots in a wet soil, or strong clay which holds the wet, yet they will grow in a garden, especially near water, under a north wall, or in the shade; they only require to be kept within bounds, as they run much at the root: hence it is better to plant them in pots plunged into the earth than in the open ground. It is very difficult to extirpate them from cultivated lands. Haller says, that he tried in vain to accomplish it by ploughing, dunging, and other methods; and that any one who published the secret of destroying those unpropitious weeds, so injurious to cattle, would merit a considerable reward. Draining the lands infested with it, seems most likely to remove the evil.——The species are,

1. Equisetum Sylvaticum; *Wood Horse-Tail.* Stems spiked; fronds compound. It grows to the height of a foot or eighteen inches, and sometimes reaches to three or four feet; stem slender, scabrous, angular; the angles edged with short spinules, scarcely visible without a microscope; the whorls are hardly an inch asunder; there are twelve or more branchlets, or leaves as some call them, in a whorl, these are very slender, about five inches long, quadrangular, and beset with several other secondary whorls, having five to seven

branchlets on each, so that the whole resembles a pine-tree in miniature; the flowering-spike is at the end of the frond. —Native of most parts of Europe, in woods and shady places, flowering in April and May. Linneus informs us, that it is a principal food for horses in some parts of Sweden. Scopoli affirms, that it is noxious to cows, making them shed their teeth, and bringing on them a diarrhœa. A strong decoction of it is an excellent medicine in immoderate discharges of the menses, and in fluxes of the belly attended with griping pains and bloody stools. Externally applied, it stops the bleeding of wounds, and quickly heals them. It is a very cooling astringent herb, and, taken either in powder, decoction, or juice, is of considerable efficacy, in spitting of blood, bloody urine, and for ulcers in the urinary passages. The whole plant may be usefully employed, either fresh or dry, though it is most efficacious when fresh gathered.

2. Equisetum Arvense; *Corn Horse-Tail.* Fruit-bearing scape naked, barren, leafy; the naked flowering-stems appear early in the spring, and soon decay, they are the thickness of a large wheat straw, a hand's-breadth or more in height, upright, yellowish, with from two to five joints, covered with membranaceous ribbed sheaths, divided at top into numerous segments or teeth; spike terminating, oblong, swelling, about an inch in length, throwing out a greenish powder when ripe, which moves as if it were alive, especially if it be breathed upon; every particle has three or four, rarely five, fine pellucid threads, club-shaped at the end, which occasion the motion, by extending and curling themselves up. It is a troublesome weed, and difficult to extirpate; is reputed to be noxious to cattle, especially cows, which it afflicts with a diarrhœa, but they are not very ready to meddle with it. The country people call it *Horse-pipe* and *Snake-pipe.* It is supposed to indicate subterraneous flowing waters or springs. —It flowers in March, April, and May, is found in cornfields and wet meadows, and is a native of most parts of Europe, the Levant, Japan, and North America.

3. Equisetum Palustre; *Marsh Horse-Tail.* Stem angular; fronds simple. The stem is a foot or eighteen inches high, nearly smooth, channelled with five or six deep furrows; the sheaths are divided into seven or eight acute black dents with white edges, from these, at flowering-time, come out sixteen furrowed, smooth, simple, short branchlets, becoming afterwards longer; spike terminating, and turning black before it disperses the seed, which is very lively when fresh from the spike.—Found in marshes and ditches, flowering in June. There is a variety of it with smaller fronds, almost all the branchlets having a spike at the end, but that at the end of the stem twice as large as the rest. Haller declares, that this is also injurious to cattle. In Scotland they call it *Paddock-pipe.*

4. Equisetum Fluviatile; *River Horse-tail.* Stem streaked; fronds almost simple. This is the largest of all the European species; the stem is three or four feet high, the thickness of a finger, and sometimes nearly an inch in diameter, streaked, not furrowed, smooth, soft, of a pale or whitish colour at first, but blackish in decay; joints numerous; sheaths streaked; branchlets or leaves quadrangular. The spikes grow distinct from the fronds on scapes, but from the same root; these come out earlier, are a foot or eighteen inches in height, and the spikes are replete with a bluish powder. Haller tells us, that this species was eaten by the common people among the Romans; and Linneus says, that the rein-deer, who refuse hay, will however eat this; that it is cut as fodder for cows, with a view to increase their milk; but that it is not acceptable to horses.—Native of Europe, flowering in May and June, and found upon the banks of rivers, lakes, ponds, and ditches.

5. Equisetum Limosum; *Smooth Horse-Tail.* Stem almost naked. It grows three or four feet high, and is often quite destitute of leaves, but sometimes produces a few straggling ones. The stem is smooth, channelled with twelve or more furrows, and terminated with a black oval spike; the dents of the sheath are acute and black, and of the same number with the furrows.—It flowers in May and June; and is found in watery places, lakes, ponds, and ditches.

6. Equisetum Hyemale; *Rough Horse-Tail.* Stem naked, scabrous, subracemed at the base; the sheaths are black at the base and edge, and obscurely indented with as many short obscure teeth as the stem has furrows; the flowering spike terminates the stem; and the sheath, which immediately subtends it, is pale at the base, but black at the edge, distinctly and acutely toothed. This is the best species for polishing wood and metal, being the hardest and roughest; hence our old writers called it *Shave-grass.* It is much used by the whitesmiths and cabinet-makers, under the name of *Dutch rushes.* The Northumberland dairy-maids scour their milk-pails with it. Gerarde says, that the women scour their pewter and wooden things of the kitchen therewith, and thence call it *Pewterwort;* and that the fletchers and combmakers rubbed and polished their work with it. Professor Davy has detected a large proportion of flinty earth in the cuticle, to which its hardness and asperity are owing. Linneus informs us, that it is salutary for horses, but noxious to cows, who lose their teeth by feeding on it; and that sheep avoid it. —It flowers in July and August; and is a native of Europe and of Japan, growing in wet marshy places in woods.

7. Equisetum Giganteum; *Giant Horse-Tail.* Stem streaked, arborescent; fronds simple, strict, spike-bearing.— Native of South America; not yet described.

Eranthemum; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth five-cleft, tubular, very narrow, upright, short, acuminate, permanent. *Corolla:* one-petalled, funnel-form; tube filiform, extremely long; border five-parted, flat; divisions obovate. *Stamina:* filamenta two, very short, in the mouth of the corolla. Antheræ subovate, compressed, beyond the tube. *Pistil:* germen ovate, very small; style filiform, length of the stamina; stigma simple. *Pericarp* and *Seeds* not described; recommended to the attention of the intelligent botanist. Essential Character. *Corolla:* five-cleft, with a filiform tube; antheræ beyond the tube; stigma simple; fruit also undescribed.——The species are,

1. Eranthemum Capense. Leaves lanceolate-ovate, petioled; stems long, terminated by one or three spikes, from lanceolate, green, imbricate bractes, within each of which is a long purple flower.—Native of the Cape of Good Hope.

2. Eranthemum Angustifolium. Leaves linear, remote, patulous; stem erect, branched; racemes simple, very long, erect; tube of the corolla very long, with a small obtuse border; antheræ incumbent, linear.—Native of the Cape of Good Hope.

3. Eranthemum Parvifolium. Leaves ovate-linear, imbricate; bractes ovate.—Native of the Cape of Good Hope.

4. Eranthemum Salsoloides. Leaves fleshy, nearly columnar, linear, very smooth; racemes axillary, they and the calices pubescent; tube bent back. This shrub resembles *Salsola,* but with axillary pubescent racemes at the ends of the branches; pedicels reflex, and at the origin of each three subulate bractes; calix five-parted, with subulate pubescent divisions; tube of the corolla longer than the calix, bent back in the middle; divisions of the border ovate-acuminate. —Native of the Cape of Good Hope.

5. Eranthemum Spinosum. Leaves ovate, opposite; stipules

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

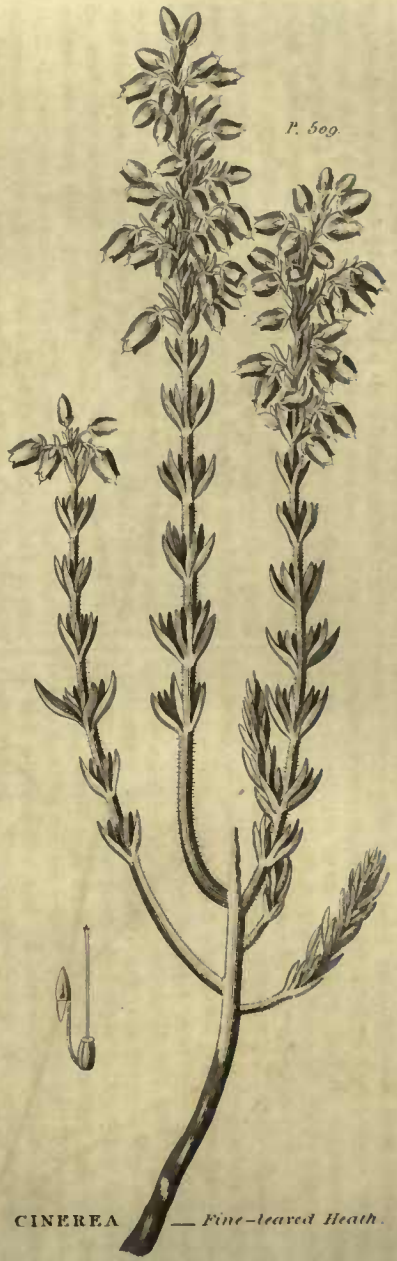
P. 508.

TETRALIX — *Cross-leaved Heath.*

P. 505.

VULGARIS —
Common Heath.

P. 509.



CINEREA — *Fine-leaved Heath.*

W. Mallinson sc.

spiny; flower solitary. Stem suffruticose, a foot high, cespitose, erect, with short rising branches, spiny stipules and bractes; flower pale violet, solitary, lateral, peduncled; calix two-leaved, with acuminate erect leaflets; tube of the corolla curved at the base.—Native of Africa, in the suburbs of Mosambique.

Erica; a genus of the class Octandria, order Monogynia. —Generic Character. *Calix:* perianth four-leaved; leaflets ovate-oblong, permanent. *Corolla:* one-petalled, bell-form, four-cleft, often bellied. *Stamina:* filamenta eight, capillary, inserted into the receptacle; antheræ two-cleft at the tip. *Pistil:* germen roundish, superior; style filiform, upright, longer than the stamina; stigma crowned, four-cornered, four-cleft. *Pericarp:* capsule roundish, smaller than the calix, covered, four-celled, four-valved; partitions meeting with the sutures, or, according to Gærtner, opposite to the sutures. *Seeds:* numerous, very small. Essential Character. *Calix:* four-leaved. *Corolla:* four-cleft. *Filamenta:* inserted into the receptacle. *Antheræ:* cloven. *Capsule:* four-celled.—It is difficult to guess at the number of the real species of *Erica:* Wildenow has 137, but some of these are duplicates. Our gardeners reckon about 300, many of which are merely varieties. And yet it is probable not a few remain to be discovered in the wilds of Southern Africa. None are found in America, in New Holland, nor scarcely in the Torrid Zone. The habit of the whole genus is shrubby, very rarely arborescent. Their leaves are very small, linear, lanceolate or ovate, imbricate or remote, entire, ciliate or serrate, in some opposite, in most whorled, in others again scattered; bractes usually three, two opposite. The flowers are either axillary or terminating, and variously disposed, partaking of all the most exquisite tints of red, purple, yellow, or orange, occasionally variegated with green or white; and some are entirely white. Antheræ oblong or linear; germen generally smooth. In some of the species the antheræ are awned, in others they are crested, and in others awnless; in some they are included within the corolla, in others they are projected, or stand out beyond the corolla. Hence this unwieldy genus is commodiously divided into four sections, and these sections are again subdivided into subordinate sections, according to the disposition of the leaves. The inclusion or projection of the style also affords another division of the species. The calix in some is double; and, lastly, the form of the corolla assists us much in distinguishing the numerous species. The campanulate and ovate forms, with their several modifications, are the predominating ones. All this may be best understood by the following table, which is of great use to exhibit these material differences at one view:

Antheræ awned, from species No. 1 to 29.
——— crested, 30 to 43.
——— awnless, 44 to 83, 85.
——— included, 1 to 69, 85.
——— standing out, 71 to 81.
Leaves in pairs, opposite, 1, 2, 44, 45.
——— in threes, 3 to 19; 30 to 38; 46 to 55; 71 to 76; 84.
——— in fours, 20 to 28; 39 to 43; 56, 57; 77 to 79; 82 to 85.
——— more than four, 29, 68, 69, 80, 81, 83.
Style included, 2 to 7; 9 to 14; 20 to 21; 23 to 25; 29 to 35; 39; 44; 56 to 58; 60 to 66; 84.
——— standing out, 1; 15 to 19; 22; 26 to 28; 36 to 38; 45; 47 to 52; 55, 59, 70, 72; 74 to 83, 85. —middling, 42, 43.
Corolla bell-shaped, 1; 9 to 18; 21, 22, 37, 45, 47, 55, 62, 64; 76 to 78; 81
Corolla bell salver-shaped, 49.—pitcher bell-shaped, 43.
——— globular bell-shaped, 30, 31.
——— globular, 20, 48, 64.—subglobular, 6, 50.
——— ovate, 2 to 4; 23, 24, 27; 32 to 36; 39 to 41, 46, 54, 82.—ovate bell-shaped, 51.
——— ovate-conical, 7, 8.—ovate-oblong, 42, 66.
——— ovate funnel-shaped, 63.—funnel-shaped, 85.
——— oblong, 5, 28, 79.—roundish, 53.
——— cylindric fig-shaped, 69.
——— cylindric, 19, 38, 59, 68, 71, 72, 73, 80, 83.
——— fig-shaped, 25, 26, 29.—salver-shaped, 61.
——— club fig-shaped, 56, 57, 58, 60.
——— tubular, 67.—four-cornered, 84.

This genus has, within the compass of a few years, risen from neglect to splendour. Mr. Pope marks it with contempt, at the same time that he celebrates the colour of the flowers:

"E'en the wild Heath displays its purple dyes."

The plants of this genus which are natives of the Cape of Good Hope, or the more interior parts of Africa leading to that famous promontory, must be preserved in the dry-stove, green-house, or glass-case. These may be increased either from cuttings or from layers; there are few but what may be increased by cuttings, provided good young shoots can be procured, especially if they be put under bell-glasses, and the pots are set where they can be shaded, and have a moderate heat. When the plants have become perfectly rooted, they should be removed into other pots, filled with the undermentioned composition, being then put into the dry-stove or green-house, where some of them require to be constantly placed. These plants should have a light and rather poor soil to grow in; a composition of bog earth and light loam will suit them well. The third, twenty-ninth, thirty-fourth, fortieth, forty-second, fifty-fourth, sixty-ninth, and a few other species, have not yet been struck from cuttings, and must therefore be propagated from layers, which, however, will not always strike the first year.——The species we shall now describe, are 85 in number, viz.

* *Antheræ awned; Leaves opposite.*

1. Erica Vulgaris; *Common Heath.* Corollas bell-shaped, almost equal; calices double, the inner longer than the corolla; leaves sagittate, imbricate in four rows. Common Heath is a foot or two in height, or more; the stems brown and woody, very much branched; the branches in opposite pairs, mostly upright, round, downy, and reddish; the branchlets square; flowers solitary, on peduncles the length of the leaves, from the sides of the branches, slightly nudding, opposite, but generally pointing one way, giving the branches the appearance of long bunches, but leafy shoots will be always found at the end. The inner or proper calix consists also of four oval-oblong concave leaflets, slightly adhering at the base, alternating with the segments of the corolla, of the same colour, and nearly of the same texture with them, five times as long as the outer calix, open, but after flowering approaching with the points bent in. We may here observe a curious instance of the gradual transition from the green herbaceous leaves of the stem, to the more delicate texture of the corolla, which is of a pale purple rose-colour, whitish towards the base, divided two-thirds of the way down into four, sometimes five, ovate, blunt, equal, open segments; filamenta awl-shaped, double, to and fro towards the point, white, or tinged with purple, springing from small glands at the base of the germen. There is a variety with white flowers, and with hoary leaves; which has been considered by some as a distinct species, and by others confounded with the 52d species: it is common on Bagshot-Heath, Enville-Common

in Staffordshire, Birmingham-Heath, and, as Ray says, not only about Windsor, where Clusius observed it, but all over England.—This plant, which is little regarded in warmer climates, is made to serve a great variety of purposes in the bleak and barren Highlands of Scotland, and other northern countries. The poorer inhabitants cover their cabins with it instead of thatch, or else twist it into ropes, with which they bind down the thatch in a kind of lattice-work. They also form walls with alternate layers of Heath, and a sort of cement made of black earth and straw; and these hardy people have even been known to make their beds of it. In most of the Western Isles they dye their yarn of a yellow colour, by boiling it in water with the green tops and flowers of this plant; and woollen cloth boiled in alum-water, and afterwards in a strong decoction of the tops, comes out a fine orange colour; and in some of those islands they tan their leather with a strong decoction of it. Formerly the young tops are said to have been used alone to brew a kind of ale; and Boethius relates that this liquor was much used by the Picts; and in several of the isles it is said that they still brew ale with one part malt, and two parts of the young tops of Heath, sometimes adding hops. In many parts of Great Britain, besoms are made of it, and the turf, with Heath growing upon it, is cut up, and dried for the fuel of the cottager, heating ovens, covering under-ground drains, &c. Sheep and goats will sometimes eat the tender shoots, but are not fond of them. Cattle not accustomed to browse on Heath give bloody milk, but are soon cured by drinking plentifully of water. The branches of Heath afford shelter, and the seeds a principal part of the food of many birds, especially those of the grouse kind; and for this purpose, the seed-vessel is formed and defended in such a manner, that the seeds are protected a whole year, or even longer. Bees collect largely from the flowers; and honey made from them was anciently supposed to be of a bad quality, but in fact it is only of a darker colour. The foliage affords nourishment to the phalæna quercus, or great egger moth. Dodder frequently entwines itself about this plant, and gives it a singular appearance. Meyrick says, that a water distilled from the flowers is a good application to inflamed eyes; and an oil made from them is reported to be of great efficacy in curing the shingles, and other cutaneous eruptions.—Almost every part of Europe abounds with Heath, especially the northern countries; it is also common in all the temperate parts of the vast Russian dominions. It is called *Ling* in some parts of England; *Grig*, in Shropshire; and *Hather* in Scotland. It is remarkable that Shakspeare enumerates Heath and Ling as quite distinct plants; the former of these names is derived from the German *Heide*, and the latter from the Danish *Lyng*. The Swedes call it *Liung;* the Italians, *Erica;* the Spaniards, *Brezo;* the Portuguese, *Urze*, *Erice*, *Torga*, or *Estorga;* and the Russians, *Weresk*. Common Heath, which overruns immense tracts, especially in the elevated parts of northern countries, can only be effectually extirpated by paring and burning. In some lands, deep and cross ploughings, getting up roots with heavy harrows, burning the whole, and spreading the ashes, may be sufficient. Dr. Anderson affirms, that wherever Heath abounds, there is generated, by the rotting of the plant, a peculiar black earth, that is not only sterile of itself, but has a powerful tendency to make any other soil unproductive, so that in improving heathy grounds, the top soil should be buried by trenching or deep ploughing.—*Propagation.* Notwithstanding the commonness of our British Heaths, they deserve a place in small quarters of humble flowering shrubs, where, by the beauty and long continuance of their flowers, together with the diversity of their leaves, they make an agreeable variety. This, and the 23d, 36th, and 81st species, may be taken up with a ball of earth growing to their roots, from the natural places of their growth, in autumn; the soil should not be dunged; and the less the ground is dug, the better they will thrive, for they commonly shoot their roots near the surface. They may also be propagated by seeds; but this is a tedious method.

2. Erica Lutea; *Yellow Heath.* Corollas ovate-acuminate; flowers heaped; leaves linear. The whole is smooth, with a rufescent upright stem, two feet high; branches scattered, from erect spreading, wand-like; branchlets also scattered, filiform, very frequent, wand-like, short; leaves opposite, blunt, grooved underneath, a line in length; flowers on the extreme branchlets, one, two, or three together, upright; bractes linear, obtuse, concave, pale; calicine leaflets ovate-acuminate, keeled below the tip, it varies with the corolla, calix, and bractes, yellow or white. The whole plant being covered with its shining golden or silvery flowers, is very beautiful.—Native of the Cape of Good Hope.

Leaves in threes.

3. Erica Halicacaba; *Purple-stalked Heath.* Corollas ovate, inflated; style included; flowers solitary. Stem smooth, rugged, brown, flexuose, decumbent, strict, lofty; branches alternate, divaricate, purplish; leaves crowded, lanceolate-acute, smooth, flat above, convex beneath, and rugged about the edge; peduncles tomentose, reflex; bractes ovate, acute, approximating, many times smaller than the calix; calicine leaflets ovate, acute, keeled, entire, pressed close, smooth, pale, two lines in length; corolla purplish, smooth, distinct from all others in its flowers being the size of an acorn. It flowers in May and June, and is the largest plant of the genus.—Native of the Cape.

4. Erica Regerminans; *Self-sowing Heath.* Corollas ovate; style included; calices acute; flowers racemed. Stem shrubby, determinately branched; branches rushy; leaves linear, subulate, acuminate, even, patulous; racemes pointing one way, nodding, on peduncles the length of the flower, flesh-coloured; bractes remote, minute, coloured; calix red, lanceolate, very small; corolla ovate-globular, red, with a blunt mouth; antheræ a little shorter than the corolla; style included, the length of the corolla; stigma subcapitate.—Native of the Cape.

5. Erica Monsoniana; *Bladder-flowered Heath.* Flowers at the ends of obtuse branchlets; calices calicled; corolla oblong, inflated; style included. The stem is erect, pubescent, leafless, two feet high; branches scattered, frequent, spreading, covered with leaves, very short, simple; leaves in threes, ovate, obtuse, convex beneath, with a longitudinal groove, flat above, entire, imbricate, smooth, scarcely a line in length; flowers solitary, nodding, on pubescent reflex peduncles; bractes ovate, keeled, acute, white, a little shorter than the calix, on the middle of the peduncle; calicine leaflets ovate-acute, concave, keeled, white, smooth, almost three times shorter than the corolla, which is almost an inch long, divided at the mouth into four very short blunt segments. It resembles the third species, but has ovate leaves; smaller, less inflated, and deeply divided corollas; the flowers more copious, and the stem erect. This plant is one of the most beautiful of this beautiful genus, and has large white flowers.—Thunberg found it in the interior of Africa.

6. Erica Mucosa; *Mucous Heath.* Corollas subglobular, mucous; style included. Stem frutescent, determinately branched, with white awl-shaped decurrent lines under the scars of the leaves, which are linear, even, pressed close, scarcely longer than the interstices; flowers terminating, subumbelled, on peduncles the length of the flowers; bractes

linear, minute, remote; calix scariose, mucous, a little shorter than the corolla, ovate, acute; corolla blunt; antheræ ovate, short; style short, cylindric; stigma naked.—Native of the Cape.

7. Erica Urceolaris; *Hairy-flowered Heath.* Flowers umbelled; calices lanceolate; corollas ovate-conical, villose; style included. Stem flexuose, erect, ash-coloured, two feet high; branches opposite, or in threes, cinereous-villose, wandlike; branchlets filiform, scattered, frequent, wandlike; leaves in threes, linear-lanceolate, beneath grooved from the revolute margins, tomentose, whitish, from erect spreading, curved a little; peduncle, calix, and corolla, hirsute; calix shorter by half than the corolla, which is flesh-coloured, oblong, subcampanulate, and a line in length; it varies with flowers very hirsute and hairy, red and whitish flesh-colour. It flowers in May and June.—Native of the Cape.

8. Erica Marifolia; *Marum-leaved Heath.* Leaves ovate, pubescent, whitish underneath; corollas ovate-conical; style of a middling length. It flowers in May and June.—Native of the Cape.

9. Erica Bergiana; *Bergius's Heath.* Calices reflex; corollas bell-shaped; style included. This shrub is about two feet high, and pubescent; leaves linear, subciliate, erect; flowers at the ends of the branchlets, subsolitary, on very short peduncles; calix lanceolate, acute, one-third of the corolla, spreading, or reflex; corolla shaped like that of the Lily-of-the-valley, purple, blunt; stamina shorter than the corolla; pistil the length of the corolla; stigma subcapitate. It is covered with beautiful flowers.—Found by Bergius at the Cape.

10. Erica Depressa; *Flat-stemmed Heath.* Stem depressed; flowers few; corollas bell-shaped; style included. Stems procumbent, copious, a palm in length; leaves lanceolate, bluntish, even, keeled; flowers scattered, solitary; calix scariose, lanceolate, acute, shorter by half than the corolla, which is obtuse, red, and even; antheræ very short; stigma blunt.—Native of the Cape.

11. Erica Pilulifera; *Rounded Heath.* Flowers umbelled; corollas bell-shaped; style included. The whole shrub is smooth, purple, erect, a foot high or more; branches and branchlets trichotomous, from erect spreading, subfastigiate; leaves in fours, obliquely whorled, three equal in situation, the fourth lower, linear, obtuse, flat above, beneath convex, with a deep longitudinal groove; the lower smooth, the uppermost very finely ciliate, attenuated into paler petioles, imbricate; flowers terminating, four to ten, drooping; peduncles blood-red, longer than the leaves; calicine leaflets boat-shaped, acute, pale, blood-red, smooth, ciliate at the tip, pressed close, a little shorter than the corolla, which is blood-red and smooth. The above is Thunberg's description.—Native of the Cape.

12. Erica Viridi-Purpurea; *Green-blue Heath.* Flowers scattered; corollas bell-shaped; style included. Leaves lanceolate, smooth; flowers in racemes, directed all the same way; corolla purple. It varies with the leaves in fours.—Native of Portugal. This, and the 16th, 17th, 38th, 52d, 76th, 77th, 78th, 79th, 80th, and 82d species, which are natives of the southern countries of Europe, will bear the open air in England, when placed in a dry soil and a warm situation. They may be increased and treated in the same manner as our British Heaths, (see the first species;) and may also be increased by layers and cuttings.

13. Erica Pentaphylla; *Five-leaved Heath.* Flowers pubescent; corollas bell-shaped; style included.—Native of the Cape.

14. Erica Nigrita; *Black Heath* Calices imbricate, three-flowered, sessile; corollas bell-shaped; style included. Stem brown, upright, a foot high and more; branches and branchlets scattered, and whorled, flexuose, erect, wandlike, ash-coloured, tomentose; leaves linear, ovate, obtuse, very finely rugged about the edge, flat above, convex beneath, with a slender longitudinal groove, shining, pressed close at the base, spreading, and recurved from the middle, a line in length; flowers terminating in threes, peduncled, erect; bractes oblong, acute, keeled, white, approximating to the calix, imbricate, shaped like the calicine leaflets, which are ovate, acute, keeled, very finely rugged about the edge, white, smooth, nearly equal to the corolla. This plant has its trivial name from its conspicuous dark anthers, elegantly contrasted with the white corolla and calix.—Native of the Cape.

15. Erica Planifolia; *Smooth-leaved Heath.* Leaves spreading very much; corollas bell-shaped; style standing out. Branches filiform, creeping; flowers violet-coloured; leaves ovate, acute, ciliate.—Native of the Cape.

16. Erica Scoparia; *Small Green-flowered* or *Brush Heath.* Corollas bell-shaped; stigma standing out, peltate. This is a shrub, growing to the height of several feet. The leaves soon fall off; and the branches are made into besoms, from which circumstance it has derived its trivial name.—It flowers in April and May, and is common in the south of Europe. See the twelfth species.

17. Erica Arborea; *Tree Heath.* Branchlets hoary; corollas bell-shaped; style standing out. This is an upright shrub, growing to the height of six feet, with upright branches, covered with a white nap; leaves very abundant, upright, smooth, almost awl-shaped, covering the branches, wrinkled when dry; flowers very numerous on the middle of the branches, so that the latter leaves are above them; they are on branching peduncles, forming a panicle; calix single, short, with lanceolate leaflets; corolla white, short, broad, four-cleft two-thirds of the way. It flowers from February to May.—Native of the south of Europe, and the island of Madeira. See the twelfth species.

18. Erica Vespertina; *Evening Heath.* Corollas bell-shaped; style standing out. This is an upright shrub, with the branches growing by threes; leaves triquetrous, even, pressed close; flowers in a panicle, nodding, alternate, white, on white pubescent peduncles, with ovate, alternate, white bractes; leaflets of the calix ovate, keeled, sharpish, the length of the tube; corolla double the length of the calix, broad, sharp; antheræ black, two-parted, above the throat; style purpurascent, rather longer than the corolla; stigma blunt.—Found by Thunberg at the Cape.

19. Erica Cruenta; *Bloody-flowered Heath.* Leaves smooth; bractes remote; calices awl-shaped, dilated at the base; corollas cylindrical, incurved; style standing out. Branches round, smooth; branchlets pubescent; leaves linear, awl-shaped, grooved, spreading, half an inch long, on appressed petioles, scarcely half a line in length; flowers axillary; peduncles hardly half an inch long, sometimes bifid or trifid; bractes three, awl-shaped, three-sided; leaflets of the calix keeled, smooth, two lines in length; flowers axillary; corolla deep crimson, an inch long, a little bent in, smooth, subpellucid, a little swelling at top, with a four-cleft mouth; segments sharpish, broad, suberect; filamenta whitish; antheræ included, oblong, brown, bifid; awns subulate, capillary, the length of the antheræ; style a little longer than the corolla, red; stigma standing out, incrassated, very dark purple. It flowers at various seasons.—Native of the Cape.

Leaves in fours.

20. Erica Ramentacea; *Slender-branched Heath.* Leaves

bristle-shaped; corollas globular; style included; stigma doubled. Branches filiform, ramentaceous, long, ferruginous; leaves very narrow, upright, pressed close; flowers umbelled; calix shorter than the corolla, green; corolla purple; antheræ with two ciliate horns, inwardly mucronate, opening in an ovate form on the sides; style purple; stigma double, the upper roundish, the lower quadrifid. It flowers in July.—Native of the Cape.

21. Erica Persoluta; *Blush-flowered Heath.* Calices ciliate; corollas bell-shaped; style included. Stem shrubby, smoothish, with pubescent branches; leaves linear, obtuse, erect, channelled underneath, the length of the joints, hispid, or subscabrous; flowers umbelled, dispersed on the upper twigs.—It flowers from February to May, and is a native of the Cape.

22. Erica Strigosa; *Dwarf Downy Heath.* Leaves pubescent, ciliate; corollas bell-shaped, smooth; style standing out. Branches somewhat villose; leaves linear-acute, spreading, somewhat villose, ciliate, with a few long hairs, glandulous at the tip, three lines long, on petioles half a line in length; flowers axillary on the extreme twigs, on peduncles a line and a half long; corolla pale red, almost twice as long as the calix. It flowers in March and April.—Native of the Cape.

23. Erica Tetralix; *Cross-leaved Heath.* Leaves ciliate; flowers in heads; corollas ovate; style included. Stems shrubby, from nine to twelve inches high, branched, brown, somewhat rugged from the remains of the leaves which have fallen off. Branches woolly. Leaves commonly in fours, but sometimes in fives, ovate-linear, spreading, near the flowers, pressed close to the stem, the edges turned in, and ciliated, each hair terminating in a small round gland; the upper surface is flat, the lower concave and white. Flowers hanging down one over another all one way, forming a little head; peduncles downy, about the length of the flowers; bractes three at the base of each flower on the upper side, of the same shape as the leaves of the calix, the lowermost the largest, inserted about a line below the calix, the two others, one on each side, rising from the base of the calix; calicine leaflets from four to six, linear, three times shorter than the corolla, woolly, fringed with long hairs tipt with brownish red globules; corolla pale purple or flesh colour, varying to white, divided into four very shallow segments, which turn back; antheræ sagittate, purple, with two white horns at the base, and two little apertures for the discharge of the pollen; germen woolly, glandular at the base; capsule villose, truncate. It flowers twice in the year, though some say only in July and August, and is a native of the northern parts of Europe, on moist heaths, and moorish grounds.—This species is not inferior to many of the foreign Heaths in the delicacy and beauty of its flowers. It is distinguished from the other British Heaths, not only by the flowers growing in a pendulous cluster on the tops of the stalks, but by the leaves growing in fours, and forming a sort of cross; whence the trivial and English names. Our old writers call it *Low-Dutch Heath*, or *Besom Heath*. See the first species.

24. Erica Pubescens; *Hairy Heath.* Leaves rugged; flowers sessile, lateral; corollas ovate; style included. Stem ash-coloured, hispid, flexuose, erect, two feet high and more; branches scattered, seldom in whorls like the stem; branchlets filiform and capillary, short, wandlike; leaves in threes or fours, frequently four on the branches, and three on the branchlets, seldom all in fours, linear, obtuse, rugged, villose, incurved, grooved beneath, spreading, a line in length; flowers at the end of the branchlets, umbelled, two, three, or more together, abundant, blood-red, hirsute. According to Thunberg, this varies much in the branches, leaves, and flowers. It has its name from the pubescence of the flowers. The principal varieties are, 1. Hairy: with leaves in threes, and the corollas very finely hairy. 2. Hispid: with leaves in threes, and hispid. 3. Villose: with leaves in fours, rugged, and the branches in whorls. 4. Small-flowered: with the leaves on the branches in fours, on the branchlets in threes, hispid; corollas minute.—Native of the Cape.

25. Erica Abietina; *Fir Heath.* Flowers sessile; corollas fig-shaped; style included. Stem ash-coloured, rugged, erect, a foot high and more; branches and branchlets in a sort of whorl, from erect spreading; leaves in fours, lanceolate, subulate, grooved underneath, smooth, imbricate; flowers at the ends of the branches in racemes, nodding; peduncles blood-red, villose, the length of the leaves; bractes below the middle of the peduncle ovate, acute, ciliate, keeled, pale. This is remarkable for its thickset leaves and crowded golden blossoms, as well as its pulpy seed-vessels. It flowers in June and July.—Native of the Cape.

26. Erica Mammosa; *Breasted Heath.* Corollas fig-shaped; style standing out. Stem somewhat rigid, with white awl-shaped decurrent lines from the scars left by the fallen leaves; leaves awl-shaped, crowded, somewhat rugged on the edge; flowers in a sort of head, on very short purple peduncles, with very small remote bractes; calix blood-red, ovate, very short; corolla ovate, cylindric, blood-red, very long, with a blunt mouth. There is a scarlet variety, a beautiful plant, and which is common with us.—Native of the Cape.

27. Erica Caffra; *Caffre Heath.* Leaves pubescent; flowers heaped; corollas ovate; style standing out. This is the size of Juniper.—Native of the Cape.

28. Erica Sessiliflora; *Sessile-flowered Heath.* Flowers in a spike, sessile, bent down, oblong; corollas club-shaped; styles standing out. This a brown rugged shrub, determinately branched, somewhat rigid, having the appearance of a small Pinus Sylvestris. Leaves crowded very much together, linear, acute, deep green; spike terminating, surrounded by sessile, imbricate, broadish flowers.—Native of the Cape.

Leaves scattered.

29. Erica Fascicularis; *Bundled Heath.* Leaves several, linear, truncated; flowers in bundles; corollas fig-shaped; style included. Stem shrubby, upright, compound, two feet high; leaves crowded, scattered, almost filiform, an inch long, even, capillary at the base, from erect spreading a little, glandular near the tip; flowers tipped with green, terminating, fastigiate.—Native of the Cape.

** *Antheræ crested; Leaves in threes.*

30. Erica Triflora; *Three-flowered Heath.* Flowers terminating; corollas globular, bell-shaped; style included. Stem brown, smooth below, hispid at top, erect, a foot high; branches dichotomous, brown at bottom, and smooth above, ash-coloured, hirsute, erect, fastigiate; branchlets scattered all over the branches, filiform, frequent, hairy, rough, wandlike; leaves linear, subulate, entire, smooth, flat above, convex beneath, with a very slender groove, incurved, from erect spreading; flowers solitary, or two or three together, on very short drooping peduncles, ash-coloured, tomentose.—Native of the Cape.

31. Erica Baccans; *Arbutus-flowered Heath.* Leaves imbricate; corollas globular, bell-shaped, covered; style included. Stem erect, branched; flowers terminating in threes or thereabouts, nodding, the size of a pea, on purple peduncles, with alternate, remote, flesh-coloured bractes; calix flesh-coloured, lanceolate, the length of the corolla, keeled, bent in; corolla obtuse, red; antheræ awnless, very short, yellowish. It flowers in April and May.—Native of the Cape.

32. Erica Gnaphaloides; *Soft-leaved Heath.* Corollas ovate, covered; style included; stigma four-parted. It is a small smooth shrub, of a cinereous brown colour, erect, a span high; branches and branchlets dichotomous and trichotomous, filiform, from erect spreading, fastigiate; leaves ovate, entire, smooth, flat above, convex beneath, with a longitudinal groove, pressed close, the length of the internodes forming as it were jointed branchlets, a line and a half in length; flowers terminating, about three together, purple.—Native of the Cape.

33. Erica Corifolia; *Slender-twigged Heath.* Flowers umbelled; calices turbinate; corollas ovate; style included. Stem shrubby, compound; calix spreading, with ovate, purple leaflets; corollas purple; stigma headed.—It flowers in August, and is a native of the Cape.

34. Erica Articularis; *Jointed Heath.* Corollas ovate, acuminate; style included, longer than the calix. Flowers racemed, peduncled; corolla bell-shaped, white; style dark purple. —Native of the Cape.

35. Erica Calicina; *Calicined Heath.* Calices spreading very much, wheel-shaped; corollas ovate; style included. Calix and bracte white; corolla yellow; leaves three-sided; bractes alternate.—Native of the Cape.

36. Erica Cinerea; *Fine-leaved Heath.* Corollas ovate; style a little standing out; stigma capitate. Root perennial, woody; stems shrubby, about a foot high, with opposite branches; the bark ash-coloured; leaves linear, fleshy, spreading above, smooth and shining, transversely wrinkled, towards the end beset with a few scattered hairlike points; beneath having a longitudinal furrow, which is white from a woolliness apparent to the magnifier; the edge somewhat membranaceous, and when viewed with the microscope, appearing serrulate; the leaves when young have three flat sides, but when full-grown are nearly flat. Flowers in long, clustered, whorled, terminating spikes, sonorous when struck; they come out from the sides of the young shoots; those from the end-shoots are near each other, but scattered and bare; those from the small lateral branches generally in pairs; peduncles shorter than the flowers, purplish-brown, somewhat downy, the lower nodding, the upper upright, with a bracte about the middle; corolla three times as long as the calix, bluish-purple, shrivelling, and turning of a fawn colour, the clefts very shallow.—It flowers from June to August, and is a native of all parts of Europe, except the extreme southern and northern regions; and is also found in the Levant. It may be applied to the same purposes as the Common Heath; and the flowers are much more showy. For its propagation and culture, see the first species.

37. Erica Paniculata; *Panicled Heath.* Flowers minute; corollas bell-shaped; style standing out. This is a shrub, with linear upright leaves, almost even; flowers purple, very small, as are also the calices and peduncles; and are so abundant as to cover the whole plant. It flowers from February to April.—Native of the Cape.

38. Erica Australis; *Spanish Heath.* Leaves spreading; corollas cylindric; style standing out. This is an upright rigid shrub, with an ash-coloured bark; leaves in threes or fours, linear, obtuse, somewhat rugged on the edge; flowers terminating, two or three subsessile; calix rude, acute, keeled, imbricate with similar bractes; corolla scarcely club-shaped, obtuse, three times as long as the calix; the segments becoming hoary. It flowers in April and May.—Native of Spain and Portugal. See the twelfth species.

Leaves in fours.

39. Erica Physodes; *Expanded Heath.* Flowers subsolitary; corollas ovate, inflated; style included. Leaves patulous, broad-linear, keeled; calix ovate, smooth, coloured, one-third of the length of the corolla, which is the size of a pea, and viscid. The flowers are at the ends of the branches in a sort of umbel.—Native of the Cape.

40. Erica Empetrifolia; *Crowberry-leaved Heath.* Flowers sessile, lateral; corollas ovate. Stem brown, rugged, a foot high; branches in whorls like the stem, flexuose, erect; branchlets trichotomous and dichotomous like the branches; leaves in sixes, oblong, obtuse, incurved, above three-cornered, flat, beneath grooved, rugged, especially underneath, very finely ciliate, imbricate, a line in length; flowers aggregate, in whorls in the middle and at the ends of the branchlets; calicine leaflets lanceolate, ciliate, blood-red; corolla ovate, bell-shaped, hairy, rough at bottom, blood-red; style purple, curved, twice as long as the corolla, with the headed stigma standing out. It flowers in April and May.—Native of the Cape.

41. Erica Cernua; *Drooping Heath.* Flowers ovate, capitate; calices ciliate; antheræ included. The whole plant is smooth, brown, erect, a foot in height; branches scattered in threes, filiform, flexuose, erect; leaves ovate, obtuse, ciliate, flat above, convex beneath, grooved, imbricate; flowers terminating, drooping.—Native of the Cape.

42. Erica Retorta; *Crook-leaved Heath.* Leaves recurved; corollas ovate-oblong; style of a middling length. Stem frutescent, somewhat rugged, determinately branched; leaves ovate-oblong, terminated by a little bristle, convex above, smooth, shining; flowers terminating, corymbed, subsessile; calix red, lanceolate, with an awn at the end; corolla long, inflated, viscid, with a globular throat, and a four-parted acuminate short border; filamenta linear, membranaceous.—Native of the Cape.

43. Erica Margaritacea; *Pearl-flowered Heath.* Corolla pitcher-bell-shaped; style of a middling length. Flowers terminating, four or eight from the uppermost axils; peduncles filiform, shorter than the leaves; bractes linear, three in number; corolla white; tube pitcher-shaped, a little longer than the calix; segments of the border obtuse, patulous; filamenta white, shorter than the tube, bent in at the tip; antheræ ovate, compressed, brown, two-parted; germen red, having eight little knobs at top; style the length of the corolla, whitish; stigma headed, flat beneath, convex above, commonly four-lobed. This is a very pretty plant when laden with its pearly blossoms, which appear in May and June.—Native of the Cape.

**** Antheræ awnless, included; Leaves opposite.*

44. Erica Tenuifolia; *Small-leaved Heath.* Corolla and calix blood-red. The whole stem is smooth, erect, a span high; branches and branchlets filiform and capillary, erect; leaves opposite, lanceolate, smooth, convex beneath, with a slender groove, pressed close; flowers terminating, umbelled, in threes; calicine leaflets equalling the corolla, keeled; flowers blood-red; style included.—Native of the Cape.

45. Erica Passerinæ. *Passerine Heath.* Corollas bell-shaped; style standing out, (according to Thunberg, included.) Flowers solitary, terminating, peduncled; peduncles white, tomentose, generally longer than the flowers; calix bell-shaped, bluntish, four-parted, with ovate leaflets; filamenta the shortest of any; germen white, tomentose; stigma subcapitate. This has the herb of Passerina Ericoides, not to be distinguished from it; insomuch that Passerina Ericoides has entirely the herb of an Erica, with the flowers of Passerina. This is an instance of the intermixture of genera, which is not uncommon in the Cape plants.—Native of the Cape.

Leaves in threes.

46. Erica Albens; *White Heath.* Racemes pointing one way; corollas ovate-oblong, acute. Stem frutescent, with

determinate wandlike branches; leaves linear, three-sided, erect, even, longer than the internodes, sharpish: flowers in a sort of spike, white, with lanceolate white bractes on the peduncle; calix scariose, white, ovate, acuminate, half the length of the corolla, which is white, with the belly hyaline, and the border four-parted, narrowed, acute, funnel-form; antheræ bifid, obtuse, short; style shorter than the corolla.—Native of the Cape.

47. Erica Spumosa; *Six-angled Heath.* Corollas in threes, covered by a common calix; style standing out. A small shrub, with narrow branchlets; leaves ovate-oblong, three-sided, channelled; flowers terminating, nodding, sessile; calices globular, imbricate with roundish scales, keeled, and bent in at the tip, blood-red.—Native of the Cape.

48. Erica Capitata; *Woolly Heath.* Flowers sessile; corollas covered with a woolly calix; antheræ middling. Stem seldom erect, commonly decumbent, smooth, flexuose, filiform; branches filiform, flexuose, villose; branchlets capillary, frequent, tomentose; leaves ovate, spreading, rough with long hairs; flowers at the ends of the extreme branchlets, peduncled, one, two, or three together. This species is known by its globular flowers, covered with a greenish-yellow lanugo. It flowers in April, and continues till July.—Native of the Cape.

49. Erica Melanthera; *Black-anthered Heath.* Corollas bell-shaped, longer than the coloured calix; antheræ middling; style standing out. Stem shrubby, flexile; leaves linear, obtuse, even, patulous; flowers terminating, subumbelled, scattered in close parcels, nodding a little; peduncles the length of the corolla, purplish; bractes lanceolate, alternate, coloured; calix blood-red, obovate, more in breadth than length, keeled, with a dagger-point at the tip; corolla bell-salver-shaped, blood-red; tube the length of the calix; border spreading, generally longer than the tube; the segments roundish, ovate; anthers dark-coloured, bifid, the length of the border.—Native of the Cape.

50. Erica Thunbergii; *Thunberg's Heath.* Corollas flat, with a globular tube; antheræ middling; style standing out. Stem rufescent, round, seldom branched; leaves linear, even, sessile, acute, generally pressed close; flowers terminating, peduncled; bractes two, alternate, scariose, lanceolate. This is a beautiful species, conspicuous for its globose white tube and large deep-orange limb.—Native of the Cape.

51. Erica Absynthoides; *Wormwood Heath.* Corollas ovate, bell-shaped; style standing out; stigma funnel-shaped. This shrub is panicled, and grows to the same height as Wormwood; stem rufous; branches in threes; leaves linear, gibbous on the outside, subhirsute; flowers at the ends of the branchlets; corollas pale; antheræ very dark purple, bifid, within the mouth of the corolla; stigma purple, four-cleft. Thunberg informs us, that this species has four varieties, viz. 1. With a wandlike stem, and branches and leaves very hirsute and rugged. 2. With a wandlike hirsute stem and branches, and wrinkled villose patulous leaves. 3. With a panicled stem, very short branchlets, and the leaves a little rugged and hirsute. 4. With a panicled stem, longer fastigiate branchlets, and the leaves a little rugged and smooth.—Native of the Cape.

52. Erica Ciliaris; *Ciliated Heath.* Racemes pointed one way; corollas ovate, fig-shaped; style standing out. This plant is suffruticose, two feet high; leaves spreading very much, sessile, ovate, acute, reflex, and ciliate on the edge; raceme terminating, whorled by threes; style almost twice as long as the corolla. It flowers from July to September.—Native of Spain and Portugal. See the twelfth species.

53. Erica Hispidula; *Hispid Heath.* Stem hispid; leaves about three, ovate, acute, ciliate; corollas roundish. Stems decumbent, half a foot high, strigose or hairy; leaves subsessile, horizontal, patulous, even; flowers small, bell-shaped, bent towards the ground, scattered thinly; style longer than the corolla.—Native of the Cape.

54. Erica Petiolata; *Rosemary-leaved Heath.* Leaves oblong, petioled; corollas in threes, ovate, the length of the calix; antheræ standing out a little; style standing out. Stem round, flexuose, decumbent, rigid, smooth; branches scattered, opposite, or by threes, almost erect, bent in, flexuose, tomentose at top; flowers terminating, umbelled, on very short tomentose peduncles. It flowers from March to June.—Native of the Cape.

55. Erica Leucanthera; *White-anthered Heath.* Flowers in threes; calix white; corolla bell-shaped; antheræ and style standing out. Stem erect, smooth, a foot high and more; branches commonly in threes, pubescent, erect, wandlike; branchlets scattered, very frequent, filiform and capillary, pubescent, erect, leafy; leaves three-cornered, obtuse, pressed close, smooth, with a very slender groove underneath; flowers on very short peduncles, erect. This is distinguished by its white corolla, and awnless, projected, white anthers.—Native of the Cape.

Leaves in fours, or more.

56. Erica Tubiflora; *Tube-flowered Heath.* Leaves subciliate; corollas club-fig-shaped; antheræ and atyle included. Leaves linear, even, the upper ones ciliate; flowers terminating, solitary, sessile; corollas purple, acuminate, pubescent, several times longer than the calix; the segments lanceolate; style scarcely projected.—Native of the Cape.

57. Erica Curviflora; *Curve-flowered Heath.* Leaves smooth; corollas club-fig-shaped; antheræ and style included.—Native of the Cape.

58. Erica Coccinea; *Scarlet Heath.* Calices hirsute; corollas club-fig-shaped; anthers subincluded; style included; flowers copious; corollas pubescent.—Native of the Cape.

59. Erica Conspicua; *Long-tubed Yellow Heath.* Leaves smooth; corollas cylindric, curved, very long, hairy, with a revolute border; anthers subincluded; style standing out. It flowers from May to August.—Native of the Cape.

60. Erica Cerinthoides; *Honeywort-flowered Heath.* Corollas club-fig-shaped; stigma included, cruciate. Branches compound; leaves oblong, convex, even, grooved underneath, ciliate with spinules; flowers large, heaped on the side into a sort of head, sessile, pubescent; calix rough with white hairs, as it were doubled; corolla bright blood-red, rough also with white hairs, having the mouth obscurely four-cleft. It flowers most part of the year.—Native of the Cape.

61. Erica Fastigiata; *Pointed Heath.* Corollas salver-shaped, in bundles; style included. This is a small shrub with even branches, streaked in four rows; leaves linear, acuminate, three-sided, even, rugged about the edge, erect, the length of the internodes, but the upper ones longer; flowers erect, fastigiate, terminating; calix similar to the leaves; corolla with a cylindric patulous tube, a little longer than the leaves; border flat, red above, white underneath, the four segments subcordate; stamina shorter than the corolla; anthers scarcely emarginate.—Native of the Cape.

62. Erica Cubica; *Square Heath.* Calices four-cornered; corollas bell-shaped, acute; style included. Stem shrubby, determinately branched; leaves spreading, linear, acute, longer than the internodes, slightly incurved, on white petioles; flowers terminating, corymbed, on subtomentose peduncles, having bristle-shaped bractes in the middle; calix scariose, with the leaflets obcordate, keeled, and bent in; corolla half four-cleft, purple, with a pale base, twice as long as the calix; stigma obtuse.—Native of the Cape

63. Erica Denticulata; *Toothed Heath.* Calices toothletted; corollas ovate, funnel-shaped; style included. Stems distorted, as in Common Heath; leaves crowded together, spreading a little, subcylindric, even; flowers in terminating bundles; calix doubled; tube of the corolla long, ovate, the segments ovate, obtuse, spreading; anthers not longer than the corolla; stigma obtuse.—Native of the Cape.

64. Erica Viscaria; *Clammy-flowered Heath.* Flowers in racemes; corollas bell-shaped, glutinous; style included. Stem determinately branched; leaves linear, erect, acute, longer than the internodes, rugged at the edge; bractes calicine, rude, approximating; calix rude, awl-shaped, half the length of the corolla, which is purplish, with the segments erect and acute; antheræ bifid, with a cavity on the outside, and very short; style shorter than the corolla, but twice as long as the stamens, purple; stigma headed, four-lobed. It flowers in March.—Native of the Cape.

65. Erica Granulata; *Granulated Heath.* Calices subimbricate; corollas globular; style included; leaves linear, erect; flowers terminating, few, peduncled; calix scariose, very short; colour of the corollas red; anthers rugged, bifid at the tip, as it were two-horned; stigma headed. This resembles the 20th species.—Native of the Cape.

66. Erica Comosa; *Tufted-flowered Heath.* Flowers heaped; corollas ovate-oblong; style included. Branches heaped above the flowers; leaves linear, bluntish, erect; flowers heaped, lateral, below the top of the stalk; stigma headed.—Native of the Cape.

67. Erica Sparmanni; *Sparmann's Heath.* Leaves imbricate, ciliate; heads four-flowered; corollas tubular, strigoso-hispid; anthers subincluded. This species is remarkable for having the flowering heads divided into four flowers; before these are elongated, the head appears globular and echinate, as in Achyranthes, from the very spreading yellow bristles of the leaves of the involucre and calix. Corollas extremely hirsute, with a four-cleft mouth, the segments very short.—Observed by Sparmann far inland from the Cape.

68. Erica Concinna; *Flesh-coloured Heath.* Leaves in sixes or thereabouts, smooth; flowers terminating, umbelled: corollas cylindric, attenuated at the base. Branches smooth; leaves on the branches in sixes, on the branchlets in fours, petioled, erect, acerose, four lines in length; petioles smooth, scarcely half a line long; flowers from three to six in an umbel; peduncles filiform, somewhat hairy, two lines in length; corolla flesh-coloured, somewhat villose on the outside, scarcely an inch long, the thickness of a fowl's quill; filaments smooth, a little shorter than the tube of the corolla; anthers oblong, acuminate at the base, two-parted at top, as far as the middle, where they are fixed to the filaments, they are awnless, and of a brown colour; germen turbinate, concave above, crenulate on the edge; style red, the length of the stamina; stigma subcapitate, very dark red. It flowers in September and October.—Native of the Cape.

69. Erica Massoni; *Tall Downy Heath.* Leaves in eight rows, imbricate, pubescent; flowers capitate; corollas cylindric, fig-shaped. Stems shrubby, filiform, covered all round with leaves; leaves in fours, imbricate in eight rows, very short, elliptic, crowded, obtuse, ciliate, so that they appear villose; flowers in a terminating sessile head, tipped with green.—Native of the Cape.

70. Erica Rosaria; *Rose-scented Heath.* Leaves in four rows, obtuse, recurved, toothed; antheræ simple, included, with long pores; corollas ovate, viscid. The leaves resemble those of the 39th species, but are more distant and recurved. Flowers about the ends of the branches, on mostly axillary, long, viscid stalks, with two or three oblong, pellucid, concave bractes towards their middle; the flowers droop a little, and are remarkable for their fragrant scent, resembling ottar of roses. The calix-leaves are like the bractes, and about one-third as long as the corolla, which is of a pale straw-colour, ovate, inflated, viscid, its segments obtuse, crenate, but little spreading; stamina about the length of the calix, their filamenta purple at the summit, without any crest or appendages; antheræ brown, oblong, with pores two-thirds of their length; germen turbinate, furrowed, smooth; style twice as long as the stamina; stigma capitate, dark-coloured.—Imported lately from the Cape.

**** *Antheræ awnless, standing out; Leaves in threes.*

71. Erica Plunkenetii; *Smooth-twigged Pencil-flowered Heath.* Calices simple; corollas cylindric; anthers very long; style standing out. Leaves linear, crowded; flowers peduncled, nodding; calix shorter by half than the corolla, awl-shaped, keeled; corolla long, with the mouth obscurely four-cleft; stamens almost membranaceous, linear, obtuse, twice as long as the corolla. This resembles the following species; but the calix in this is simple, in that cartilaginous and imbricate.—Native of the Cape.

72. Erica Petiveri; *Downy-twigged Pencil-flowered Heath.* Calices imbricate; corollas acute; anthers very long; style standing out. This is a brown shrub; branches covered with branchlets in threes, crowded, very short, pubescent, clothed with squarrose leaves, which are also crowded, awl-shaped, subtrigonal, somewhat rugged at the edge, patulous, or standing out at the tip; flowers solitary at the end of the branchlets, drooping, on a short pubescent peduncle; calix subcartilaginous, angular, imbricate, with similar but shorter bractes, in threes; corolla cylindric, three times as long as the leaves, with a four-cleft, acute, yellow mouth. It flowers from January to March.—Native of the Cape.

73. Erica Nudiflora; *Naked-flowered Heath.* Branches tomentose; corollas cylindric, scattered. Stem shrubby, determinately branched, round, twisted; bark covered with a white nap, chinky, deciduous; branchlets very many, erect, leafy, many-flowered, very closely tomentose; flowers numerous, axillary, peduncled, nodding a little; peduncles the length of the leaves, capillary, pubescent; bractes none; corolla bell-cylindric, half the length of the peduncles, almost four times as long as the calix, smooth, four-cleft at the edge; segments small, blunt, upright; filaments erect, parallel, capillary, smooth; stigma headed, blunt.—Native of the Cape.

74. Erica Bruniades. Flowers scattered; corollas covered by a woolly calix; style standing out. Leaves linear, remote, patulous, with a few hairs scattered over them; the calices, clothed with a white wool, cover the whole subtruncate corolla. Thunberg makes this to be the same with the 48th species.—Native of the Cape.

75. Erica Imbricata; *Imbricate Heath.* Corollas bell-shaped, covered with the imbricate calix; style standing out. Flowers lateral, white; corolla covered with the white calix.—Native of the Cape.

76. Erica Umbellata; *Umbelled Heath.* Leaves acerose; corollas bell-shaped; style standing out. This little shrub has the habit of common Heath. Leaves short, smooth, with a white line underneath; umbellets naked, without an involucre; calix compound; corolla pale blue, angular; anthers gibbous, tailed at the base.—Native of Portugal. See the 12th species.

Leaves in fours, or more.

77. Erica Purpurascens; *Purple Heath.* Flowers scattered; corollas bell-shaped; style standing out. Leaves in threes or fours, but on the upper branchlets in fives, according to Seguier; calix awl-shaped; corollas cylindric.—Native of the south of Europe. See the twelfth species.

78. Erica Vagans; *Wandering Heath.* Flowers solitary; corollas bell-shaped; style standing out. Stem like that of Empetrum, shrubby, somewhat rugged; the extreme branches whitish and divaricating; leaves in fours, seldom in fives, linear, bluntish, sometimes smoothish, sometimes a little rugged, beneath convex and channelled, shortish, crowded; flowers on the sides of the branchlets, scattered, peduncled; calix coloured, erect, concave, very short; corolla blunt; anthers without any tail, two-parted; stigma simple. This and the 81st species are supposed to be the same.—Native of Africa. See the twelfth species.

79. Erica Herbacea; *Early-flowering Dwarf Heath.* Flowers directed all one way; corollas oblong; style standing out. This is a small shrub, from a foot to eighteen inches in height, decumbent at bottom, then upright, branched, flexible. Leaves almost covering the whole stem, deciduous, resembling those of the Fir, thickish, having a prominent nerve, narrow, very sharp, smooth; flowers at the tops of the branchlets, on short peduncles, alternate, among the leaves; they come out in autumn, continue closed in winter, and are then green; in May, the year following, the flowers are unfolded, the anthers which were enclosed are protruded, the calix and corolla opening are both changed into a pale purple or flesh-colour.—Native of Austria, Switzerland, and Silesia. See the twelfth species.

80. Erica Multiflora; *Many-flowered Heath.* Leaves in fives; flowers scattered; corollas cylindric; style standing out. Stem the height of a man; leaves in fours or fives, spreading, obtuse, gibbous at the base; flowers purplish. It flowers from June to November.—Native of the south of Europe. See the 12th species.

81. Erica Didyma; *Double-anthered Heath.* Leaves in fives; peduncles scattered, longer than the flower; corollas bell-shaped; anthers twin; style standing out. Stems twisted, trailing; branches between scored and angular, light reddish brown, the more slender shoots ash-coloured, all lateral, to seven or more rising from the same point in the manner of an umbel; leaves linear, somewhat like those of Fir, bowed sideways, smooth, but not glossy; flowers roundish, on long slender peduncles from the sides of the branches, beginning from below the middle, and extending to the ends, continuing on, at least in the cultivated plants, till the next season; corolla truly bell-shaped, pointed at the base, cloven near half way down; segments broad, soon coming to a bluntish point, spreading, generally of a pale flesh-colour, approaching to white, but sometimes with a deep tinge of purple; filaments capillary; somewhat flatted, white, as long as the corolla; seeds reddish brown.—Found on heaths; as on Goonhilly-downs, going from Helston to the Lizard Point, in Cornwall. It flowers from June to August. See the first species.

82. Erica Mediterranea; *Mediterranean Heath.* Leaves spreading; flowers scattered; corollas ovate; style standing out. Branches whitish, angular; leaves in fours, seldom in fives, even; flowers lateral; calix simple, coloured, lanceolate-acute, shorter by half than the corolla; style twice as long as the corolla. It flowers from March till May.—Native of the south of Europe. See the 12th species.

83. Erica Grandiflora; *Great-flowered Heath.* Leaves in sixes or thereabouts, acerose, smooth; flowers axillary, peduncled; corollas cylindric, subincurved, smooth; style elongated. It flowers from May to July.—Native of the Cape.

84. Erica Tetragona; *Four-sided Heath.* Leaves in threes; flowers in racemes, pointing all the same way; calix linear; corolla four-cornered, oblong; style included. Flowers yellow.—Native of the Cape.

85. Erica Pyramidalis; *Pyramidal Heath.* Antheræ awnless, included; corollas funnel-shaped, in fours; style a little protruded; leaves in fours, pubescent.—Native of the Cape of Good Hope.

Erigeron; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common oblong, cylindric, imbricate; scales subulate, upright, gradually longer, nearly equal. *Corolla:* compound, rayed; corollas hermaphrodite, tubular in the disk; females ligulate in the ray; proper of the hermaphrodite funnel-form; border five-cleft; of the female ligulate, linear, subulate, upright, commonly quite entire. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* in the hermaphrodites; germen very small, crowned with a down longer than its corollet; style filiform, length of the down; stigmas two, very slender. *Pericarp:* none; the calix converging. *Seeds:* in the hermaphrodites oblong, small; down long, hairy; of the females, extremely like the hermaphrodites. *Receptacle:* naked, flat. *Observe.* The inmost or intermediate florets of the disk are commonly males: one species has female florets. Essential Character. *Receptacle:* naked. *Down:* hairy. *Florets* of the ray linear, numerous, and very narrow.——The species are,

1. Erigeron Viscosum; *Clammy Erigeron.* Peduncles one-flowered, lateral; leaves lanceolate, toothletted in the middle, reflex at the base; calices squarrose; corollas radiate. Stem upright, stiff, striated, hairy, viscid, branched from the very bottom, near three feet high; leaves stem-clasping, thick, rough with hairs, having glands between them, exuding a clammy juice, strong-scented, rounded; on the branches linear, entire; flowers single, on pretty long footstalks, some from the side, others from the end of the stalk; they are yellow, have an agreeable odour, and appear in July.—Native of the south of France, Italy, Sicily, Portugal, and Spain, by way-sides, and on the borders of vineyards. It is used to drive away fleas and gnats, the strong scent, as some suppose, being disagreeable to those insects; but it is probable they are caught by the clammy juice of the leaves and stalks. The old name of this plant is *Great Sweet Fleabane*, or *Great Fleawort.*—It is propagated by seeds, which, if sown in autumn, will more certainly succeed than those which are sown in the spring. When the plants come up, they should be thinned, if they are too close, and kept clean from weeds till autumn, when they should be transplanted where they are to remain. They delight in a dry soil and sunny exposure. The second year the plants will flower and perfect their seeds, but the roots will continue several years, and annually produce their flowers and seeds.

2. Erigeron Graveolens: *Strong-smelling Erigeron.* Leaves sublinear, quite entire; branches lateral, many-flowered. Root annual; stems upright, purplish, hairy, and viscid, from eight or ten to eighteen inches in height, striated, branched the whole length; branches patulous, at bottom longer, alternate, simple, crowded, all flowering; leaves sessile, narrow, lanceolate, quite entire, a little scabrous, with very small hairs, viscid at the end, scattered over them, strong-smelling, of a russet dusky colour; corolla yellow, small, with a minute upright ray of five or six florets, purplish underneath. In gardens the stalks are stiff, and about three feet high; the flowers are produced in close bunches, from the side of the stalk towards the top; they appear in July, and in warm seasons the seeds ripen in England. It was formerly called *Small True Fleabane.*—It is a native of the south of France and Italy, and very common near Madrid.

3. Erigeron Glutinosum; *Glutinous Erigeron.* Leaves lanceolate-linear, hairy, viscid; peduncles one-flowered. Root

perennial; stems a long span in height, slender; leaves quite entire, narrow and sharp, villose and glutinous; peduncles alternate, one-flowered, few in number; semiflorets twenty and more in a flower, purple.—Native of the south of France and Spain, on mountains near the sea-coast. It flowers in August.

4. Erigeron Siculum; *Red-stalked Erigeron.* Lower calicine scales loose, longer than the flower; peduncles leafy; stems red; flowers without any ray, small; peduncles covered with linear, recurved, minute leaves. Annual.—Found in Sicily, and about Montpellier, in marshes. It flowers in August and September.

5. Erigeron Carolinianum; *Carolina Erigeron.* Stem panicled; flowers subsolitary, terminating; leaves linear, quite entire. Stems three feet high and more, straight, round, streaked, the thickness of the little finger at bottom, where they are red, growing gradually more slender upwards; the leaves from top to bottom are frequent, very narrow, and somewhat hairy: towards the top the stem puts forth branches, forming in the whole a sort of pyramid; these are covered with leaves, like those of the stem, only shorter and narrower; each of these bears one small flower, sometimes more; the root-leaves are like those on the stem, only shorter and blunter. Perennial.—It is a native of North America, and hardy enough to flower in the open ground, in July and August.

6. Erigeron Canadense; *Canadian Erigeron.* Flowers in panicles, hairy, rough; leaves lanceolate, ciliate; root annual; stem firm, hairy, sometimes three or four feet high, frequently crooked, much branched towards the top, and even from the middle; the branches gradually shorter, and forming a long cone; flowering-heads numerous, or simple, on branched slender peduncles; florets very small.—It came originally from North America, but now has the appearance of being indigenous in many parts of Europe; it is not uncommon about London, and in Glamorganshire, on cultivated grounds, and on rubbish. It flowers in August. Petivers calls it *White Golden Rod.* This, with the seventh, thirteenth, and fourteenth species, are preserved in botanic gardens for the sake of variety, but are seldom admitted into gardens for pleasure.

7. Erigeron Bonariense; *Buck's-horn Erigeron.* Leaves rolled back at the base. Root annual; stem angular, firm, hirsute, branched at top; leaves alternate, lanceolate, hirsute, and soft, sessile, the lower ones tooth-gashed, the upper entire, narrower, and almost linear, towards the base waved, the midrib more prominent and hirsute; flowers on the top of the stem, and at the extremities of the branches.—It flowers in July and August, and is a native of Buenos Ayres, in South America. It is an annual plant, and, like the thirteenth species, when once admitted into a garden, and suffered to scatter its seed, will become a very troublesome weed, although it is very serviceable to cover rubbish or rock-work.

8. Erigeron Jamaicense; *Jamaica Erigeron.* Stem few-flowered, subvillose; leaves wedge-form, lanceolate, with two serratures on each side. Root almost single, but sometimes subdivided, descending; stems erect, or ascending, often a span high, filiform, pubescent, almost single; flowers subsolitary, terminating, peduncled, whitish; those on the top of the stem resemble Groundsel flowers, composed of many small yellow florets set close together, encircled by many whitish, long, narrow semiflorets.—Native of Jamaica.

9. Erigeron Philadelphicum; *Spreading Erigeron.* Stem many-flowered; leaves lanceolate, subserrate, those on the stem half stem-clasping; floscules of the ray capillaceous, the length of the disk: perennial.—It flowers from June to August, and is a native of North America, where it was observed, as well as in Canada, by Kalm.

10. Erigeron Purpureum; *Purple Erigeron.* Stem many-flowered, hairy; leaves oblong, somewhat toothed, stem-clasping; corollas of the ray capillaceous, longer than the disk. Root perennial; stem herbaceous, branched, a foot or more in height; flowers panicled; corollets of the ray very numerous, purple, of the disk yellow.—It flowers in July and August, and is a native of Hudson's Bay.

11. Erigeron Ægyptiacum; *Egyptian Erigeron.* Leaves half stem-clasping, spatulate, toothed; flowers globular. Root annual; stem simple, upright, a foot and half high, somewhat streaked, ash-coloured, pubescent, and somewhat viscid; flowers panicled, terminating, four or five, peduncled, roundish, on purplish peduncles; corolla florets minute, those in the ray naked and abundant; style cloven, yellow, capillary, quickly disappearing.—Native of Sicily and Egypt.

12. Erigeron Gouani; *Cluster-flowered Erigeron.* Flowers heaped; calices scariose; leaves lanceolate, somewhat toothed, scabrous about the edge. Root annual, bitter; stem upright, round, a foot high, simple, with a few upright hairs; flowers panicled; corollas whitish, with white down; calix roundish, imbricate; scales lanceolate, naked, convex, close, scariose about the edge, bluntish, not patulous, with a subulate tip. It flowers in July and August.—Native of the Canary Islands.

13. Erigeron Acre; *Blue Erigeron.* Peduncles alternate, one-flowered; root perennial, or, according to some, biennial, fibrous, acrid; stems from six to eighteen inches high, upright, somewhat angular, hairy, often purple, in some scarce branched at all, in other plants very much so. The upper part of the stem is divided into alternate branches, each bearing a single flower, which never expands, and is externally purple, but internally yellow, with a cavity in the middle.—It is often found in dry lofty pastures, especially in sandy and calcareous soils, and upon old walls. It has been found growing at the Block-house at Gravesend, and near Charlton wood, but is not often seen near London. It flowers from July to September. Cows and goats refuse to eat it. The Germans take a decoction of it to attenuate viscid phlegm. English botanists have named it *Blue-flowered* or *Purple Fleabane*, which name is also applied to several other of this genus, and tends very much to confound it with the genus *Conyza*, to which the intelligent reader is referred.

14. Erigeron Alpinum; *Alpine Erigeron.* This so strongly resembles the preceding species, that Haller suspects it to be only a variety. It has frequently a higher stem, but the height varies much in both; the flowers are larger, the semiflorets more numerous, the leaves longer, the feather dense and whitish.—Native of Alpine pastures. Found on Ben Lawers, and other high mountains in Scotland. Perennial; flowering in July and August. It may be propagated by seeds, in a shady situation and moist soil. See the first species.

15. Erigeron Uniflorum; *Dwarf Erigeron.* Stem one-flowered; calix hairy. Root perennial; stems a finger's length; leaves few, lanceolate, almost smooth on the upper surface, but with spreading hairs scattered over the lower; the stem-leaves often sublinear, the root-leaves oblong. The flower is as large as in the foregoing species, thick; the scales covered with a white nap, lanceolate, broader; all the semiflorets ligulate, with no imperfect ones, sometimes purple. All the varieties with one and many flowers, with a smooth and hairy calix, with blue and white flowers, make but one species.—It flowers in August and September; and is a native of the European mountains, from Lapland to Italy.

16. Erigeron Gramineum; *Grass-leaved Erigeron.* Stem one-flowered; leaves linear, ciliate, scabrous. This is a small perennial plant, guarded with fading dry leaves.—Native of Siberia.

17. Erigeron Camphoratum; *Virginian Erigeron.* Leaves lanceolate-ovate, villose; serratures cartilaginous at the tip. —This plant is annual, and a native of Virginia.

18. Erigeron Japonicum; *Japan Erigeron.* Leaves sessile, obovate, serrate, villose; flowers panicled. Annual: stem simple, filiform, hairy, upright, a foot high; leaves attenuated to the petioles, half stem-clasping, obtuse, upright, an inch in length; flowers terminating; feather simple, ferruginous.—Native of Japan, where it flowers in June.

19. Erigeron Scandens; *Climbing Erigeron.* Leaves ovate, serrate, villose; flowers axillary; stem climbing, filiform, branched, purplish, smooth. Leaves from each bud three or four, subsessile, sharp, with setaceous teeth, villose on both sides, half an inch in length; flowers among the leaves, axillary, solitary.—Native of the Cape of Good Hope.

20. Erigeron Tuberosum; *Tuberous-rooted Erigeron.* Leaves linear; branches one-flowered; stem suffruticose. Root perennial, bitten; stem short, woody; branches simple, one-flowered; flowers yellow, terminating, sessile; feather gray.—Native of the south of France, and Syria.

21. Erigeron Fœtidum; *Stinking Erigeron.* Leaves lanceolate-linear, retuse; flowers corymbed; root perennial, thick, fibrous, from which arise several upright hairy stalks, near four feet high, putting out several side-branches. The stem is terminated by several large corymbs of golden-coloured flowers, which appear late in the autumn, continue in beauty during great part of the winter, fade in the spring, and are sometimes succeeded by oval seeds, which ripen in England; the stems generally decay the second year, and are then supplied by new ones from the same root; the old ones, with their green hairy leaves, remaining in vigour until the young ones are grown to a considerable height. It has been long cultivated in the gardens of curious Europeans. It is too tender to thrive in the open air in this country, so the plants should be kept in pots; and if in the winter they are placed in a common frame, where they may have a large share of free air in mild weather, and screened from hard frosts, they will thrive better than with tender treatment. It is easily propagated by cuttings, which, if planted in May, will readily put out roots, and the young plants will flower the autumn following.

22. Erigeron Obliquum; *Oblique-leaved Erigeron.* Very much branched; leaves ovate, oblique. Annual: stem herbaceous, a hand high, round, erect, hairy, branching very much; branches from all the axils, the lower ones gradually longer, diffused at top, dichotomous, opposite; flowers solitary, the length of the peduncle, one-flowered, copious; calix cylindric, pubescent, with numerous, equal, subulate, approximating leaflets; corollas yellow; stigmas of the disk erect, of the ray patulous.—Native of the East Indies.

23. Erigeron Tricuneatum; *Wedge-leaved Erigeron.* Somewhat shrubby; leaves wedged, three-lobed. A small shrub, very much branched or panicled, leafy; flowers terminating, sessile, several, heaped together, the length of the leaf; calix the size of a Lentil-seed.—Native of Mexico.

24. Erigeron Pinnatum. Leaves pinnatifid, toothed; stem herbaceous, upright, a foot high, somewhat hispid, simple; flowers terminating, subglomerate, yellow; feather white.—Native of the Cape of Good Hope.

25. Erigeron Sumatrense. Tomentose: flowers raceme-panicled; leaves lanceolate, subserrate; stem three feet high and more, round, streaked, tomentose, red; peduncles long, raceme-panicled, with one or two narrow lanceolate leaves on them, generally entire.—Native of Sumatra.

26. Erigeron Sericeum; *Silky-leaved Erigeron.* Flowers panicled; leaves ovate-lanceolate, tomentose, silky, entire, and serrate, appendicled at the base; stem upright, simple; tomentose; panicle diffused.—Native of Java.

27. Erigeron Hirsutum. Stem hispid; leaves linear-lanceolate, subserrate, very hairy on both sides. Stem herbaceous, two feet high, erect, round; flowers few, in a terminating erect panicle; florets in the disk yellow, in the ray stiff, quite entire, blue, many.—Native of China, near Canton.

28. Erigeron Rivulare. Leaves wedge-shaped, acute, rough with hairs, toothed on both sides at the tip, ciliate on the edge, those on the stem sessile; stem almost simple, erect, few-flowered.—Annual: native of Jamaica and Hispaniola.

29. Erigeron Decurrens. Leaves decurrent, linear, tomentose; flowers panicled; stem erect, striated, pubescent, tomentose at top; branches woody, pedicels capillary, with a pair of minute leaflets towards the tip; calices villose; scales bristle-shaped, shorter than the down; corollas of the ray naked.—Native of Arabia.

30. Erigeron Incanum. Leaves linear, tomentose, toothed a little; flowers corymbed. This is a shrub with tomentose branches; corymbs terminating, many-flowered; calix subvillose, with linear leaflets; corollets of the ray naked; down ferruginous, longer than the calix.—Native of Arabia Felix.

Eringo. See *Eryngium.*

Erinus; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth five-leaved; leaves lanceolate, upright, nearly equal, permanent. *Corolla:* one-petalled, unequal; tube ovate-cylindric, length of the calix, bent back; border flat, five-parted; divisions equal, obcordate. *Stamina:* filamenta four, very short, within the tube of the corolla, of which the two opposite ones are a little longer. Antheræ small. *Pistil:* germen somewhat ovate; style very short; stigma headed. *Pericarp:* capsule ovate, rolled up in the calix, two-celled, gaping two ways. *Seeds:* numerous, small. Essential Character. *Calix:* five-leaved. *Corolla:* border five-cleft, equal, with the lobes emarginate; upper lip very short, reflex. *Capsule:* two-celled.——The species are,

1. Erinus Alpinus; *Alpine Erinus.* Flowers racemed; leaves spatulate; root perennial. The root-leaves form a thick tuft close to the ground; they are all linear-spatulate, pubescent, with a few serratures at the end on both sides; stems many, very simple, a hand high, round, pubescent, upright, the side ones barren and decumbent; flowers alternate, separated by leaves like those on the stem, but smaller, and forming an upright simple raceme; corolla funnel-shaped. The leaves are about half an inch long, and one-eighth of an inch broad, of a dark green, on the stem alternate; the flower-stalk is scarcely two inches high; the flowers are in a loose raceme, and purple; they appear in May, or earlier, and sometimes are succeeded by ripe seeds in July. This is a desirable little plant for the decoration of rock-work, growing in close tufts, and producing its numerous lively purple flowers during most of the summer months.—Native of Germany, of the Swiss Alps, of the Pyrenees, and the south of France. This is propagated by parting the roots in autumn; requires a shady situation, and a loamy soil without dung.

2. Erinus Africanus. Flowers lateral, sessile; leaves lanceolate, somewhat toothed; stem herbaceous, branched, a span long, declined; flowers solitary, in the axils of the leaves, purple, slender.—Native of Africa.

3. Erinus Capensis. Flowers spiked; leaves linear, toothed; perennial. Stem erect, round, pubescent, two feet high; spike terminating, oblong, imbricate, with broader, ovate-lanceolate, toothed bractes; corolla yellow, smelling very sweet; tube filiform, three times as long as the calix; style filiform, the length of the tube.—Native of the Cape.

4. Erinus Fragrans. Leaves lanceolate, oblong, toothed; divisions of the border entire; stem simple; corollas tomentose on the outside, of a dark colour, fragrant at night.—Native of the Cape of Good Hope.

5. Erinus Peruvianus. Leaves lanceolate-ovate, serrate.—Native of Peru; said also to be found at the Cape.

6. Erinus Maritimus. Leaves lanceolate, quite entire, smooth; divisions of the border cloven half way.—Native of the Cape of Good Hope.

7. Erinus Tristis. Leaves oblong, gashed, toothed; divisions of the border emarginate. The flowers are sweet, but of a dull colour.—Native of the Cape of Good Hope. This, and the five preceding species, require the protection of the dry-stove, and may be increased by cuttings.

8. Erinus Laciniatus. Leaves laciniate. See *Buchnera Americana*, and *Verbena Aubletia*.—This, together with the ninth, tenth, eleventh, twelfth, and thirteenth species, must be placed in the bark-stove. The eleventh, being a shrubby plant, will continue several years, but the others are annual. They are propagated by seeds sown in pots filled with light earth, and plunged into a moderate hot-bed, where sometimes they will come up in five or six weeks; but they frequently do not vegetate till the following spring, especially when the seeds have been kept long. When the plants are fit to remove, they should be each planted in a separate small pot filled with light earth, not too rich with dung, and then plunged into the bark-pit. When they have taken new root, treat them as other plants from the same countries, by admitting proper air when the weather is warm, and frequently refreshing them with water; with this management, the annual sorts will flower in July and August, and often ripen their seeds in autumn, if brought forward early in the spring. The shrubby sort must also frequently be refreshed with water in winter, but not in large quantities, nor in very cold weather: the plants will flower and perfect their seeds in the second year.

9. Erinus Tomentosus. Tomentose: stems procumbent; flowers sessile, axillary. Stems trailing, about six inches long. At the joints, just above the leaves, come out the flowers, sitting very close to the stems; they are white, and are succeeded by round capsules. At a distance, this plant bears a great resemblance to *Sea Cudweed*.—Native of Vera Cruz.

10. Erinus Americanus. Stem erect; leaves lanceolate, opposite; flowers loosely spiked, terminating. Stem upright, two feet high; towards the top, two smaller branches opposite and erect; these and the middle stalk are terminated by loose spikes of purple flowers, succeeded by oval capsules.—Native of Vera Cruz.

11. Erinus Frutescens. Stem upright, shrubby; leaves ovate-lanceolate, serrate, alternate; flowers axillary, single, or two and three at a joint, sessile, white, succeeded by round capsules.

12. Erinus Verticillatus. Stem branching, trailing; leaves ovate, serrate, smooth, opposite; flowers in whorls, sessile, white, making but little appearance, and succeeded by round capsules—Native of Vera Cruz.

13. Erinus Procumbens. Stems procumbent; leaves ovate, smooth; flowers solitary, axillary; peduncles longer; they are bright yellow, on long slender peduncles, succeeded by oval capsules.—Native of Hispaniola.

Eriocaulon; a genus of the class Triandria, order Trigynia.—Generic Character. *Calix*: perianth common, globose-depressed, imbricate; scales lanceolate, equal, permanent. *Corolla:* universal uniform, convex; proper three-petalled; petals equal, lanceolate, obtuse, villose at the tip, attenuated at the base, and connected into a style-shaped pedicel, which is hairy. *Stamina:* filamenta three, capillary, sitting on the germen; antheræ oblong, versatile. *Pistil:* germen slender, superior, under the stamina; styles three, capillary, short; stigmas simple. *Pericarp:* none; calix unchanged. *Seeds:* solitary, crowned with the corolla. *Receptacle:* chaffs of the size and figure of the calicine scales, one-flowered, very many. Essential Character. *Calix:* common, an imbricate head. *Petals:* three, equal. *Stamina:* upon the germen.——The species are,

1. Eriocaulon Triangulare. Culm triangular; leaves ensiform; heads ovate.—Native of Brazil.

2. Eriocaulon Quinquangulare. Culm quinquangular; leaves ensiform.—Native of the East Indies.

3. Eriocaulon Sexangulare. Culm hexangular; leaves ensiform. The leaflets surrounding the head, instead of an universal calix.—Native of the East Indies.

4. Eriocaulon Setaceum. Culm hexangular; leaves setaceous. This is a small annual herb, tufted, and bent back in a ring; heads terminating, small, oblong, subacute; flowers aggregate, male and female in the same common, globular, chaffy receptacle; calix none. The male flowers have three petals to the corolla, somewhat hirsute on the outside, and six stamina; the females have six petals, and resemble the males; they have a roundish three-cornered germen, and three styles. The roots are dispersed in the water.—Native of the East Indies, and of Cochin-china.

5. Eriocaulon Decangulare. Culm decangular; leaves ensiform; flowers in a head; males in the disk, and females in the circumference.—Native of the swamps of North America.

6. Eriocaulon Quadrangulare. Culm quadrangular; leaves ensiform; head of flowers globular, truncate at the base. This is an annual herb, with an upright, naked, four-cornered culm, eight inches high; leaves short, smooth, few; head of flowers whitish, flattish at the base, with roundish scales, attenuated at bottom, one-flowered, closed; petals two, subconcave, blunt at the tip, toothed; seeds three, ovate.—Common in every part of Cochin-china.

7. Eriocaulon Septangulare. Stalk a span high, seven-angled, solitary, upright, simple, naked, twisted; leaves two inches long, sharp-pointed, with an internal net-work of cells; head of flowers terminal, solitary, variegated with dark purple and white; male flowers four-stamined.—Found in lakes in the isle of Skye, and in Galway in Ireland.

Eriocephalus; a genus of the class Syngenesia, order Polygamia Necessaria.—Generic Character. *Calix:* common upright; scales ten, ovate, equal, converging, of which the five exterior are keeled, the interior flat. *Corolla:* compound, rayed; corollules hermaphrodite, twice as many in the disk; females five in the ray; proper of the hermaphrodite funnel-form; border five-cleft, patulous; of the ray ligulate, obcordate, with three-lobed equal tips. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* in the hermaphrodites; germen very small, naked; style simple; stigma two-cleft, sharp. In the females, germen ovate, naked; style simple; stigma acuminate, inflex. *Pericarp:* none; calix scarcely changed. *Seed:* to the hermaphrodites, none; females solitary, obovate, naked. *Receptacle:* naked, flat, or else a down of the calix in a double row is interspersed both between the hermaphrodite and female floscules. *Observe.* A compressed corpuscle adheres to the base of each calicine scale. Essen. Char. *Receptacle:* subvillose. *Down:* none. *Calix:* ten-leaved, equal. In the ray five floscules.——The species are,

1. Eriocephalus Africanus; *Cluster-leaved Eriocephalus.* Leaves entire and divided; flowers corymbed. This plant has a shrubby stalk, from four to six feet high, putting out

many side-branches the whole length. The leaves are woolly, coming out in clusters, some taper and entire, others divided into three or five parts, which spread open like a hand; when bruised, they emit a strong smell, approaching to that of Lavender Cotton, but not quite so rank. The flowers are produced in small clusters at the ends of the branches, and stand erect. They appear in autumn, but do not produce seeds in this country. It flowers from January to March, and is a native of the Cape of Good Hope.—This plant is propagated by cuttings, which may be planted any time from May to the middle of August; for if they be planted later in the season, there will not be sufficient time for them to get good root before the winter: these cuttings should be planted in small pots filled with light earth, and plunged into a very moderate hot-bed, where they should be shaded from the sun till they have taken root; they must also be refreshed with water twice or thrice a week, but they should not have too much at a time, for much moisture is very hurtful to these plants. As soon as the cuttings have taken root, they should be gradually inured to the open air, to prevent their shoots from being drawn up weak; afterwards they should be removed into the open air, and placed in a sheltered situation, where they may remain till October, when they must be placed in an airy glass-case, that they may have as much sun as possible, and enjoy the free air in mild weather, but be at the same time secured from frost and damp air, either of which will soon destroy them. During the winter, they must be sparingly watered, for the reason before given; but in the summer, when the plants are placed in the open air, they will require frequent refreshment with water in hot weather. Both this and the next species retain their leaves all the year, and are therefore a valuable addition to the variety of exotics in the winter season.

2. Eriocephalus Racemosus; *Silvery-leaved Eriocephalus.* Leaves linear, undivided; flowers racemed. It has the stature and appearance of the preceding species, but all the leaves are undivided; flowers on pedicels shorter than the calix; outer scales of the calix four, ovate, subtomentose, with a very soft wool from the bosom of them.—Native of the Cape of Good Hope.

Eriophorum; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spike on all sides imbricate; scales ovate-oblong, flat-inflected, membranaceous, loose, sharp-pointed, separating the flowers. *Corolla:* none. *Stamina:* filamenta three, capillary; antheræ upright, oblong. *Pistil:* germen very small; style filiform, length of the calicine scales; stigmas three, longer than the style, bent backwards. *Pericarp:* none. *Seed:* three-sided, acuminate, furnished with villose hairs longer than the spike. *Observe.* Some species are polygamous. Essential Character. Glumes chaffy, imbricate every way. *Corolla:* none. *Seed:* one, surrounded with a very long wool.—This genus consists of bog plants, and are seldom preserved in gardens. They may, however, be planted in pots filled with bog earth, set in pans wherein water is constantly kept; or by the side of ponds or other waters.——The species are,

1. Eriophorum Vaginatum; *Mountain* or *Single-spiked Cotton Grass.* Culms sheathed round; spike scariose; root-leaves obscurely three-cornered, sharp, streaked on two sides; convex on one side, flat on two sides. Scape twice as long as the leaves, flattish on one side, streaked; stem-leaves awnless, sheathing, (sheath swelling a little,) the uppermost purple at the base. Ray calls this plant *Hare's-tail Rush*, and in Westmoreland it is named *Moss-Crops;* which is also applied to the third species, as they do not distinguish between them. Sheep are very fond of both, from which they derive this common name.—Native of bogs in cold barren situations, in various parts of Europe. It is not very general in England; but is found on Shirley common, near Croydon; near Lynn; on Birmingham heath; and is often met with in all the northern counties; upon Elsemere meers in Shropshire; and on Pillin moss in Lancashire.

2. Eriophorum Polystachion; *Many-spiked Cotton Grass.* Culms columnar; leaves flat; spikes peduncled.—Native of the Cape of Good Hope.

3. Eriophorum Angustifolium; *Narrow-leaved Cotton Grass.* Culms columnar; leaves channelled, three-sided; spikes peduncled. Stem from nine inches to a foot or more in height, upright, smooth, with two joints projecting a little, covered throughout its whole length with the sheaths of the leaves. Those next the root are of a chestnut colour, short, lanceolate, streaked, marked with transverse lines, which give them a reticulated appearance; floral leaves three or four, of unequal lengths, forming sheaths at bottom, terminate the stalk, from the axils of which the spikelets proceed. In Germany, and the more northern parts of Europe, the down of this plant has been manufactured into various articles of dress, paper, and wicks for candles. In some parts of Sweden, the peasants stuff their pillows with it, whence it is called *poor man's pillow.* It becomes brittle when quite dry. Early in the spring, cattle crop the leaves before the grasses are sufficiently grown.—Common on moors and boggy ground; insomuch that they are often white all over with it, in June and July, when it is in seed. It flowers in April and May.

4. Eriophorum Virginicum. Culms leafy, columnar; leaves flat; spikes upright, compact, leafy, large, brown, or gold-coloured.—Native of Virginia.

5. Eriophorum Cyperinum. Culms columnar, leafy; panicle superdecompound, proliferous; spicules mostly in threes.—Native of North America.

6. Eriophorum Alpinum. Culms naked, three-cornered; spike shorter than the down. Thick tufts of culms and leaves rise from the root; spikelets erect, having no sheaths: the least of all the species, swelling only one or two lines in length, pale, yellowish brown, with white hairs much longer than the spikelet, which is made up of lanceolate, acuminate, imbricate glumes, the lowest longer and broader than the rest, divided by a nerve that stands out, and is extended into a point; seed very small, yellowish.—Native of the mountains of Lapland, Sweden, Denmark, Silesia, Carniola, Switzerland. It flowers in June and July.—It was found in a moss, about three miles east of Forfar, Angusshire, Scotland.

Erithalis; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, pitcher-form, five-toothed, permanent. *Corolla:* one-petalled, five-parted; tube very short; divisions lance-shaped, long, bent back. *Stamina:* filamenta five, subulate, patulous, scarcely the length of the corolla; antheræ oblong, linear, erect. *Pistil:* germen inferior, roundish; style filiform, compressed above, length of the stamina; stigma sharp. *Pericarp:* berry globose, crowned, ten-celled. *Seeds:* small. Essential Character. *Corolla:* five-parted, with the divisions bent back. *Calix:* pitcher-shaped. *Berry:* ten-celled, inferior.——The species are,

1. Erithalis Fruticosa. Leaves opposite; corymbs compound. This is an upright elegant branching tree, fifteen feet in height; racemes compound, corymbed, axillary, opposite; flowers numerous, caducous, with white petals, mostly six-stamined, with a six-cleft calix and corolla, smelling exactly like the common Syringa.—Native of Jamaica and Martinico. Jacquin describes another plant, which is a native of Curaçao, and probably only a variety of this species, arising from its growing in the clefts of rocks, where there is

no earth. It is a shrub two feet high, with procumbent diffused branches; the leaves are thicker, and numerous; the berry and flowers smaller; the former entirely void of scent, the latter whitish, or very seldom purple.

2. Erithalis Polygama. Leaves obovate; flowers axillary; males cymed; hermaphrodites solitary.—Native of the Society Isles. It has a variety with narrower leaves.

Ernodea; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four-parted, small, superior; segments erect, acute, equal, permanent. *Corolla:* one-petalled, salver-shaped; tube four-cornered, elongated; border four-parted; segments lanceolate, revolute. *Stamina:* filamenta four, inserted in the middle of the tube, awl-shaped, longer than the corolla; antheræ erect, acuminate. *Pistil:* germen four-cornered, inferior; style filiform, longer than the stamina; stigma obtuse, emarginate. *Pericarp:* berry roundish, crowned by the calix, two-grooved, two-celled. *Seeds:* solitary, hemispherical, striated. Essential Character. *Calix:* four-parted. *Corolla:* one-petalled, salver-shaped; berry two-celled. *Seeds:* solitary.——The only species hitherto discovered is,

1. Ernodea Littoralis. Root perennial; stem square, smooth; leaves nearly sessile, acute, with a spinous point. Leaves on the branchlets, opposite, sessile, an inch and a half long, lanceolate, attenuated to both ends, veinless, obscurely three-nerved or five-nerved, very smooth on both sides, shining, quite entire, mucronate, cusped, stipuled, surrounding the branch, truncate, ciliate; flowers axillary, opposite, sessile, yellowish. It varies with broader and narrower leaves. Browne has named this plant *Knoxia*, probably from Knox, who resided many years in the island of Ceylon, and published an account of it.—Native of Jamaica, frequently found near the shore in the parish of St. George, running three or four feet or more along the ground, throwing out a few spreading branches as it creeps along.

Erodium; a genus of the class Monadelphia, order Pentandria.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, acute, concave, permanent. *Corolla:* petals five, obcordate or ovate, spreading, large; nectary, five scales alternate with the filamenta, and milliferous glands placed at the base of the stamina. *Stamina:* filamenta five, awl-shaped, connected at the base with the scales into the shape of a pitcher, but spreading at top, shorter than the corolla; antheræ oblong, versatile. *Pistil:* germen five-cornered, beaked; style awl-shaped, longer than the stamina, permanent; stigmas five, reflex. *Pericarp:* capsule five-grained, beaked, the cells opening inwards, each having a long tail fixed to it, which becomes spiral, and is hairy or bearded on the inside. *Seeds:* solitary, (seldom two together,) ovate-oblong. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Nectary:* five scales, alternate with the filamenta, and glands at the base of the stamina. *Fruit:* five-grained, with a spiral beak, bearded on the inside.—For the propagation and culture of this genus, see *Geranium.*—— The species are,

* *Leaves compound, or pinnatifid.*

1. Erodium Absynthoides; *Wormwood-leaved Crane's-bill.* Caulescent: peduncles four-flowered, or thereabouts; leaves interruptedly bipinnate-laciniate; segments linear.—Found in Armenia by Tournefort, and on Mount Olympus by Dr. John Sibthorp.

2. Erodium Chrysanthum; *Golden-flowered Crane's-bill.* Almost stemless: peduncles four-flowered; leaves decompoundedly pinnate, laciniate, silky. This species is very distinguishable by its yellow flowers.—Found on Mount Parnassus, by Sibthorp.

3. Erodium Trichomanifolium; *Maidenhair-leaved Crane's-bill.* Stemless: scapes leafless, four-flowered; leaves bipinnatifid, hirsute. This differs from the preceding species, in having the flowers flesh-coloured, marked with lines; the leaves smaller, and less cut; the scapes leafless and radical.—It was discovered by Billardiere on Mount Libanus.

4. Erodium Pulverulentum; *Hoary-leaved Crane's-bill.* Caulescent; peduncles many-flowered; leaves decompoundedly laciniate, mealy, hoary. The whole of this plant is covered with frequent, short, villose hairs, whence it has the appearance of being dusty.—Found in the kingdom of Tunis in Africa.

5. Erodium Crassifolium; *Upright Crane's-bill.* Umbels many-flowered; leaves pinnatifid, laciniate, thick; segments linear.—Native of the island of Cyprus. It flowers in April and May.

6. Erodium Fœtidum; *Stinking Crane's-bill.* Almost stemless; scapes radical, many-flowered; leaves interruptedly bipinnatifid; petals roundish. All the leaves are heaped about the root; they are hoary with hairs, the whole forming a triangle; calices large, striated, very hirsute; leaflets blunt, membranaceous at the edge, ending in a short awn; corolla large, blue, purple, or red. Lobel reports this plant to be insufferably fetid; others say, it is singular in having a very strong nauseous smell; and Gouan asserts, that its smell is strong, but neither nauseous nor musky.—Native of the country about Montpellier.

7. Erodium Macrademum; *Spanish Crane's-bill.* Subcaulescent: scapes radical, many-flowered; leaves interruptedly bipinnatifid; petals ovate. The herb of this plant exactly corresponds with that of the preceding species.—Native of Spain.

8. Erodium Supracanum; *Silky-leaved Crane's-bill.* Almost stemless; scapes radical, two-flowered or thereabouts; leaves interruptedly bipinnatifid, thickish, silk-hoary on the upper surface.—Found in Montserrat in Catalonia.

9. Erodium Petroselinum; *Parsley-leaved Crane's-bill.* Peduncles two-flowered; leaves pinnate; leaflets pinnatifid; segments linear.—It is found upon the sandy coasts of Barbary.

10. Erodium Alpinum; *Alpine Crane's-bill.* Peduncles many-flowered; leaves interruptedly pinnatifid, laciniate; root perennial, running very deep into the ground; lower leaves smooth, and on very long footstalks; stems a foot and a half high, with leaves of the same form, but smaller, and opposite; flowers purple, many together, on very long peduncles.—Native of Italy. It flowers with us in June, but will not ripen its seed in England.

11. Erodium Romanum; *Roman Crane's-bill.* Stemless: scapes radical, many-flowered; leaves pinnate, leaflets pinnatifid. It has a rather thick tuberous root; stems irregular, branching, diffused, somewhat woody, and having swelling joints; at each of these is one leaf, opposite to which comes out the peduncle; the peduncles on the lower part of the stem are very long and naked, but those which terminate the branches are shorter, and have one or two small leaves at the base; the flowers are in small bunches, and continue in succession most parts of the summer.—Native of Italy, where it is found about Rome; also of the Pyrenees, and of Provence.

12. Erodium Cicutarium; *Hemlock-leaved Crane's-bill.* Peduncles many-flowered; leaves pinnate; leaflets sessile, pinnatifid. Root annual; stems several, thickish, round, hirsute, procumbent, and branched; pinnas of the leaves slightly hairy; pinnules sharply indented; flowers in an umbel, from three to six, of a rose-colour. This species varies extremely, from nearly smooth to very hairy, and from very large and branched, with a many-flowered umbel, to small

and nearly simple, with few flowers. Dillenius mentions another remarkable variety, in which the petals are irregular, the two upper shorter, rounder, and marked with a greenish spot at the base. The common sort is found all over Europe, in Africa, Asia, North America, and the island of Madeira.—The last has been found in England, near Hackney, and in several parts of Suffolk.

13. Erodium Moschatum; *Musk Crane's-bill.* Peduncles many-flowered; leaves pinnate; leaflets subpetioled, unequally gashed. This strongly resembles the preceding, but has an ambrosial or musky scent: the whole plant is covered with hairs, which are glutinous, particularly those of the calix. All the parts are larger; the stem is swollen and crooked at the joints; corolla red or purple. Annual.—Native of France, Switzerland, the Cape of Good Hope, Syria, Barbary, Peru, and Great Britain, where it is found about Battersea, Streathem, &c. near London, near Bristol, Stourbridge, and in Westmoreland and Yorkshire.

14. Erodium Tordylioides; *Algiers Crane's-bill.* Peduncles many-flowered; leaves bipinnatifid, unequally serrate, the outmost lobes confluent.—Found on rocks near Algiers.

15. Erodium Gruinum; *Broad-leaved Annual Crane's-bill.* Peduncles many-flowered; leaves ternate, crenate-toothed, the outmost pinnatifid-lobed. This is an annual plant, with very broad leaves, cut on their sides regularly and crenate; flowers on long axillary peduncles; petals entire, and blue; beaks of the fruit remarkably large.—Native of Spain, Sicily, Candia, Cyprus, and Syria.

16. Erodium Ciconium; *Long-beaked Crane's-bill.* This is also an annual plant, which has several prostrate stems, nearly a foot long; peduncles axillary, three inches long; flowers pale blue; beaks of the fruit very long, but by no means so long as those of the preceding.—Native of the south of Europe, Barbary, Syria, Cyprus, and Madeira. There is a variety, the whole plant of which is rough with hairs. It is a native of the sandy coasts of Spain, Portugal, and Italy.

17. Erodium Lacerum; *Torn Crane's-bill.* Peduncles many-flowered; leaves doubly pinnatifid; segments very remote, linear, quite entire; stem grooved, branched, more than a foot high; leaves opposite, longer than the petioles, divided almost to the petiole into three pinnated segments; the pinnules linear, with a point; corolla very pale blue colour, with equal petals.—Native of Portugal.

18. Erodium Diphyllum; *Two-leaved Crane's-bill.* Peduncles many-flowered; involucres two-leaved, roundish; lower leaves three-lobed, upper pinnatifid, laciniate, gashed. The involucre is composed of two opposite, membranaceous, largish bractes, that are very conspicuous, and give it the significant trivial name. It is annual, and a native of Portugal, Gibraltar, Algiers, Tunis, Candia, and Cyprus.

19. Erodium Muticum; *Beardless Crane's-bill.* Peduncles many-flowered; leaves ternatifid, gashed, toothed; calices awnless.—Found in the kingdom of Tunis in Africa.

20. Erodium Hymenodes; *Barbary Erodium.* Peduncles many-flowered, leaves ternate, or ternatifid; segments roundish, lobed. The stem is scaly at the base, with membranaceous stipules, larger than in any other species.—Found by Desfontaines on the rocks of Barbary.

21. Erodium Incarnatum; *Flesh-coloured Crane's-bill.* Peduncles few-flowered; leaves three-parted, or ternate, trifid, rugged; stem somewhat shrubby, slender, smooth, and hard. The leaves are on very long petioles, heart-shaped, roundish, undivided, small; stipules lanceolate, very sharp; flowers red, flesh-coloured, or scarlet, with a paler disk.—Native of the Cape of Good Hope.

** *Leaves lobed, or undivided.*

22. Erodium Malacoides; *Mallow-leaved Crane's-bill.* Peduncles many-flowered; leaves heart-shaped, three-lobed; lobes lobed, obtuse, obsoletely toothed. This is an annual plant, with the branches inclining to the ground, and spreading a foot and a half each way. The peduncles are placed on the side of these, and sustain many bright-red flowers. The fruits have long beaks.—Native of the south of Europe, Madeira, Barbary, Syria, the islands of the Archipelago, and of Peru.—There is a variety of this species, called the *Various-leaved Crane's-bill*, which is a native of the isle of Chio in the Mediterranean.

23. Erodium Populifolium; *Poplar-leaved Crane's-bill.* Peduncles many-flowered; leaves heart-shaped, sublobed, obtuse-toothed; stamina hirsute.—Found in Barbary.

24. Erodium Nervulosum; *Nerved Erodium.* Peduncles many-flowered; leaves heart-shaped, almost undivided, toothed, thick, nerved.—Native of Sicily.

25. Erodium Glaucophyllum; *Glaucous Crane's-bill.* Peduncles many-flowered; leaves oblong, obsoletely crenate, glaucous; beaks feathered. Annual. Stem extremely simple, very short; peduncles from three to five flowered; corolla purple or pale blue, with a dark trifid line at the base. It is easily known by the gray or glaucous colour of the leaves, and the very long feathered beaks to the fruit.—Native of Egypt.

26. Erodium Guttatum; *Spotted Crane's-bill.* Peduncles three-flowered; leaves heart-shaped, obsoletely lobed, tooth-serrate, ash-coloured, the centre of a different colour. The flowers are violet-coloured, with a very dark violet disk, and are extremely sweet-scented.—Found by Shaw and Desfontaines in Barbary.

27. Erodium Maritimum; *Sea Crane's-bill.* Peduncles three-flowered, or thereabouts; leaves heart-shaped, gashed, crenate, rugged; stems depressed, branched, lying close to the ground; root-leaves on long petioles, spreading in a circle on the ground, hairy, variously cut and jagged, sometimes nearly lobed; stem-leaves similar; peduncles shorter than the leaves; flowers one to three, pale red, small; beaks of the fruit very small, not exceeding half an inch in length.—Native of the English and Dutch coasts. Found in Norfolk and Cornwall, and also on the sandy commons in Worcestershire.

28. Erodium Chamædryoides; *Dwarf Crane's-bill.* Almost stemless: peduncles one-flowered; leaves heart-shaped, obtuse, crenate; leaves radical, on very long petioles, numerous, orbiculate, heart-shaped, shining, much shorter than the petioles; scapes a little longer than the petioles, with opposite bractes; petals white, quite entire, oblong, with villose claws, between which are green fleshy obcordate glands.—Native of the islands of Minorca and Corsica.

Eroteum; a genus of the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, concave, incumbent, permanent. *Corolla:* petals five, ovate, roundish, concave, entire, spreading. *Stamina:* filamenta numerous, (thirty,) shorter than the petals, erect, filiform, placed on the receptacle; antheræ roundish, minute. *Pistil:* germen ovate, pubescent, superior; style erect, generally longer than the stamina, awl-shaped, trifid at the tip, permanent; stigmas obtuse, simple, reflex. *Pericarp:* berry roundish, juiceless, acuminate, with the permanent style, smooth, three-celled. *Seeds:* in threes or fours, oblong, compressed a little. *Observe.* It has the inflorescence, flower, and habit of *Thea*, but the fruit is of a different kind. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Style:* trifid. *Berry:* juiceless, three-celled, many-seeded.——The species are,

1. Eroteum Thæoides. Leaves ovate-lanceolate, serrate-toothed; flowers axillary, solitary.—Native of Jamaica.

2. Eroteum Undulatum. Leaves elliptic-lanceolate, acuminate, serrate; flowers crowded, axillary. Branches flexuose at top, hairy, tomentose, especially towards the tip; leaves alternate, two or three inches long, coriaceous, broad lanceolate, acute at both ends, smooth, paler underneath, thicker at the edge; the younger ones nerved, and hairy underneath; petioles very short; peduncles four or five, but sometimes solitary, one-flowered, the same length with the petioles; calicine leaflets ovate, very finely ciliate, obtuse. It varies with smooth branches.—Native of Jamaica, St. Kitt's, Montserrat, and Guadaloupe.

Ervum; a genus of the class Diadelphia, order Decandria. —Generic Character. *Calix:* perianth five-parted, length of the corolla; divisions linear, acuminate, nearly equal. *Corolla:* papilionaceous; standard flat, slightly reflex, roundish, larger; wings obtuse, shorter by half than the standard; keel shorter than the wings, acuminate. *Stamina:* filamenta diadelphous, (simple, and nine-cleft,) rising; antheræ simple. *Pistil:* germen oblong. *Style:* simple, rising. *Stigma:* obtuse, beardless. *Pericarp:* legume oblong, obtuse, columnar, knotty with the protuberant seeds. *Seeds:* two to four, usually roundish, somewhat compressed. *Observe.* This genus differs from *Vicia* in the stigma alone. Essential Character. *Calix:* five-parted, the length of the corolla.——The species are,

1. Ervum Lens; *Flat-seeded Tare*, or *Common Lentil.* About two flowers on a peduncle: seeds compressed, convex. It is an annual plant, and the least of the pulse kind that is cultivated. It rises with weak stalks, a foot and a half high, having pinnate leaves at each joint, composed of several pairs of narrow leaflets, terminated by a tendril, which supports it by fastening about some other plant. The flowers come out on short peduncles from the sides of the branches; they are small, of a pale purple colour, and three or four together; legumes short and flat, containing two or three flat round seeds, a little convex in the middle. The flowers appear in May, and the seeds ripen in July.—It grows spontaneously in the corn-fields of France and Germany, the pastures of Carniola, and the vineyards of the Valais. The Lentil has not been long cultivated in England, and is now propagated, either as food for cattle, or for the seeds, which are used in soups. They are commonly eaten by the poorer inhabitants of some islands of the Archipelago, and other warm countries, although they are held in little estimation. Hill says, that when ground into powder, they make poultices for swellings, but are not much regarded.—The seeds of Lentils are commonly sown in March, where the land is dry, but April is the best time in moist ground. The usual quantity of seed allowed to an acre is, from a bushel and a half to two bushels. If these be sown in drills in the same manner as Peas, they will succeed better than when they are sown broadcast: the drills should be a foot and a half asunder, to allow room for the hoe to clean the ground between them; for if weeds be permitted to grow, they will overtop and starve the Lentils. The seeds will ripen in July, when the plants should be cut and dried, and the seeds afterwards threshed out for use.—There is another sort, or rather variety, which is cultivated by the name of French Lentil. It is the *Lens Major* of Caspar Bauhin, and is much more worthy of cultivation than the common sort, which is preferred before it. This pulse is frequently called *Tills* in some parts of England.

2. Ervum Tetraspermum; *Smooth Tare.* About two flowers on a peduncle: seeds globular, four in a legume; root annual; stems, in open places, slender, weak, and much branched, but among corn supporting themselves by tendrils to a foot or more in height, two-edged, and inclining to four-cornered; stipules in pairs, the lower semisagittate, the upper entirely or nearly so; flowers on slender capillary peduncles, as often single as in pairs; calix somewhat hairy, the lower segments longest; corolla violet, often blood-coloured. This is easily distinguished from the third species, for in that the pods are hairy, and contain only two seeds; in this they are smooth, and contain four; in that the flowers grow in a kind of cluster, in this seldom more than two grow together. It is exceedingly fertile, one plant, casually pulled up, having two hundred and twenty pods on it. It is found in most corn-fields, clinging to the corn, and, if the season favours its growth, sometimes quite overcoming it. Both this and the next species are small annual Tares, which flourish among Wheat and Rye in many parts of England, and are not admitted into gardens. They may be easily destroyed in fields, if only cut up when they begin to flower.

3. Ervum Hirsutum; *Hairy Tare.* Peduncles many-flowered; seeds globular, two in a legume. Annual. Stems weak, much branched, climbing, quadrangular, streaked, from one to two feet high; lower stipules with two, three, or four awl-shaped teeth; the upper ones awl-shaped or entire; leaflets mostly linear, sometimes lanceolate, eight to twelve pairs, somewhat alternate, terminated by a branched tendril. It is easily distinguished from the foregoing; the leaves not being pointed, as in that, but truncate; the stipules divided into many more segments; the flowers, and consequently the legumes, growing in a kind of cluster, being rough, and containing two seeds. It grows among corn, and is more destructive to it, being stronger and more prolific than the other species. In wet seasons whole crops are overpowered by this plant. All sorts of cattle eat it.—These two are called *Fine Tare*, that with smooth pods, and this with rough pods. They are common in Japan and Cochin-china. See the preceding species.

4. Ervum Soloniense; *Spring Tare.* About two flowers on a peduncle, awned; petioles acuminate; leaflets obtuse; flowers small, reddish; legumes slender, an inch in length, with three or four minute hexaedral seeds in each. It is distinguished by its earliness, the tenuity of its parts, and the shape of its seeds. It appears at the close of winter, in neglected pastures, in France; and flowers in April and May. See the first species.

5. Ervum Monanthos; *One-flowered Tare*, or *Lentil.* Peduncles one-flowered, larger than the common Lentil, climbing by means of bifid and trifid tendrils; petioles horizontal; leaflets sixteen to eighteen, linear, retuse, with a point; stipules two, alternately larger, different in form; peduncle one-flowered; calix three times shorter than the corolla, with the toothlets nearly equal; standard compressed, whitish, with violet veins; legume large, somewhat nodding, containing two or three seeds, the size of peas, compressed, with an obtuse margin. Annual: flowering from May to July.—Native of Russia; found also among Lentils at Herborn in Germany, and in the county of Nice. See the first species.

5. Ervum Ervilia; *Officinal Tare.* Germina naked and plaited; leaves unequally pinnate. This is an annual plant, rising with angular weak stalks a foot and a half high, having at each joint one pinnate leaf, composed of fourteen or fifteen pairs of leaflets, like those of the Vetch, but narrower. The flowers come out from the sides of the stalk, on peduncles an inch long, each sustaining two pale-coloured flowers, which are succeeded by short pods a little compressed, each containing three or four round seeds: the pods swell at the place where each seed is lodged. The seeds ground to flour are

sometimes used in medicine abroad; and the green herb for feeding cattle in some countries, but the plant is not worth cultivating for that purpose in England.

Eryngium; a genus of the class Pentandria, order Digynia. —Generic Character. *Calix:* receptacle common, conic; chaffs separating the sessile floscules. *Involucre* of the receptacle many-leaved, flat, exceeding the floscules; perianth proper, five-leaved, upright, sharp, shorter than the corolla, seated on the germen. *Corolla:* universal, uniform, roundish; floscules all fertile; proper five-petalled; petals oblong, the tips bent inwards to the base, straitened longitudinally by a line. *Stamina:* filamenta five, capillary, straight, exceeding the floscules. Antheræ oblong. *Pistil:* germen hispid, inferior; styles two, filiform, straight, length of the stamina; stigmas simple. *Pericarp:* fruit ovate, divisible in two directions. *Seeds:* oblong, columnar. *Observe:* In some species the seeds are deposited from the crust of the pericarp, in others they remain included in it. Essential Character. *Flowers:* in a head; receptacle chaffy.—These plants have somewhat the appearance of thistles; the leaves are often spinous, as are also the involucres; the umbellets in some are enclosed in an involucre, which is often irregular and branched, in others they are dispersed.——The species are,

1. Eryngium Fœtidum; *Stinking Eringo.* Root-leaves lanceolate-serrate; floral leaves multifid; stem dichotomous. Root annual, or biennial; root-leaves bluntish, the serratures terminating in harmless spines; stem a foot high or more, green, somewhat angular, spreading, with the extreme branches flexuose. The whole plant has a penetrating, strong, though not very unsavoury, smell; the flowers are produced in small sessile heads, coming out at every division of the stalks, and at the ends of the branches; they are of a dull white colour, and make little appearance: they appear in June and July, and the seeds ripen in autumn.—It is a native of the West Indies, Mexico, Surinam, and Virginia. All parts of this plant are reckoned very powerful anti-hysterics, and much used by the negroes and poorer whites, on all occasions of that nature, from whence they name it *Fit-weed;* it is chiefly administered in decoctions or infusions.—As this plant is a native of hot countries, it will not thrive in England but in a warm stove. It is propagated by seeds, which, if sown in pots, and plunged into a moderate hot-bed, will come up much sooner than those which are sown in a hot-bed; and when the plants are fit to remove, they should be each planted in a small pot, and plunged into the bark-bed, and afterwards treated like other tender plants from the same country: the second year they will produce flowers and seeds; soon after which they commonly decay.

2. Eryngium Aquaticum; *Marsh Eringo.* Leaves gladiate-serrate, spiny; floral-leaves undivided. This plant has a perennial root, from which rise several long leaves, disposed round the root, like those of the *Aloe* or *Yucca;* they are of a gray colour, a foot long or more, and one inch and a half broad, stiff, and ending in spines; the stem is strong, two feet high, and divides at top into several peduncles, each terminated by an oval head of flowers, which are white, with a little cast of pale blue. They come out in July, but unless the season be very warm, the seeds will not ripen in England. —It grows naturally in Virginia and Carolina, where it is called *Rattlesnake Weed,* from its use in curing the bite of that venomous creature. This sort is propagated by seeds, which, if sown in pots, and plunged into a moderate hot-bed, will come up much sooner than those which are sown in the full ground, whereby they will be much stronger before the winter. When the plants are fit to remove, they should be each planted in a separate small pot filled with light earth; and if they are plunged into a moderate hot-bed, it will forward their taking root; then they must be gradually inured to bear the open air, into which they may be removed at the latter end of May, and placed among other hardy exotic plants. When the plants have filled these pots with their roots, some of them may be shaken out, and placed in a warm border; the others may be put into larger pots, and in the autumn placed under a common frame, where they may be exposed to free air in mild weather, but sheltered from severe frost; the following spring these may be turned out of the pots, and planted in a warm situation, where they will endure the cold of our ordinary winters very well; and if in severe frost they be covered with straw, pease-haulm, or any similar light covering, it will secure them from injury.

3. Eryngium Planum; *Flat-leaved Eringo.* Root-leaves oval-flat, crenate; heads peduncled; root perennial; stem upright, round, furrowed or streaked, whitish, about a foot and half in height, bluish at top, where it divides into three parts, each of which is terminated by a peduncled axillary flower; flowers in terminating heads, fenced with a six-leaved involucre, spreading, and reflex; the leaflets long-lanceolate, mucronate, as long as the flowers. It makes a pretty appearance when in flower, which is in July, especially that with blue stalks and flowers, for there is a variety in which they are white, with the leaves of a lighter green. As it does not spread at the root, it ought to be allowed a place in the pleasure ground.—Native of Austria, Silesia, Poland, and Russia. It is propagated by seeds, which if sown in the autumn, will more certainly succeed than when sown in the spring, for the latter commonly remain in the ground a year before they vegetate; and if the seeds are sown where the plants are to remain, they will flower stronger than those which are transplanted; for as they have long downright roots, so they are commonly broken in taking out of the ground, which greatly weakens them. The culture they require is, to thin them where they are too near, keep them clean from weeds, and dig the ground about them every spring before they shoot.

4. Eryngium Pusillum; *Dwarf Eringo.* Root-leaves oblong, gashed; stem dichotomous; heads sessile. This plant puts out oblong plane leaves from the root, which are cut on their edges; the stalks rise about a foot high, and branch out into many forked divisions, which are regular, and have a small head of flowers in each, sitting very close between the branches. It flowers from June to August.—Native of Spain and the Levant.

5. Eryngium Tricuspidatum; *Trifid Eringo.* Root-leaves cordate; stem-leaves palmate, with ears bent back; chaffs three-cusped; root biennial, tuberous, approaching to the shape of the Radish; stem a foot high, with spiny heads at the top, and in the axils, with purple florets in them; involucres of long, narrow, hard, prickly leaflets, much longer than in the common sort.—Native of Spain, Sicily, and the Levant.

6. Eryngium Maritimum; *Sea Eringo,* or *Sea Holly.* Root-leaves roundish, plaited, spiny; heads peduncled; chaffs three-cusped; root creeping, and running deep into the ground; leaves roundish, stiff, gray, set with sharp spines on the edges; stems a foot high, branched, smooth, having at each joint leaves of the same form with the lower ones, but smaller. The flowers come out at the ends of the branches in roundish prickly heads, and are of a whitish blue colour; under each head is a range of narrow, stiff, prickly leaves, spreading like the rays of a star. The flowers appear in July. The young flowering-shoots, eaten like Asparagus, are very grateful and nourishing; the leaves are sweetish, with a

P. 303.

EPIMEDIUM ALPINUM —
Barrenwort.

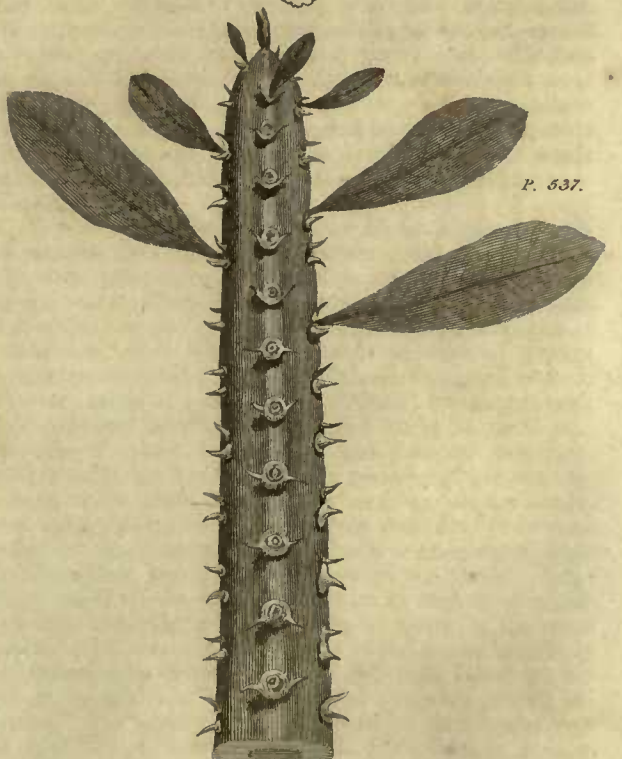
P. 320.

ERYNGIUM MARITIMUM — *Sea Eringo.*

P. 632.

EUPATORIUM CANNABINUM — *Hemp Agrimony.*

P. 537.



EUPHORBIA NERIIFOLIA — *Oleander-leaved Spurge.*

E. Dixon sc.

Published by Henry Fisher, Caxton, London, 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

slight aromatic warmth and pungency; the roots are supposed to have the same aphrodisiac virtues as the Orchis tribe: they are kept in the shops candied, and are still regarded by the Arabs as an excellent restorative. Boerhaave says, a decoction of the roots drank freely, increases the urinary discharge, and is serviceable in scorbutic complaints. Blackwell also informs us, that the roots are good in obstructions of the liver, and in the jaundice; they operate as a diuretic, and are a good restorative in those consumptions that are brought on by venereal excesses. The candied root, according to Hill, is a good medicine in coughs, and other disorders of the breast and lungs. A decoction of it while fresh forms a good diuretic, which is serviceable in the jaundice, and other disorders which arise from obstructions of the viscera: when resorted to for these complaints, the frest root should be preferred. Old English writers call this plant *Sea-Holly*, *Sea-Holme*, and *Sea-Hulver*. It grows in great abundance on the sandy and gravelly shores of many parts of Great Britain, and other countries of Europe. This species will grow in a garden, if the roots be planted in a gravelly soil, and produce flowers annually; but the roots will not grow near so large or fleshy as those which are found upon the seashore, where they are overflowed with salt water. The best time to transplant the roots is in autumn, when the leaves decay; the young roots are much better to remove than the old, because being furnished with fibres, they will readily take root, and when fixed in the ground should remain unremoved, and require no farther culture except to be kept clean from weeds.

7. Eryngium Campestre; *Field Eringo*. Root-leaves stem-clasping, pinnate-lanceolate; root perennial and strong. The whole plant is very stiff, and of a pale green colour; corolla blue, sometimes white or yellowish; appearing in July and August.—Native of most parts of Europe. In Great Britain not very common, but is found upon the coast near the ferry from Plymouth into Cornwall; near Newcastle-upon-Tyne; below Melling, in Yorkshire; also far inland, and opposite Brook-hall, near Daventry, in Northamptonshire. Gerarde cultivated this species in his garden. It is a very troublesome weed, for the roots run deep into the ground, and are not easily destroyed by the plough; they spread and multiply greatly in the ground, to the prejudice of whatever is sown or planted on the land, and are therefore not admitted into gardens.

8. Eryngium Amethystinum; *Amethystine Eringo*. Root-leaves trifid, subpinnate at the base; the lower leaves are divided, like the fingers of a hand, into five or six segments, which are very much cut at their extremities into many parts, and have small spines; stem about two feet high, with smaller and more divided leaves; the upper part of the stem, and also the heads of flowers, are of the finest amethystine colour, so that they make a most beautiful appearance. There is a variety, which is smaller, and the involucre has trifid folioles. It flowers in July, and when the autumn proves dry, the seeds will ripen in England. It may be propagated in the same way as the third species, to which the reader is referred.—Native of the mountains of Stiria.

9. Eryngium Triquetrum. Root-leaves trifid; stem very much branched; peduncles three-sided; involucres three-leaved, keeled. Stem erect, rigid, a span or a foot in height, round, smooth, amethystine, as are also the branches and flowers; branches alternate, divaricate, subdichotomous, three-sided; stem-leaves three-parted, half stem-clasping; segments lanceolate, rigid, spiny, with a spiny tooth on each side at the base.—Native of dry plains in Tunis in Africa.

10. Eryngium Alpinum; *Alpine Eringo*. Root-leaves heart-shaped; stem-leaves ternate, gashed; involucres spiny, pinnate, ciliate; root perennial. The leaves are cordate, and toothed, the lower on long petioles, the upper stem-clasping; the lower leaves resemble those of Cacalia, but are more acute, and the teeth end in a soft spine; amethystine leaves surround the oblong head of flowers, some of them bristle-form and reflex, others pinnatifid and lanceolate; corolla white; antheræ green. It is a plant, says Villars, curious to see, on account of the beauty of the involucres, which are of a vinous azure blue, mixed with green and white, scarcely prickly; the heads of flowers are much elongated, cylindric in the lower, and suddenly rounded in the upper part.—Native of the mountains of Switzerland, Dauphiny, and Italy. It is cultivated in the same way as the third species.

11. Eryngium Bourgati; *Cut-leaved Eringo*. Root and stem-leaves alternate and three-parted, twice trifid; involucres awl-shaped, many-leaved, somewhat spiny. Height from eight inches to a foot; stems thick, white, strong, and branched from the bottom. Mr. Miller, who cultivated this plant, says, that the stalks rise about two feet high; that the flowers are of a light blue colour, in very large heads, appearing in June and July, and ripening seed in autumn.—Native of the south of France.

Erysimum; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate-oblong, parallel, converging, coloured, deciduous. *Corolla:* four-petalled, cruciform; petals oblong, flat, extremely obtuse at the tip; claws length of the calix, upright; gland nectariferous, double, within the shorter filamentum. *Stamina:* filamenta six, length of the calix, those of the two opposite shorter. Antheræ simple. *Pistil:* germen linear, four-cornered, length of the stamina; style very short; stigma headed, permanent, small. *Pericarp:* silique long, linear, strict, exactly four-cornered, two-valved, two-celled. *Seeds:* very many, small, roundish. Essential Character. Silique columnar, with four equal sides. *Calix:* closed.—These plants are seldom introduced, except into botanic gardens; most of them perish soon after they have ripened their seeds, but the fifth sort will abide several years in a dry lean soil, or on a wall; in a rich land it soon decays. They may all be propagated by sowing their seeds in the autumn, where they are to remain, and afterwards require no farther culture, except thinning and weeding.—The species are,

1. Erysimum Officinale; *Common Hedge Mustard*. Siliques pressed close to the spike, leaves runcinate; root annual; stem from one to two feet high, upright, round, finely grooved, beset with numerous short rough hairs, branched, and for the most part purplish, particularly at the angles of the branches, which spread very much; racemes of flowers terminating, roundish; of fruits filiform, elongated, naked, pubescent; seeds of a dull yellow, obliquely truncate at both ends, immersed in the partition, and eight in each cell. Viewed as it comes into blossom, and when its flowering-branches shoot out horizontally to a great length, it scarcely seems to be the same plant.—It is common on dry banks, under walls, pales, and in waste places, from May or June to September. Linneus informs us, that it is excellent in asthmas, hoarseness, and other complaints of the breast. Rondeletius cured a hoarseness, brought on by loud speaking, in a few days with this herb; the juice of which is the most excellent of all remedies for diseases of the throat, especially in ulcerated sore throats, which it has been found to cure when all the advise of physicians and surgeons proved ineffectual. The above assertion is grounded on a manuscript note, found by the late celebrated Dr. Withering, in a copy of Parkinson's Herbal, which formerly belonged to Mr. Saun-

ders, surgeon, of Stourbridge. Hill informs us, that the whole plant is used, but that an infusion of it when fresh is to be preferred. A strong infusion is a good attenuater and dissolver of tough phlegm, and is excellent in asthmas, hoarseness, and other complaints of the breast: this simple infusion, made into a syrup with honey, also answers the same purpose, and keeps all the year round.—This, and some others of the class, are apt to spring up among the ashes where charcoal has been made, or where there has been any considerable fire. Besides its common name of Hedge Mustard, it has those of Bank Cresses, and Scrambling Rocket: Turner calls it Winter Cresses. The Germans name it *der hederich, wegesenf, wilder senf, falscher wassersenf, das gelbe eisenkraut, das weibchen des eisenkrauts, kreuzkraut;* the Danes, *vild senep, veysenep;* the Swedes, *vaggkrassa;* the French, *le velar, la tortelle, l'herbe au chantre;* the Italians, *erisamo;* the Spaniards, *jaramago, hierba de San Alberto, irion;* the Portuguese, *erisimo;* and the Russians, *gorczyca polna* and *pszonak ziele.*—It is warm and acrid to the taste, and, when cultivated, is used as a spring potherb. Birds are fond of the seeds; sheep and goats eat it; cows, horses, and swine, refuse it.

2. Erysimum Barbarea; *Winter Hedge Mustard,* or *Cress.* Leaves lyrate, the outmost lobe roundish; root perennial; stem a foot or eighteen inches high, smooth, round, deeply furrowed, much branched; flowers in racemes, or thick spikes, at the ends of the stem and branches; peduncles compressed, quadrangular; calix green, caducous; two of the leaflets larger, with a helmet-shaped hollow at the top; petals yellow, much longer than the calix. There are several varieties of Winter Cress; one, mentioned by Linneus and Tournefort, is distinguished by Ray as having smaller leaves, more frequently sinuated, the pods thicker, and the seeds larger, pale brown, inclining to white. Petiver figures it under the name of Early Winter Cress, and says, that it flowers in April. A variety with double flowers is common in the gardens, under the name of Yellow Rocket. The common people in Sweden use the leaves in salads early in the spring, and late in the autumn; they also boil them as Kale. Some persons in England also cultivate it for spring salad, under the name of *French* or *American Cress;* but it has to most people a bitter unpleasant taste. It is found on the banks of ditches and streams, in watery places; sometimes in cultivated fields, and even on walls; flowering from May to July. It is called Winter Rocket as well as Winter Cress, and Herb St. Barbara. The Germans name it *die winterkresse, barbenkraut, barbelkraut, rapunzel, senskraut, schnodesens, habichtskraut, gelber beyfuss, falsche bumon;* the Danes call it *vinterkars;* the Swedes, *vinterkrasse;* the French, *la Barbarée, l'herbe Sainte Barbe, l'herbe aux charpentiers, la Julienne jaune, roquette;* the Italians, *Barbarea, erba di Santa Barbara, ruchetta;* the Spaniards, *hierba de Santa Barbara, raqueta;* the Portuguese, *herva de Santa Barbara.*

3. Erysimum Alliaria; *Stinking* or *Garlic Hedge Mustard.* Leaves cordate; root biennial; stem upright, from two to three feet high, round, smooth, somewhat striated, at bottom purple and slightly hairy, at top branched; the branches are few, alternate, and upright; flowers in a corymb, terminating, upright, on peduncles the length of the flowers; leaflets of the calix pale green, obtuse, deciduous, hollow at the tip; corolla white; petals obovate; border spreading, marked with a few veins.—The leaves are recommended to be taken internally, as sudorifics and deobstruents, of the nature of Garlic, but much milder; externally, as antiseptic, in gangrenes and cancerous ulcers. According to Linneus's observation, horses, sheep, and swine, refuse it, but cows and goats eat it; if eaten by cows, it gives a very strong disagreeable taste to the milk. When it grows in poultry yards, the fowls eat it, and it gives an intolerably rank taste to their flesh. The whole plant has a strong smell and taste of Garlic, and is therefore used by the country people in sauces, with bread and butter, salted meat, and with lettuce in salads; from which it has acquired another name, that of Sauce Alone. The fresh leaves, plentifully eaten, says Meyrick, or the juice of them, taken either by itself or boiled into a syrup with honey, operate powerfully by urine, and are found serviceable in dropsies. The syrup is likewise good to cut and attenuate tough viscid phlegm, and for coughs and hoarsenesses. The seeds snuffed up the nose excite sneezing, and a discharge of watery humours from the head; and the herb, when eaten as a salad, warms the stomach, and strengthens the digestive faculties.—It is commonly found by hedge-sides, on banks, and in shady places, and thence derived another vulgar name, that of *Jack-by-the-hedge.* It flowers in April and May. The Germans call it *das knoblauchkraut, der knoblauchhederich, lauchel, waldknoblauch, ramfen, rampen, ramschelwurzel, gernsel, salsekraut, saskraut;* the Danes name it *hvid logfurt, gaflekaal;* the Swedes, *hvit ö sort;* the French, *l'alliare, l'herbe des eaux, l'herbe aux aillets;* the Italians, Spaniards, and Portuguese, *alliaria.*

4. Erysimum Repandum; *Small-flowered Hedge Mustard.* Leaves lanceolate, toothed; racemes opposite to the leaves; siliques racemed, subsessile; corollas minute; stem upright, angular; flowers small, pale; stigmas very slightly emarginate.—Annual: flowering in May and June, and a native of Spain, Bohemia, Silesia, Austria, and Italy.

5. Erysimum Cheiranthoides; *Treacle Hedge Mustard,* or *Wormseed.* Leaves lanceolate, quite entire, sometimes toothed; siliques patulous, an inch long. Root annual; stem from one to two cubits in height, upright, stiff, streaked, rough, usually simple, sometimes branched a little, others say very much branched; corollas small, yellow; rhomb quadrangular, obscurely knobbed where the seeds lie; partition membranaceous; valves keeled on the outside, at an acute angle; receptacle between the valves, filiform, ending in the very short style, with a blunt stigma. Seeds about eighteen in each cell, ovate, a little turgid, beaked, of a yellowish brown colour. They are as intensely bitter as Wormseed or Coloquintida, but are, according to the united testimony of Withering and Meyrick, undoubtedly excellent for destroying worms in the stomach and intestines, for which purpose they are much used by the inhabitants of the places where the plant is found, who therefore call it Wormseed, or Treacle Wormseed. The seeds are also given in obstructions of the viscera, and in the rheumatism and jaundice, with success: they operate moderately by urine, when taken in small doses; in larger, they purge briskly; and in still greater quantities, occasion vomiting—they should on this account be given with caution, and then they will answer all the purposes of mercurial worm medicines, (which are frequently attended with danger, especially amongst those who have not skill to manage such medicines properly.) All kinds of cattle will eat it.—It flowers from May to August, and is a native of most parts of Europe, though not very common in England: it is found, however, on the Osier-holts near Ely, and on the banks of the river between the bridge and that city; also in the cornfields about Elden; among Turnips, near Bungay in Suffolk; and near Ashburne in Derbyshire.

6. Erysimum Hieracifolium; *Hawkweed Hedge Mustard.* Leaves lanceolate-serrate; root biennial; stems upright, stiff, sometimes branched, many-angled, smooth; flowers in ra-

cemes, yellow, smelling faintly; calix greenish yellow, brown at the end; petals almost linear, truncate; a small gland at the shorter stamina.—Native of Sweden, Denmark, France, Germany, Austria, and Italy.

7. Erysimum Perfoliatum. Leaves cordate, stem-clasping, smooth.—Native of Germany, and of the Levant. Linneus has not this plant, which he seems to have confounded with Brassica Campestris, from which it differs, in having a more diffused habit, a white flower, a longer silique, entirely quadrangular; whereas that has the silique cylindric, loose, dry, wrinkled, and veined, ending in a soft fistular horn. Annual: See *Brassica Orientalis.*

8. Erysimum Bicorne; *Horned Hedge Mustard.* Leaves lanceolate, hairy; siliques two-horned at the tip. Annual. Flowers small and yellow, appearing in August and September.—Native of the Canary Islands. It requires the protection of a green-house.

Erythrina; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, entire, tubular; mouth emarginate above, beneath furnished with a melliferous pore. *Calix:* papilionaceous, five-petalled; standard lanceolate, with sides bent back, ascending, very long; wings somewhat ovate, scarce longer than the calix, scarcely projecting beyond the tube of the standard, very small; keel straight, length of the wings, two-petalled, emarginate. *Stamina:* filamenta ten, conjoined at the lower part, but little bent in, the length of half the standard, unequal. Antheræ ten, sagittate. *Pistil:* germen pedicelled, subulate, attenuated into a subulate style, the length of the stamina; stigma terminal, simple. *Pericarp:* legume extremely long, protuberating at the seeds, terminated by a point, one-celled. *Seeds:* kidney-form. Essen. Char. *Calix:* two-lobed. *Corolla:* standard very long, lanceolate.—This genus of plants is best propagated by seeds procured from the countries where they naturally grow, for they do not produce any here: sow them in small pots, and plunge them into a moderate hot-bed, where, if the seeds be good, the plants will come up in a month or five weeks. When they are two inches high, shake them carefully out of the pots, and replant each in a separate small pot, filled with light earth, plunging them into a moderate hot-bed of tanners' bark, shading them from the sun until they have taken new root, and admitting a large share of air to them when the weather is warm, to prevent their being drawn up weak, giving them a larger portion of air as they increase in strength; water them moderately, for too much moisture will rot the fibres of their roots. Remove them into the stove in autumn, where for the two or three first winters they will need a greater degree of heat than will be necessary when they are grown stronger. They should be watered twice or thrice a week when the leaves are in vigour; but when the leaves are fallen, moisture is very injurious. They may also be increased by cuttings, planted in pots during the summer months, and plunged into a hot-bed; but seedling plants are best.——The species are,

1. Erythrina Herbacea; *Herbaceous Coral Tree.* Leaves ternate; stems entirely simple, shrubby: annual. It has a large woody root, producing fresh shoots every spring, and growing to the height of about two feet; they seldom throw out branches, and are sometimes perennial. The petioles are usually prickly underneath; there is sometimes a prickle or two scattered about the stem; leaflets hastate, deep green. The upper part of the stalks are terminated by a long bunch or spike of scarlet flowers.—This species flowers in September, but never produces seeds in England.—It is a native of South Carolina. It may survive the winter when placed in a warm green-house, but rarely flowers in that situation.

2. Erythrina Carnea; *Flesh-coloured Coral Tree.* Leaves ternate, smooth; stem arboreous, prickly; calices campanulate, truncate. The seeds are of a bright scarlet colour, only half the size of the next species. The branches are very closely armed with crooked greenish spines, as are also the ribs and footstalks of the leaves. The flowers grow in very long close spikes, and are of a beautiful scarlet colour.—Native of the Cape of Good Hope. It is frequently planted in the gardens near Lisbon, where it flowers annually, and ripens seed; but neither this, nor any other species of the genus, will often flower in England, with any treatment we can give them.

3. Erythrina Corallodendron; *Smooth-leaved Coral Tree.* Leaves ternate, unarmed; stem arboreous, prickly; calices truncate, five-toothed. It has a thick woody stem, which rises about ten or twelve feet high in this country, but grows to twice that height where it is a native, sending out many strong irregular branches, which are covered with a brown bark. The flowers come out at the ends of the branches, in short, thick, close spikes; they are of a deep scarlet colour, and make a fine appearance, being commonly in beauty in May and June; but are not succeeded by pods here. In America, they produce thick, swelling, crooked pods, containing large seeds of a reddish purple colour. The leaves fall off in spring, and in autumn new leaves put forth, which continue green all the winter. The flowers do not appear till the leaves drop. Dr. Browne thinks it is not a native of Jamaica, but that it was introduced by the Spaniards, who planted it among their Cacao trees, where the walks were most exposed to the weather, in order to break the force of winds; whence it acquired the appellation of *mader di cocco,* among them. In Jamaica it is called the *Coral* or *Red Bean-tree.* There is some difference between the Western and Eastern plant; the prickles in the latter are blackish; but the difference seems scarcely sufficient to constitute them distinct species. The leaves sleep about noon, by conniving or clapping together.—It is a native of the Society Isles, and of the southern part of China and Cochin-china.

4. Erythrina Picta; *Prickly-leaved Coral Tree.* Leaves ternate, prickly; stem arboreous, prickly. This plant has shrubby branched stalks, seldom above eight or nine feet high, armed in every part with strong, crooked, black spines. The leaves are smaller than those of the preceding, and have a nearer resemblance to the first; the footstalks are armed with the same sort of spines, and the midrib has also some which are smaller, and not so black; the flowers are of a paler scarlet, and grow in looser spikes. The seeds are as large as those of the third sort, but of a dark purple colour. —This tree is generally planted in the East Indies, for a support to the pepper plants.

5. Erythrina Crista Galli; *Cock's-comb Coral Tree.* Leaves ternate; petioles somewhat prickly, glandular; stem arboreous, unarmed. This is a very lofty tree, without any prickles on the trunk. The branches are stiff; the leaflets ovate, oblong, and quite entire. The petioles elongated, having frequently one or two recurved prickles underneath; on this petiole, at the base of the pedicels on each side, is a gland, and there are also two glands on the middle of the intermediate pedicel: flowers two or three, axillary, purple, on separate peduncles, resupinate; calix bell-shaped, two-lipped; the lower lip dagger-pointed; germen oblong, villose; style subulate; stigma with a minute dot.—Native of Brazil.

6. Erythrina Planisiliqua; *Flat Coral Tree.* Leaves simple, oblong.—Native of South America.

7. Erythrina Fusca; *Brown Coral Tree.* Leaves ternate, unarmed, lanceolate; banner of the corolla convolute; stem arboreous, eight feet high, with a brown bark like that of

hemp, and many short scattered prickles. The branches are diffused; leaves scattered, petioled; leaflets quite entire, smooth; flowers of a brown red colour, in a terminating raceme; seeds oblong.—Native of Cochin-china, where it is found on the banks of rivers. Mr. Bruce affirms, that the seeds of one species of Erythrina are called *carats*, and are used in weighing gold and precious stones. Mr. Miller mentions several other sorts or varieties of this fine genus. One he names Erythrina Inermis, the pods of which are longer, and not more than half so thick as those of the third species; the seeds of a bright scarlet, longer and slenderer than those of the other sorts; the leaves small and acute-pointed; the stalks smooth, and without spines. It does not grow very large, but shoots out into branches at a little distance from the ground; and these grow erect, so as to form a bushy shrub. The flowers come out at the ends of the branches in short spikes. The wings of the corolla are longer than in the other sorts, and the whole flower is more closed. It is a native of the West India islands. A second sort, Mr. Miller raised from small seeds of a bright scarlet colour, which were sent him from the Cape of Good Hope. The plants had no spines; the leaves were much larger than the other sorts; their stems were strong, and they had the appearance of growing to large trees. He raised a variety of the second sort, with paler flowers and seeds, and the plants less thorny. Also a variety of the third sort, which he received from the island of Barbuda, with the flowers and pods very short; the stamina much longer than the petals; the pods very short and crooked, but rather thicker than those of the third species; the leaves, stems, and branches, armed with spines.

Erythronium; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong-lanceolate, acuminate, alternately incumbent towards the base, gradually more spreading, from the middle bent backwards. *Nectaries:* tubercles two, obtuse, callous, growing to each alternate and interior petal near the base. *Stamina:* filamenta six, subulate, very short; antheræ oblong. *Pistil:* germen turbinate; style simple, shorter than the corolla, straight; stigma triple, spreading, obtuse. *Pericarp:* capsule somewhat globose, narrower at the base, three-celled, three-valved. *Seeds:* very many, ovate, acuminate. Essential Character. *Corolla:* six-petalled, bell-shaped. *Nectary:* tubercles two, fastened to the base of the alternate petals.

1. Erythronium Dens Canis; *Dog-tooth Violet.* Mr. Miller makes two distinct species. The first, with two ovate leaves joined at their base, three inches long, and one inch and a half broad in the middle, gradually lessening towards the ends: these at first embrace each other, enclosing the flower, but afterwards they spread flat upon the ground; they are spotted with purple and white all over their surface. Between them rises a single, smooth, purple, naked stalk, about four inches high, sustaining one flower which hangs down; the petals are reflex, and spread open to their base; their colour is commonly purple, but sometimes white; stamina purple, standing close abnut the style, which is longer than them. The roots are white, oblong, and fleshy, shaped like a tooth, whence this plant has the name of *Dog's Tooth* in English. The same idea has governed the name in all the European languages. The Germans call it *hundszalm;* the Swedes and Danes, *hundetand;* the French, *le dent de chien;* the Italians, *dente di cane;* the Spaniards, *diente de perro;* the Portuguese, *dent de caõ;* and the Russians, *kandik.*—The second species differs in the shape of the leaves, which are longer and narrower; and the flowers are a little larger, but not so well coloured. There is also a variety, in which the leaves are of a darker green, and the flower of a pale yellow colour. Ray observed the first, with a purple flower, near Turin, in the way to Asti, in April; and with a white flower, between Novi and Genoa. Clusius found the variety near Gratz in Stiria; and John Bauhin, at La Bâtie near Geneva, flowering in March. They grow naturally in the south of France, Italy, Savoy, Switzerland, Austria, Friuli, and Siberia. —It is increased by offsets from the roots, which they do not send out very plentifully. It is not therefore so common in gardens as most other flowers of the spring season. It may be transplanted any time after the beginning of June, when the leaves decay, till the middle of September; but the roots should not be often removed, nor kept out of the ground very long, which will cause them to shrink, and frequently to rot, They should not be planted scatteringly in the borders of the flower-garden, but in patches; and thus disposed, they will make a good appearance. It loves a shady situation, in a light loamy soil.

Erythroxylon; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, turbinate; divisions ovate, sharp, very small, withering. *Corolla:* petals five, ovate, concave, expanding; nectary of five scales, emarginate, upright, coloured, inserted into the base of the petals. *Stamina:* filamenta ten, length of the corolla, at the base connected by a truncated membrane; antheræ heart-shaped. *Pistil:* germen ovate; styles three, filiform, distant, length of the stamina; stigmas obtuse, thickish. *Pericarp:* drupe ovate, one-celled. *Seed:* nut oblong, obtusely quadrangular. Essential Character. *Calix:* turbinate. *Corolla:* petals five, having a small emarginate nectareous scale at their base. *Stamina:* connected at the base; drupe one-celled.——The species are,

1. Erythroxylon Areolatum; *Dry Redwood.* Leaves obovate, mucronate; branchlets short, floriferous, scaly. Browne describes it as a small beautiful tree; the leaves of an oval form, and marked with two slender longitudinal lines upon the back, which were the utmost limits of that part of the leaf which was exposed, while it lay in a folded state. The flowers grow in little clusters, white, and fragrant, and are very thick upon the branches. The inward bark is of a flesh colour, and the wood of a reddish brown. It is reckoned an excellent timber wood, for the size of the tree, which seldom exceeds sixteen or eighteen feet in height, and five or six inches in diameter.—Native of dry coppices in the West Indies. Dr. Browne has another species, which he calls *Small Round-leafed Erythroxylon*, or *Redwood*, with very slender branches. This tree, he says, differs much from the foregoing, both in shape and manner of growth. It grows in the low-lands of Jamaica, like the other, and rises commonly to the height of eighteen or twenty feet; the leaves are roundish and smaller, and the branches very slender.

2. Erythroxylon Havanense. Leaves elliptic; flowers axillary. This is a shrub, three feet in height, having altogether the habit of the preceding, but the leaves ovate, obtuse, quite entire, without any lines underneath; fruit orange-coloured. —Native of the Havannah, on rocks near the coast.

3. Erythroxylon Hypericifolium. Leaves obovate, emarginate; branches floriferous; peduncles axillary, solitary. The branches are covered with a brownish wrinkled dotted bark, compressed at top, and toothletted from the fallen leaves. Scales on the branchlets awl-shaped, and deciduous; leaves petioled, glaucous underneath; peduncles capillary, nearly the same length with the leaves.—Native of the West Indies.

4. Erythroxylon Squamatum. Leaves elliptic-lanceolate, acuminate, obtuse; branchlets scaly, floriferous; branches

smooth, covered with ash-coloured bark, round below, but compressed at top; among the leaves at top having ovate, half-embracing, short, acute, keeled scales, with a longitudinal groove on the back, at the base of which is inserted an awn, the length of the scale.—Native of the West Indies. Observed by Rohr in Cayenne.

5. Erythroxylon Macrophyllum; *Small-leaved Redwood.* Leaves elliptic, acute; flowers axillary and lateral, aggregate; branches round at bottom, compressed at top, smooth; covered with a gray bark, at bottom, among the leaves, having approximating scales of an ovate-lanceolate form, half-embracing, keeled, striated, purplish, acute; near the base on the outside, is a broad awl-shaped awn, the length of the scale, concealed within the dorsal groove of the scales.—It was observed in Cayenne by Rohr.

Escallonia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* one-leafed, five-cleft, superior, permanent; divisions spreading, keeled, sharp. *Corolla:* petals five, tongue-shaped, distant, longer than the calix. *Stamina:* filamenta five, smooth, opposite to the divisions of the calix, alternate with the petals, and shorter than them; antheræ incumbent, fastened by the back to the filamenta, emarginate, two-celled. *Pistil:* germen half inferior, an oblate spheroid; style upright; stigma capitate. *Pericarp:* berry roundish, surrounded with the calix, terminated by the permanent style, two-celled. *Seeds:* numerous, small, nestling. Essential Character. *Calix:* surrounding the fruit; stigma capitate. *Berry:* two-celled, containing many seeds.——The species are,

1. Escallonia Myrtilloides. Leaves serrulate, ending in a small dagger-point, veiny underneath. This is a branching leafy shrub; branches wandlike, obscurely angular, covered with a smooth, chinky, deciduous bark; branchlets alternate, spreading, angular, closely leaved, one-flowered; flowers terminating, solitary, peduncled, upright; berry the size of a pea, covered with a lid.—Native of New Granada.

2. Escallonia Serrata. Leaves serrate, subretuse, veinless underneath. This is a low shrub, very much branched, leafy, smooth; branches alternate, angular, somewhat flexuose, with a smooth pale bark; branchlets alternate, straightish, leafy, one-flowered, green; flowers terminating, solitary, peduncled, upright, very handsome, milk-white, with a violet-coloured germen; peduncles short, round, thickening at the tip, bent in, smooth; divisions of the calix spreading, deltoid, somewhat fleshy, smooth, pale underneath, coloured; petals spreading, obtuse, three times the length of the calix; filamenta broader at the base.—It was found in the straits of Magellan, and in Terra del Fuego.

Eschalot, or *Eschalotte*, so named from Ascalon in Palestine, about which place it grows wild; whence it has also derived the names of Cepa Ascalonica, or Ascalon Onion, and Ascalonitides. The old English name was *Barren Onions*, because it seldom puts up any flowering-stem. See *Allium*.

Espaliers are either rows of trees planted to enclose a whole garden or plantation, or in hedges, so as to enclose quarters or separate parts of a garden; they are trained up flat in a close hedge, for the defence of tender plants against the violence and injury of wind and weather. The most commonly received notion of espaliers are hedges of fruit-trees, which are trained up regularly to a lattice of wood-work, formed either of ash-poles, or square long timbers, cut out of fir; and it is of this sort of espalier that we intend to treat in this place. Espaliers of fruit-trees are commonly planted to surround the quarters of a kitchen-garden, for which purpose they are extremely useful, as well as highly ornamental; for by laying out the walks of this garden regularly, which are bounded on each side by these hedges, when they are handsomely managed, they have a wonderful effect in sheltering the kitchen plants in their quarters, and also screening them from the sight of those who frequent the walks; so that a kitchen-garden laid out in this manner, and properly managed, will be equal to the finest regular parterre for beauty. The trees chiefly planted for espaliers, are apples, pears, and some plums, but the two former are mostly used. Some plant espaliers of apples grafted upon paradise stocks; but these being of humble growth, and a short duration, are not so proper for the purpose, except for very small gardens. We should rather advise the having them upon crab stocks, or, if in smaller gardens, where the trees cannot be allowed to grow so high, upon what the gardeners call the Dutch stock; which will cause them to bear sooner, and prevent their growing too luxuriantly, besides securing their vigour for many years. In choosing the trees for an espalier, endeavour as much as possible to plant the several sorts which are nearly of the same growth in one line, that the espalier may be more ready, and of an even height, which greatly adds to their beauty; for if you plant trees which shoot very unequally in the same line, it will be impossible to make the espalier regular: besides, the distance of the trees must be in proportion to their growth; for instance, some trees of a larger growth should be planted thirty or thirty-five feet asunder, whereas the smaller ones need not be placed at above twenty-five feet from each other. The width of the walks and borders between these espaliers should (in a large garden) be at least fourteen or sixteen feet, and, if it be intended to carry the trees up pretty high, the distance should be greater, that each side may receive the advantage of the sun and air, which is absolutely necessary, if you would have the fruit well-tasted. And if your ground be so situated as to leave you at full liberty which way to make the espaliers, Mr. Miller advises the placing the lines from the east, a little inclining to the south, and towards the west, a little inclining to the north, that the sun may shine between the rows in the morning and evening, when it is low; for in the middle of the day, when the sun is advanced far above the horizon, it will shine over the tops of the espaliers, and reach the surface of the earth about their roots, which is a matter of more consequence than many people are aware of. The sorts of apples proper for espaliers, are the golden pippin, nonpareil, rennette, grise, aromatic pippin, French pippin, Wheeler's russet, and Pile's russet, with some others. The season for planting, and the method of pruning and training these trees, will be found under the articles *Pruning* and *Pyrus*. The sorts of pears proper for an espalier, are chiefly the summer and autumn fruits; for some of the winter pears seldom succeed well in an espalier. These trees, if designed for a strong moist soil, should be upon quince stocks: but if for a dry soil, upon free stocks. The distance of planting must also be regulated by the growth of the trees, which is more unequal in pears than apples, and should therefore be more carefully examined before they are planted. As for the pears upon free stocks, the distance should never be less than thirty feet for moderate-growing trees; but for those that shoot vigorously, the space of forty feet is not too much, especially if the soil be strong, in which case they should be planted at a greater distance. The particular sorts of pear, which Mr. Miller recommends for an espalier, are the jargonelle, blanquette, poiresans, peau, summer boncretien, Hamden's bergamot, autumn bergamot, L'ambrette, Gros Rousselet, Chaumontelle, Beurre du Roy, le Marquis Cressane, with some others of less note; always remembering, that those pears which are of the melting kind,

will do better in espalier than the breaking pears, which seldom ripen well on an espalier; as also that many sorts of pears will ripen well on an espalier in a warm soil and situation, which require a wall in other places; you should also be careful of the stocks these are grafted on, for if the breaking pears are grafted upon quince stocks, the fruit will be stony, but the melting pears will be improved by them. For the method of planting them, the reader is again referred to the genus *Pyrus;* and for the pruning and management, to the article *Pruning*. In order to form the espalier to which the trees are to be trained, Mr. Miller gives the following directions.—The espalier should not be made until the third year after the trees are planted; for while they are young, it will be sufficient to drive a few short stakes into the ground on each side of the trees, in a straight line, to which the branches should be fastened in an horizontal position, as they are produced, in order to train them properly for the espalier, which stakes may be placed nearer, or at a farther distance, according as the shoots produced may require, and these will be sufficient for the three first years; for should you frame the espalier the first year the trees are planted, many of the stakes would rot before the espalier is covered. The cheapest method of making espaliers, is with ash-poles, of which two sorts should be provided; one of the largest size, which contains thirteen poles in a bundle, and the other size, those of half a hundred. The first, or largest-sized poles, should be cut about seven feet and a half long, which are intended for upright stakes, and must be sharpened at the largest end, that they may with more ease be driven into the ground; and if their bottoms are burred or rubbed over with a proper composition, they may be preserved a long time sound: these should be placed at a foot distance from each other in a direct line, and of an equal height, about six feet above ground; then you should nail a row of straight slender poles along upon the tops of the upright stakes, which will keep them exactly even, and continue to cross the stakes with the smaller poles, and also with the tops which were cut off from the larger stakes, at about nine inches' distance row from row, from the top to the bottom of the stakes. These rows of poles should be fastened with wire to the stakes, which, if made of fir, and painted over, will last a long time; and the largest end of the poles should be cut flat, and nailed to the upright stakes, which will secure the espalier almost as long as the poles will endure; whereas, if your fastening is not strong, the poles will be continually displaced with every strong wind. When the espalier is thus framed, the branches of the trees must be fastened thereto, either with small osier twigs, rope-yarn, or some such binding, observing to train them in an horizontal position, and at equal distances, being careful not to cross any of the branches, nor to lay them in too thick. The distance which should be allowed for the branches of pears and apples, must be proportioned according to the size of their fruit: those which produce large fruit, as the summer boncretien, Monsieur John, and Beurre du Roy pears, and the Rennet Grise, Holland pippin, French pippin, and other large apples, should have their branches six or eight inches' distance at least; and for those of lesser growth, four or five inches will be sufficient. But for farther directions, see the article *Pruning*, where these particulars are sufficiently explained. Besides this sort of espalier, made with ash-poles, there is another sort, that is by many people preferred, which is framed with square timbers, cut to a proper size, according to the strength thereof, or the expense the owner is willing to go to. These, though more sightly, when well fixed and painted, are not more lasting than the former sort, provided it be well made, and have upright poles of sufficient strength; nor will they answer the purpose better, though they are much more expensive. The greatest beauty of an espalier consists in disposing the branches of the trees, which, especially in summer, when the leaves abound, entirely hide the frame. All expense, therefore, farther than what is necessary to secure the branches in regular order, is needless. Fruit-trees thus planted, and well managed, are much preferable to those trained up in any other figure; first, because they take up very little room in a garden, and are not injurious to the crops in the quarters; secondly, because the fruit is better tasted, the sun and air having free access to every part of the tree, and all dampness is quickly dissipated; thirdly, because the trees being kept low, and the branches fastened to the espalier, the fruit will not be so exposed, and likely to be blown down by high winds.

Ethulia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common, many-leaved, rounded, simple; leaflets linear, nearly equal, spreading. *Corolla:* compound, tubular; corollets hermaphrodite, uniform, distant by a space; proper funnel-form; border five-cleft, upright. *Stamina:* filamenta five, very short, capillary; antheræ cylindric, tubular. *Pistil:* germen prismatic; style filiform, length of the stamina; stigmas two, recurved. *Pericarp:* none; calix unchanged. *Seeds:* solitary, truncated, turbinate, five-cornered, five-furrowed; down none, but a little projecting margin. *Receptacle:* naked, convex, excavated with points. Essential Character. *Receptacle:* naked. *Down:* none.—Most of the plants of this genus being annual, must be propagated by seeds; and coming from the East Indies, must be kept in the stove.—The species are,

1. Ethulia Conyzoides; *Panicled Ethulia.* Flowers panicled; root annual; stem herbaceous, the thickness of a finger, four feet in height, upright, round, but angular at top, pubescent, hollow; branches alternate, axillary, short, somewhat erect; flowers small, containing above twenty florets, of a pale blue colour. It is a large plant, remarkable for the slender and distant tubes of the florets, and in putting forth roots from the base of the stem, which is seldom the case in annual plants. The leaves smell very sweet. It flowers in July and August.—Native of the East Indies.

2. Ethulia Sparganophora. Flowers sessile, lateral; calix subglobular, imbricate, with unequal scales, recurved, and patulous at the tip; receptacle flat, with raised dots on it; seeds small, uniform, ovate, narrower at bottom; rhomb compressed, with angles at the sides, and one on the back; the rib white, but the interstices and the ventral plane of a pale testaceous colour.—Native of the East Indies.

3. Ethulia Divaricata. Leaves linear, toothed, decurrent; peduncles opposite to the leaves, one-flowered; stem divaricate. This is an annual plant, a hand in height; the stem upright, corymbed, smooth at bottom, pubescent at top, and branched; the primary branches shorter, sharply quadrangular; calix subglobular, subsquurrose; scales oblong, patulous, or recurved at the tip; florets differin; those of the disk funnel-shaped, five-cleft, and rogynous, barren, fewer; in the ray awl-shaped, without teeth: female fertile, very numerous; receptacle flat, large, hollow, dotted.—Observed by Kœnig in the fields of Malabar.

4. Ethulia Tomentosa. Undershrubby: leaves linear, quite entire, tomentose; stems streaked, branched. The leaves are alternate, sessile, lanceolate-linear, hoary, or very finely tomentose, like those of Lavender; calices terminating, sessile, loose, somewhat leafy.—Native of China.

5. Ethulia Bidentis. Racemules directed one way; calices containing about five flowers; leaves lanceolate, opposite.

Stem herbaceous, upright, hexagonal, brachiate; leaves three-nerved, subpetioled, serrate, smooth; racemes two or four at the ends of the stem and branches, brachiate, on the upper side of which are sessile, narrow, yellow flowers, about five together, alternate, and supported by a subulate bracte: seeds oblong, even, with a few streaks.—Native of Chili, and the East Indies.

6. Ethulia Struchium. Flowers axillary, sessile, all trifid. This plant generally rises to the height of two feet and a half or more; the leaves alternate, oblong, entire; the flower-bunches interspersed with a few smaller ones, that rise between the common cups, as they stand compact together at the axils of the leaves: corollets nearly equal, the marginal trifid, the central four-parted; germen oblong, angular, crowned with its proper calix, which has about four little notches; style longer than the corolla; stigmas oblong, revolute.—Native of Jamaica.

Eucalyptus; a genus of the class Icosandria, order Monogynia.—Generic Character. *Calix:* perianth superior, permanent, truncate, covered with an hemispherical deciduous lid before flowering-time. *Corolla:* none. *Stamina:* filamenta thread-shaped, numerous, inserted into the calix; antheræ roundish, two-lobed, small. *Pistil:* germen inferior, turbinate; style single. *Pericarp:* capsule four-celled, gaping only at the tip. *Seeds:* very many, angular, small. Essential Character. *Calix:* superior, permanent, truncate, before flowering-time covered with an hemispherical deciduous lid. *Corolla:* none. *Capsule:* three or four celled, opening at the top, enclosing many seeds.——The species are,

1. Eucalyptus Obliqua; *Oblique-leaved Eucalyptus.* This is a very tall tree, growing to the height of more than a hundred feet, and above thirty in circumference; the bark is smooth like that of the Poplar, and the young branches are long and slender, angulated near the top, but as they grow older the angles disappear. The leaves are alternate, lanceolate, pointed, very entire, smooth on both sides, and remarkably unequal or oblique at their base; the veins are alternate, and not very conspicuous. The whole surface of both sides of the leaves is marked with numerous minute resinous spots, in which an essential oil resides. The footstalks are about half an inch in length, round on the under side, angular above, quite smooth. The flowers have not been fully examined, but the capsules are supposed to grow in clusters, from six to eight each, sessile, and conglomerated; each is about the size of a hawthorn berry, globular, but as it were cut off at the top, and of a dark brown colour; the seeds numerous, small, and angular.—Native of Botany Bay.

2. Eucalyptus Resinifera; *Red Gum Tree.* This tree is much larger than the English Oak; the wood is brittle, and contains a large quantity of resinous gum; the flowers grow in little clusters, or rather umbels, about ten in each, and every flower has its proper partial footstalk, about a quarter of an inch in length, besides the general one; the general footstalk is remarkably compressed, and the partial ones in some degree; the flowers are yellowish, and of a singular structure; the calix is hemispherical, perfectly entire on the margin, and afterwards becomes the capsule: on the top of the calix, rather within the margin, stands a conical pointed calyptra, which is of the same colour as the calix, and about as long as that and the calix taken together: this calyptra constitutes the essential mark of the genus. The antheræ are small and red, and in the centre is a single style, terminated by a blunt stigma; the stamina are very resinous and aromatic. The germen appears, when cut across, to be divided into three cells, each containing the rudiments of one or more seeds. On making incisions into the trunk of this tree, large quantities of red resinous juice are obtained, sometimes more than sixty gallons from a single tree. When dried, this juice becomes a powerful astringent gum-resin, much resembling that known in the shops by the name of kino, and full as efficacious for all medical purposes. Mr. White, the chief surgeon to our settlement at Botany Bay, administered it to a great number of patients in the dysentery, and found it eminently serviceable, never failing in a single instance. This gum-resin dissolves almost entirely in spirit of wine, to which it gives a blood-red tincture; water dissolves about a sixth part only, and the watery solution is of a bright red; and both solutions are powerfully astringent.

Euclea; a genus of the class Diœcia, order Dodecandria.—Generic Character. *Male. Calix:* perianth one-leafed, many times shorter than the corolla, subangular, smooth, five-toothed; teeth very short, upright. *Corolla:* one-petalled, five-parted; segments ovate, obtuse, concave, patulous. *Stamina:* filamenta thirteen, very short, eight in the circumference, five in the centre. Antheræ four-cornered, subulate, grooved, erect, perforated at the tip on both sides. *Female. Calix:* perianth one-leafed, four-toothed, (more seldom five-toothed,) permanent; segments erect, three times shorter than the corolla. *Corolla:* one-petalled, four-cleft; segments ovate, obtuse, concave, erect. *Pistil:* germen ovate, subvillose, superior; styles two, thickish, the length of the corolla; stigmas emarginate, bifid, obtuse. *Pericarp:* berry globular, umbilicate with a dot, smooth, fleshy, (according to L'Heritier, a berried capsule, three-horned, three-celled, three-valved; Linneus says two-celled.) *Seeds:* single, globular, smooth; (according to L'Heritier, roundish, arilled, one or two abortive.) Essential Character. *Male. Calix:* four or five toothed. *Corolla:* four or five parted. *Stamina:* twelve or fifteen. *Female. Calix* and *Corolla:* as in the male. *Germen:* superior; styles two. *Berry:* two-celled.——The species are,

1. Euclea Racemosa; *Round-leaved Euclea.* This is a smooth branching shrub: leaves alternate, subpetioled, obovate, quite entire, obtuse, smooth; racemes of flowers from the axils of the upper leaves, simple, nodding, hardly the length of the leaves; petals snow-white; fruit red, the size of a pea.—It flowers in November and December, and is a native of the Cape of Good Hope.

2. Euclea Undulata. Leaves ovate, undulated. This resembles the preceding. Its red fruit is eaten by the Hottentots, who call the plant *Guarri-bosches.*—Native of the Cape.

Eucomis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* inferior, six-parted, permanent, spreading. *Stamina:* filamenta subulate, dilated at the base, and united there into a concave nectary, fastened to the bottom of the corolla. *Pistil:* germen superior; stigma simple. *Pericarp:* capsule three-celled. *Seeds:* many. Essential Character. *Corolla:* inferior, six-parted, permanent, spreading. *Filamenta:* united at the base into a nectary growing into the corolla. ——The species are,

1. Eucomis Nana; *Dwarf Eucomis.* Scape club-shaped; leaves broad-lanceolate, acute.—It flowers in May, and is a native of the Cape of Good Hope.

2. Eucomis Regia; *Tongue-leaved Eucomis,* or *Fritillaria.* Scape cylindric; leaves tongue-shaped, obtuse, close to the ground; root tuberous, from which arise in the autumn six or eight obtuse leaves, nearly five inches long, and two broad towards the top, growing narrower at their base, crenated on their borders, lying flat on the ground, and continuing all the

winter. In the spring arises the flower-stalk, in the centre of the leaves, about six inches high, naked at the bottom, but the upper part is surrounded by bell-shaped flowers of a greenish colour, appearing in April: the leaves decay in June. There is a variety of this species, with leaves more than a foot long, broad at the base, but narrow at the top, where they end in acute points; the flower-stalks rise higher; and the flowers are of the same shape and colour, but seldom appear till August.—They are both natives of the Cape.

3. Eucomis Undulata; *Wave-leaved Eucomis*, or *Fritillaria*. Scape cylindric; leaves ovate-oblong, waved, spreading; the leaves of the coma almost as long as the raceme.—It flowers from March to May, and is a native of the Cape.

4. Eucomis Punctata; *Spotted Eucomis*. Scape cylindrical, leaves oblong-lanceolate, chanuelled, spreading; leaves of the coma short; racemes very long. This is the largest species.—Native of the Cape, flowering in July.

Evergreen Thorn. See *Mespilus Pyracantha*.

Everlasting Pea. See *Lathyrus*.

Eugenia; a genus of the class Icosandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, elevated in the middle into a subvillose little ball, four-parted; divisions oblong, obtuse, concave, permanent. *Corolla:* petals four, twice as large as the calix, oblong, obtuse, concave. *Stamina:* filamenta very many, inserted into the bell of the calix, length of the corolla; antheræ small, roundish. *Pistil:* germen turbinate, inferior; style simple, length of the stamina; stigma simple. *Pericarp:* drupe four-cornered, crowned; one-celled. *Seed:* nut roundish, smooth. [Swartz observes, that this genus is not easily distinguished from that of *Myrtus*, except in the habit.] Essen. Char. *Calix:* four-parted, superior. *Petals:* four: drupe one-seeded, four-cornered.—To propagate this genus, set the stones fresh from their places of natural growth, in small pots filled with light earth; plunge them into a hot-bed, observing to keep the earth moist, but not wet. In about six weeks the plants will appear; when about four inches high, separate them carefully, plant each in a small pot, plunge them into a hot-bed again, and carefully shade them till they have taken new root. Treat them in the same way as other tender plants from the same countries, keeping them plunged in the tan-bed, and watering them sparingly in winter.—The species are,

1. Eugenia Malaccensis; *Broad-leaved Eugenia*. Leaves quite entire; peduncles branched, lateral. It rises with a tree-like stem from twenty to thirty feet high, covered with a brown bark, and sending out many branches: leaves oblong, ending in acute points, opposite; when young of a bright purple colour, but as they grow older becoming of a light green; the flowers are produced on the sides of the branches; every peduncle branching into three or four others, each of which supports one flower: fruit succulent, irregularly shaped, and enclosing a single nut. Loureiro calls it a berry; it is of a roundish form, commonly obtusely quadrangular, sometimes it is ovate, in size it is an inch and a half in diameter, fleshy, very sweet, smelling like the rose, not very juicy, covered with a thin, shining, yellowish skin, and containing commonly one seed, which is large, roundish, softish, not bony or horny; the fruit is very agreeable to the taste, smell, and sight, and is esteemed wholesome. Forster describes it as whitish, tinged with rose-colour, pear-shaped, and sometimes as big as the fist, but usually much smaller.—It is very common in most of the islands in the South Sea, and is cultivated almost every where between the tropics.

2. Eugenia Jambos; *Narrow-leaved Eugenia*. Leaves quite entire; peduncles branched, terminating. This rises to the same height as the preceding species, but the leaves are longer and narrower; flowers mostly terminating, but some come out from the sides; fruit smaller, rounder, and not so much esteemed.—It flowers from May to July, and is a native of the East Indies, and Cochin-china.

3. Eugenia Pseudo-Psidium; *Bastard Eugenia*. Leaves quite entire; peduncles one-flowered, several lateral and terminating. This resembles a pear-tree, is upright, and about twenty feet in height; leaves lanceolate-ovate, acuminate, and sickle-shaped at the end, bright green, shining, from three to four inches long, opposite, on short petioles; calix deeply four-parted; petals white; fruit globular, at first green, then passing through the different shades of yellow as it ripens, till at length it becomes scarlet; it is scarcely half an inch in diameter, the skin thin, and the pulp soft, sweet, and red; the seed is large and globular.—Native of Martinico, where it is called *Goyavier Batard*. It flowers in October, and bears fruit in December and January.

4. Eugenia Uniflora. Leaves quite entire, cordate-lanceolate, peduncles one-flowered, lateral, solitary; flowers white; fruit bright red, soft, slightly grooved, with a sweet smell.—Native of Goa in the East Indies.

5. Eugenia Cotinifolia. Leaves ovate, obtuse, quite entire; peduncles one-flowered. The fruit is globular and succulent, enclosing a single shining membranaceous nut, having one seed in it.—Native of Cayenne, where the French call it *Cerisier de Cayenne*.

6. Eugenia Acutangula. Leaves crenate; peduncles terminating; fruits oblong acute-angled pomes; raceme simple, very long; flowers small, with longish stamina and pistils. Loureiro describes it as a large tree with spreading branches.—Native of the East Indies, and of Cochin-china.

7. Eugenia Racemosa. Leaves crenate; racemes very long; pomes ovate, quadrangular; peduncles simple, longer than the leaves, pendulous.—Native not only of India, but of New Caledonia, in the South Seas.

8. Eugenia Sessiflora. Flowers lateral, sessile; leaves oblong, quite entire, shining, dotted underneath; branches round, smooth, covered with an ash-coloured bark, leafy at top, warted below; fruit the size of a plum, globular, dotted.—Observed by West in the island of Santa Cruz.

9. Eugenia Punctata. Leaves oblong, dotted on both sides; peduncles opposite, three-flowered, the length of the leaves; branches round, alternate, ash-coloured at bottom, purplish at top, having raised dots scattered over them; the two lateral flowers pedicelled, the middle one sessile: there are two bristle-shaped bractes at the base of the lateral ones; segments of the calix five, round, dotted; petals, when magnified, appearing to be very finely ciliate.—Native of Santa Cruz.

10. Eugenia Nervosa. Leaves quite entire; flowers heaped, terminating; berries globular, nerved. This is a large tree with spreading branches; calix large; petals roundish, small, quickly deciduous; filamenta linear, more than a hundred, three times as long as the petals, spreading out wide into a globular head, with small nodding antheræ.—Native of the woods of Cochin-china.

11. Eugenia Corticosa. Leaves ovate acuminate, racemed, corymbed; filamenta very short. This also is a large tree with spreading branches, covered with a thick cloven bark, having something of an aromatic flavour; flowers reddish-white, small, numerous, subterminating; calix goblet-shaped, subtruncate; petals small, roundish, closed; filamenta twenty, awl-shaped, shorter than the corolla, and placed near the edge of the calix; antheræ roundish, very small; berry only a quarter of an inch in diameter, subturbinate, smooth, blackish,

enclosing one roundish softish seed.—Native of the woods of Cochin-china.

Evolvulus; a genus of the class Pentandria, order Tetragynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, sharp, permanent. *Corolla:* one-petalled, rotate, five-cleft. *Stamina:* filamenta five, capillary, spreading, almost the length of the corolla; antheræ a little oblong. *Pistil:* germen somewhat globose; styles four, capillary, diverging, length of the stamina; stigmas simple. *Pericarp:* capsule somewhat globose, four-celled, four-valved. *Seeds:* solitary, roundish, cornered at one side. Essential Character. *Calix:* five-leaved. *Corolla:* five-cleft, rotate. *Capsule:* three-celled. *Seeds:* solitary.—This genus entirely consists of stove-plants, to be cultivated and treated as the tender sorts of Convolvulus from the same countries.—The species are,

1. Evolvulus Nummularius. Leaves roundish; stem creeping; flowers subsessile. From a small, stringy, fibrous, annual root, spring long trailing stalks, taking root here and there where they touch the ground, and putting forth alternately, at small unequal distances, leaves almost round, three-quarters of an inch long, and an inch broad, having a small notch at the end, and on petioles a quarter of an inch in length, and of a brown colour; flowers axillary, on short peduncles, of a light blue colour.—Native of Jamaica and Barbadoes; common also in the dry plains of the other islands.

2. Evolvulus Gangeticus. Leaves cordate, obtuse, mucronate, villose, petioled; stem diffuse; peduncles one-flowered.—Native of the East Indies.

3. Evolvulus Alsinoides; *Chickweed-leaved Evolvulus.* Leaves obcordate, obtuse, hairy, petioled; stem diffuse; peduncles three-flowered. It is a little annual plant, with a creeping root; the stems, leaves, petioles, and peduncles, are covered with rufous hairs; leaves alternate, roundish, on a short petiole; flowers axillary, on long peduncles; corolla blue, large in proportion to the plant. The Ceylonese call it *Wisnugarandi*, from the Malabar idol *Wisnu*, and *Garandi*, which signifies the dysentery, for which disorder it is reputed to be a sovereign remedy. It flowers in June and July.—Native of the East Indies.

4. Evolvulus Emarginatus. Leaves kidney-form, repand. Annual: stems filiform, creeping; flowers axillary, solitary, small; peduncles the length of the petioles, muricate underneath.—Native of the East Indies.

5. Evolvulus Linifolius; *Flax-leaved Evolvulus.* Leaves lanceolate, villose, sessile; stem upright, peduncled, three-flowered, long. The whole of this plant has the appearance of a very fine sort of flax. It seldom rises above ten or fourteen inches high; the stalk is generally simple, or but very little divided, slender, and upright; the leaves are narrow and few, they each throw out a long and delicate peduncle from their axils, furnished with a very small exterior two-leaved cup about the middle; the styles are two, and bifid; the capsules are divided into two or four cells, and contain many seeds.—In the low-lands of Jamaica it is frequently met with: annual, flowering in August and September.

6. Evolvulus Tridentatus. Leaves linear, wedge-form, three-cusped, dilated at the base, and toothed; peduncles one-flowered; stem twining.—Native of the East Indies.

7. Evolvulus Sericeus. Leaves lanceolate, sessile, silky underneath; peduncles short, one-flowered; the flower-stalks are very short; the cups single, and every flower furnished with four styles.—Native of the low lands of Jamaica.

Euonymus; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, flat; divisions roundish, concave. *Corolla:* petals five, ovate, flat, spreading, longer than the calix. *Stamina:* filamenta five, subulate, upright, shorter than the corolla, placed on the germen as it were on a receptacle; antheræ twin. *Pistil:* germen acuminate; style short, simple; stigma acute. *Pericarp:* capsule succulent, coloured, five-sided, five-cornered, five-celled, five-valved. *Seeds:* solitary, ovate, involved in a berried aril. *Observe.* The fructification in some individuals or species takes away a fifth part of the number. In some there are no filamenta, except the points of the receptacle. Essential Character. *Corolla:* five-petalled. *Capsule:* five-sided, five-celled, five-valved, coloured. *Seeds:* calyptred, or veiled.——The species are,

1. Euonymus Europæus; *Common Spindle Tree.* Flowers mostly four-stamined; peduncles compressed, many-flowered; stigmas awl-shaped; leaves smooth, bluntly serrate; angles of the capsules blunt. The common Spindle-tree, when growing in hedges, is seldom seen of any considerable size, but is a shrub; if planted single, however, and properly trained, it will have a strong woody stem, and rise more than twenty feet high, dividing into many branches; leaves lanceolate, about three inches long, and an inch and a quarter broad in the middle, opposite, entire, of a deep green colour. The flowers come out at the end of May, or in the beginning of June, in small bunches from the side of the stalks, on slender peduncles; the petals are whitish, and spread in the form of a cross; the seeds are pale flesh or rose coloured; the fruit ripens in October, at which time the seed-vessels spread open and expose the seeds, which being of a beautiful red colour, these shrubs then make a good appearance. The wood is said to be used by the musical instrument makers, and for skewers and toothpicks; the branches should be cut when the shrub is in blossom, for it is then tough, and not easily broken; in that state it is also used by watchmakers for cleaning watches. No animal but the goat browses upon it: the berries are said to be fatal to sheep; they vomit and purge violently; when powdered and sprinkled upon the hair, they destroy lice. From its use for skewers it has the name of *Prickwood;* Gerarde calls it *Prick-timber;* it is also called *House-berry, Dogwood,* and *Gatteridge-tree,* by which latter names it is confounded with *Cornus Sanguinea:* the Germans call it *Spindelbaum;* the Swedes, *Alster;* the Danes, *Beenved;* the Italians, *Fusaggine;* the Spaniards, *Bonetero, Bonete de Clerigo;* the Portuguese, *Barrete de Clerigo;* and the Russians, *Mereskletiana, Kislianka, Swida, Sedlini Beresdren.*—This, with the second, third, and fourth species, may be propagated either by seeds or layers; if by seeds, they should be sown in autumn soon after they are ripe, then the plants will come up in the spring following; but if the seeds are not sown till spring, the plants will not appear till the spring following, whereby a whole year is lost. The seeds should be sown upon a shady border, where they will succeed better than when they are more exposed to the sun; and when the plants appear, they will only require to be weeded till the following autumn, when, as soon as the leaves decay, the plants should be taken up, and transplanted into a nursery, in rows two feet distant, and the plants one foot asunder in the rows; in this place they may remain two years, and then they may be removed to the places where they are to remain. When they are propagated by layers, the young shoots should be laid down in autumn, and if the joint which is laid deepest in the ground be slit, as is practised for Carnations, it will cause them to put out roots much sooner than they otherwise would do; these layers will be sufficiently rooted in one year to bear transplanting, when they should be taken from the old plants, and treated in the same way as the seedlings. The cuttings of these sorts, planted in a shady border, will take root, but they should be planted

in autumn, as soon as their leaves begin to fall; they should be the shoots of the same year, with a knot of the former year at bottom.

2. Euonymus Latifolius; *Broad-leaved Spindle Tree.* Most of the flowers five-stamined; bark smooth; peduncles filiform, cylindric, many-flowered; leaves sharply serrate; angles of the capsules sharp. This species rises with a stronger stem than the first species, and grows to a larger size; the leaves are ovate-lanceolate, about four inches long, and two broad in the middle, opposite, entire, light green, on short footstalks; the flowers come out from the side of the branches upon very slender peduncles, two inches and a half long, branching out into a loose bunch, and the flowers on separate pedicels; petals five, at first white, but changing to purple; the same number predominates in the other parts of the fructification; the fruit is much larger than that of the common sort, and the peduncles being weak, it always hangs down. This plant was seldom seen in England, until Mr. Miller procured it from France, and is now become very common in the nurseries.—Native of Austria, Hungary, and most of the southern parts of Europe. See the first species.

3. Euonymus Verrucosus; *Warted Spindle Tree.* Flowers four-stamined; bark warted; peduncles filiform, cylindric, with about three flowers. This species differs from the two first, in having the stem and branches warted, the upper surface of the petals covered with a pile consisting of very small teats; the antheræ rounded, and placed upon their pyramidal filamenta, like the cap of a mushroon. It flowers in May and June.—Native of Austria and Carniola. See the first species.

4. Euonymus Atro-purpureus; *Purple-flowered Spindle Tree.* Flowers four-stamined; peduncles compressed, many-flowered; stigmas four-sided, truncate. This shrub is about six feet high, with an ash-coloured bark, smooth, and free from tubercles; the branches are round, and a little compressed at their extremities: the leaves are oblong-lanceolate, smooth on both sides, veiny on the back, stand opposite, and are finely serrated on their edges, where they are of a purple tinge, as are also the footstalks; the common peduncles are biflorous, slender, and branchy, the proper ones red.—Native of the northern parts of Asia. See the first species.

5. Euonymus Americanus; *Evergreen Spindle Tree.* All the flowers five-cleft; leaves sessile. It rises with a shrubby stalk to the height of eight or ten feet, dividing into many branches, which come out opposite from the joints of the stem. Leaves lanceolate, two inches long, and about three-quarters of an inch broad in the middle, ending in acute points, they are opposite, and continue green all the year; the flowers are produced at the ends of the branches, and also from the sides, in small clusters, and are succeeded by round capsules, which are closely armed with rough protuberances. It flowers in July, but seldom produces ripe fruit in England. There is a variety in the nurseries with variegated leaves. As they are evergreen shrubs, they deserve a place in every curious garden, and particularly in all plantations.—It is a native of North America, and is so hardy, that it rarely suffers by the cold of our winters, provided it be not very much exposed. It may be propagated by laying down the young branches in the autumn, observing to tongue them in the same manner as is practised in laying of Carnations; these will have made good roots in one year, when they may be cut from the old plants, and planted for two years in a nursery, in order to acquire strength; after which they should be planted where they are designed to remain.

6. Euonymus Tobira. Flowers five-cleft; leaves oblong, retuse, entire; stem shrubby, upright, leafless, branched, scarce a fathom in height; branches alternate, round, upright, leafless; branchlets alternate, upright, green, smooth, leafy; flowers at the ends of the branchlets aggregate, in a kind of umbel, upright; petals five, seldom six, white, smelling like Orange flowers, oblong-ovate, blunt, entire, patulous; stamina seldom six: the whole plant is rather milky.—Native of Japan, flowering in May.

7. Euonymus Japonicus. Flowers four-cleft; leaves ovate, obtuse, serrate; stem shrubby, strict, ash-coloured, naked, a fathom in height; branches opposite, from upright spreading, green, but little leafy; branchlets decussate, leafy, short, green; flowers axillary, panicled; panicle trichotomous, decompound, divaricate, subfastigiate; peduncle and pedicels angular, smooth, compressed; corolla four-petalled, white, patulous; petals rounded, concave, entire, a line in length; stamina four. It varies with leaves spotted with white; the flowers appear in June and July, and the fruit ripens in November and December.—Native of Japan.

8. Euonymus Chinensis. Stem scandent; leaves three-lobed; peduncles many-flowered. Stem herbaceous, long, climbing by tendrils; flowers white; calix five-cleft, spreading; petals five, oblong-ovate, spreading, longer than the calix.—Native of China, where it is found near the suburbs of Canton.

Euparea; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, acute. *Corolla:* petals five or twelve, oblong, narrow, spreading, longer than the calix. *Stamina:* filamenta five; antheræ not described. *Pistil:* germen roundish, superior; style bristle-shaped, long; stigma simple. *Pericarp:* berry juiceless, globular, crowned with the permanent style, one-celled. *Seeds:* very many, roundish, small, adhering to a globular fungous free receptacle, in the middle of the berry. Essential Character. *Calix:* five-leaved. *Corolla:* five to twelve petalled. *Berry:* superior, one-celled. *Seeds:* very many, adhering to a free receptacle.——The only species hitherto known is,

1. Euparea Amœna; which is a procumbent plant, having the appearance of *Lysimachia Nummularia,* but being only one-fourth of the size; the flowers have the colour of those of *Anagallis Phœnicea,* or *Pimpernel,* but are many-petalled; the fruit, which Gærtner in one place calls a capsule, and in another a juiceless berry, however it be pressed, will not open with regular valves, and is therefore nearly allied to *Trientalis:* the seeds have a navel in the belly opposite to the embryo.—Native of New Holland, and Terra del Fuego.

Eupatorium; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common oblong, imbricate; scales linear-lanceolate, upright, unequal. *Corolla:* compound uniform, tubular; corollets hermaphrodite, equal; proper funnel-form; border five-cleft, spreading. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* germen very small; style filiform, very long, two-cleft almost to the germina, straight; stigmas slender. *Pericarp:* none; calix unchanged. *Seeds:* solitary, oblong, angular; down plumose, long, (according to Gærtner, pilose, only toothletted or ciliate.) *Receptacle:* naked. Essen. Char. *Calix:* imbricate, oblong; style cloven half way, long. *Down:* plumose. *Receptacle:* naked.—This genus consists principally of tall-growing, perennial, herbaceous plants. The greater part of the old sorts are natives of North America: many, however, of South America, and the West Indies; whence come most of the new sorts. Several are found wild in the East Indies, and one only in Europe. The two first, and a few other species, are shrubby. Some

have weak stems, and support themselves by twining. The leaves in most of the species are opposite, but in a few they are verticilled or alternate. The flowers are most frequently in corymbs at the ends of the stem and branches, or else axillary: the predominant colour of the corolla is purple; some, however, are white.—The species are,

**Calices four-flowered.*

1. Eupatorium Dalea; *Shrubby Hemp Agrimony.* Leaves lanceolate, veined, obscurely serrate, smooth; stem shrubby. This species rises to the height of nine or ten feet or more: it has a moderately thick woody stem, and throws out its branches in a pretty open position. It flowers with us in August, and is frequently met with on the lower hills of Liguanea in Jamaica. This plant is remarkable for the very pleasant odour which it emits from every part, which continues for many years, even when dried.—This, with the second, fifth, sixth, seventh, eighth, ninth, fifteenth, seventeenth, eighteenth, nineteenth, twenty-second, twenty-fifth, twenty-sixth, twenty-seventh, twenty-ninth, thirtieth, thirty-first, second, third, fourth, fifth, and thirty-ninth, forty-first, second, third, fourth, fifth, sixth, seventh, eighth, and forty-ninth species, being tender, should be planted in pots, and kept constantly plunged in the tan-bed in the stove, where they will thrive and flower. These may be propagated by cutting off some of their young shoots, about the middle of June, when they have strength, planting them in pots filled with light earth, and plunging them into a moderate hot-bed, where, if they be shaded from the sun, and gently watered as they may require it, they will put out roots in six weeks, and may then be transplanted into separate pots, and treated like old plants. When the seeds of these tender sorts can be procured from their native countries, the plants raised from them are much preferable to those which are obtained by any other method, and will flower much stronger; but as these seeds seldom grow the first year, few persons have patience enough to wait for the plants coming up. When any of these seeds are brought over, they should be sown as soon as they arrive, in pots, that they may be removed at any time: the pots should be plunged into a moderate hot-bed, and the earth kept tolerably moist; the glasses should also be shaded in the heat of the day, to prevent the earth from drying. In this hot-bed the pots may remain till autumn, when, if the plants are not up, they should be plunged between those in the bark-stove, and removed in the spring to a gentle hot-bed, which will bring up the plants soon after. When they are fit to remove, they ought to be planted in separate small pots, and plunged into the hot-bed again, shading them from the sun till they have taken new root; then they should have a large share of free air admitted to them in warm weather, and frequently refreshed with water. In the winter these plants should be more sparingly watered, especially those the stalks of which decay. In the summer they require a large portion of free air, with which management they will thrive and flower.

2. Eupatorium Parviflorum; *Small-flowered Hemp Agrimony.* Shrubby: leaves ovate-lanceolate, serrate, smooth; corymbs spreading; calices three-flowered. This strongly resembles the preceding species; but the leaves are oblong, the flowers smaller, the calices constantly three-flowered, and the plant almost void of scent.—Native of Jamaica, where it is much more common than the first species, growing in the same situations. See the first species.

3. Eupatorium Hyssopifolium; *Hyssop-leaved Hemp Agrimony.* Leaves lanceolate-linear, three-nerved, almost entire. This species rises with an upright round stalk, to the height of three feet, sending out several branches towards the top, which come out regularly by pairs. The flowers stand upon long peduncles at the ends of the branches, some sustaining one, some two, and others three or four flowers, which are white, and appear late in autumn. Native of Carolina, Virginia, and Maryland; and found also in Japan.—This, together with the fourth, tenth, eleventh, fourteenth, sixteenth, twentieth, twenty-fourth, twenty-eighth, thirty-sixth, thirty-seventh, thirty-eighth, and fortieth species, are hardy plants, and are propagated by sowing the seed in the full ground; but there must be care taken in the sowing to keep the sorts separate; for, as the seeds of these plants have a light down adhering to them, they are easily displaced by the least wind: so that the best way will be to sow them in drills, which should be but shallow, for when the seeds are buried too deep, they will not grow. The bed in which these are sown should not be too much exposed to the sun, but rather have an eastern aspect, where the morning sun only reaches it; but where more exposed, they must be shaded with mats in the heat of the day, and the ground should be kept pretty moist; for, as they generally grow in moist shady situations in their native countries, they will of course succeed better where they have a soil and situation somewhat like that; though, as we want their heat in summer, the plants will thrive here when exposed to the sun, provided they have a moist soil, or are supplied with water in dry weather. When the young plants come up, they must be kept clean from weeds, and where they are too close, some of them should be drawn out, to give room for the others to grow, and if these be wanted, they may be planted in another bed, where, if they are shaded and watered, they will soon take root; after which, they will require no farther care but to keep them clean from weeds till the following autumn, when they may be transplanted to the places where they are intended to remain. As the roots of these plants spread out to a considerable distance, they should not be allowed less than three feet distance from any other plants, and some of the largest growing should be allowed four feet. If the soil in which they are planted is a soft gentle loam, they will thrive much better, and flower stronger, than in light dry ground, in which, if they are not duly watered in dry summers, their leaves will shrink, and their stalks will not grow to half their usual height. All the species above enumerated have perennial roots, by which they may be propagated; and as some of them do not perfect their seeds in England, that is the only way of increasing the plants here: some of the sorts have creeping roots, sending out offsets in great plenty, so these are easily propagated; and the others may be taken up, or the heads taken off from them every other year, in doing of which, great care should be taken not to injure the old plants, or cut them too much, which would cause them to flower weak in the succeeding year. The best time to remove these plants is in autumn, as soon as they have done growing, that they may get fresh roots before the frost comes on; but if the frost should commence soon after their removal, if the surface of the ground is covered with tan or dried leaves, to keep out the frost, it will effectually secure them; and if this be done to the old plants in very severe winters, it will always preserve them; however, it may not be injudicious to practise this on the young seedling plants, which have not so good roots, nor are so well established in the ground: the future culture will be only to dig the ground about them every spring, and keep them clean.

4. Eupatorium Scandens; *Climbing Hemp Agrimony.* Stem twining; leaves cordate-ovate, attenuated, crenate-toothed; lobes divaricate; branches smooth. Stems annual, twisting about any neighbouring support, to the height of five

or six feet. At each joint two small side-branches come out, terminated by clusters of white flowers, so that the stalks seem covered with them most part of their length; but as these come out late in the season, unless the summer prove warm, this plant does not flower well in England.—Native of Virginia and Carolina; and also, it is supposed, of the East Indies. This species is sometimes killed by severe weather in our climate, when left uncovered. When the stalks therefore decay in autumn, the ground should be covered with some old tanners' bark. It multiplies very fast by its creeping roots, which may be parted every other year. For further particulars respecting its propagation and culture, see the third species.

5. Eupatorium Volubile. Leaves cordate-ovate, crenate, acute; lobes parallel; stem twining; branches and petioles villose. This differs from the preceding, in having the branches, petioles, nerves of the leaves, underneath, and peduncles villose, the leaves less attenuated, with the lobes not divaricated, but parallel, the egret purplish, but not hoary. There is another Eupatorium from Madagascar, exactly like this, except that it is entirely smooth.—Native of the East Indies. See the first species.

6. Eupatorium Denticulatum. Leaves cordate, rugged, minutely toothletted; branches angular; stem climbing. The branches have five acute angles, standing; leaves petioled, two inches long, bluntish, paler underneath, very finely and thinly haired, sometimes not toothed; corymbs terminating the branches and branchlets; pedicels umbelled, filiform, rugged, angular; calix four-leaved; leaflets linear, equal, shorter than the egret, which is purple.—Native of Surinam. See the first species.

7. Eupatorium Amarum. Leaves cordate-ovate, acuminate, quite entire, subtomentose underneath; flowers corymbed; stem climbing; branches the thickness of a swan's quill, smooth, striated; branchlets axillary, a hand in length, flower-bearing. The leaves are petioled, three inches in length and breadth, smooth, and nerved above, beneath slightly tomentose, with stellate hairs, visible only with a magnifier, and having veins standing out; those on the branchlets are an inch long, and become gradually smaller towards the top; corymbs from the extreme axils of the leaves on the branchlets, and from the end; seeds four, angular; egret longer than the calix, purplish.—Found in the Caribbee islands by Martfelt, and in Surinam by Rolander. See the first species.

8. Eupatorium Houstoni; *Houston's Hemp Agrimony.* Stem twining; leaves ovate, quite entire; stalks slender, twining, eight or ten feet high, sending out small opposite branches at most of the upper joints; lower leaves heart-shaped, ending in acute points; upper almost triangular, smooth, and of a lucid green. The upper part of the stalks has long branching stalks of white flowers, which are small and sessile.—Imported from Jamaica. See the first species.

** *Calices five-flowered.*

9. Eupatorium Zeylanicum; *Ceylon Hemp Agrimony.* Leaves ovate, hastate, petioled, toothed; they are alternate, narrower at the base, with small rounded ears bent in, green, and smooth on the upper surface, tomentose and veined on the lower, like Sage. The corymbs of flowers resemble those of the *Eupatoriums:* the fructifications, however, want to be examined more critically.—Native of Ceylon. See the first species.

10. Eupatorium Sessilifolium; *Sessile-leaved Hemp Agrimony.* Leaves sessile, stem-clasping, distinct, lanceolate; stems slender, round, smooth. The leaves are in pairs, at two inches' distance, sessile, two inches long, mucronate, resembling those of Mint, slightly toothed on the edge; flowers terminating, corymbed, in many little heads, white, slender. It flowers in September and October.—Native of Virginia. See the third species.

11. Eupatorium Album; *White Hemp Agrimony.* Leaves lanceolate-serrate; leaflets of the calix lanceolate, scariose at the end, and coloured. The stem is erect, streaked, scarcely pubescent; leaves opposite, subsessile, almost naked; corymb terminating, composed of alternate subdivided branchlets, fastigiate, and white; down simple.—Found in Pennsylvania by Bartram, and by Thunberg in Japan. See the third species.

12. Eupatorium Chinense; *Chinese Hemp Agrimony.* Leaves ovate, petioled, serrate; stem somewhat angular, flexuose, erect, smooth, but little branched, a foot high or more. The leaves are opposite, sharp, entire at the base, pale underneath, nerved, smooth, spreading, an inch and more in length; flowers in a fastigiate and roundish panicle.—Native of China and Japan.

13. Eupatorium Japonicum; *Japanese Hemp Agrimony.* Leaves undivided, and three-lobed, serrate. The stem is scabrous, round, streaked, erect, branched, two feet and upwards in height; branches alternate, panicled, from erect patulous like the stem; leaves opposite, petioled, the lower three-lobed, the upper undivided, ovate, sharp, unequally serrate, sometimes entire, paler underneath, nerved, scabrous, a finger's length, the upper ones gradually less; petioles half an inch in length; flowers on the branches and branchlets terminating, in ovate panicles, on very short peduncles.—Native of Japan.

14. Eupatorium Rotundifolium; *Round-leaved Hemp Agrimony.* Leaves sessile, distinct, roundish-cordate. It rises with upright stalks about a foot high; the joints are near each other, and at every joint is a pair of leaves, of a light green colour, and serrate. The flowers are produced in small loose panicles at the tops of the stalks; they are white, and have two small leaves immediately under them. The flowers appear at the end of June; but the seeds seldom ripen in England.—Native of New England and Virginia. See the third species.

15. Eupatorium Stipulaceum. Leaves hastate, acute at both ends, three-nerved, stipuled; flowers corymbed; stem climbing. The stem is very smooth, and very finely streaked; the leaves an inch and a half or more in length, mucronate, acuminate at the base, veined very smooth above, beneath appearing very slightly villose with a magnifier; and the lobes ovate, acute, oblique behind, having frequently one or two minute teeth.—Native of Brazil. For the propagation and culture, see the first species.

16. Eupatorium Altissimum; *Tall Hemp Agrimony.* Leaves lanceolate, nerved, the lower ones a little serrate on the outmost part; stem undershrubby. This rises with a single, upright, green stalk, about four feet high; at each joint are four leaves in whorls, they are six inches long, and two inches broad in the middle, lessening to both ends, terminating in acute points, rough, serrate, and on short footstalks; the stem is terminated by a close corymb of purple flowers, appearing in July, and continuing till September.—Native of North America. See the third species.

17. Eupatorium Hastatum; *Hastate-leaved Hemp Agrimony.* Leaves cordate-hastate, somewhat toothed, naked; stem twining; flowers in spikes. Stem shrubby, branched, striated, pubescent; leaves petioled, opposite, petioles also pubescent; racemes axillary, opposite; flowers spiked, in whorls, four in a whorl, white; calix four leaved; leaflets lanceolate-ovate, convex; corollets four; stamina extremely minute; style longer. The flowers small like those of Caca-

lia Suaveolens, and the taste of the whole herb is bitter. It is a climber, and stretches a great way among the neighbouring bushes.—It is frequent about St. Thomas's, in the East, and Manganeel in Jamaica. See the first species.

18. Eupatorium Syriacum; *Syrian Hemp Agrimony.* Leaves opposite, subsessile, ternate; stems straight, round, four or five feet high, purplish, striated; the branchlets come out at a right angle almost over the whole stem; flowers in erect compound corymbs. It flowers in October; the flavour is unpleasant, and bitterish.—Native of the West Indies. See the first species.

19. Eupatorium Trifidum. Leaves three-parted, the floral ones undivided; stem climbing; corymbs from the upper axils, and at the top, on long peduncles, compound; partial peduncles and pedicels subpubescent; calix smooth, five-flowered; leaflets smooth, about ten, linear, the five outer ones very short.—Native of the Caribbee Islands. See the first species.

20. Eupatorium Trifoliatum; *Three-leaved Hemp Agrimony.* Leaves in threes; stem slender, cylindric, rigid, hairy on the upper part; flowers very small, as in the other species, but they have not the calices so long, nor are they so exactly disposed in umbels, but rather like the common Red Valerian. Gronovius found it in Virginia; Vernon brought it from Maryland; Miller says that it grows in Pennsylvania; Krocker, that it is found in Silesia, and that it is like our common European sort, except in having leaves in threes, and white flowers. See the third species.

21. Eupatorium Cannabinum; *Common Hemp Agrimony.* Leaves digitate; stems three or four, and even six feet high, hairy, reddish, branched; leaflets three or five, lanceolate, sharply serrate on the sides, entire on the base and top, slightly hairy, the middle one much larger than the others; scales of the calix few, not more than ten, unequal, linear, red on the edge, a little hairy; flowers in thick umbels or corymbs at the top of the stem or branches; florets five, and sometimes six together, of a pale red or purple colour; seeds black, streaked, smooth, little more than a line in length; egret sessile, with simple rays, not three lines long; the rays, when viewed with a glass, are finely toothed, or shortly ciliate. The stem has a pleasant aromatic smell when cut. The flowers have a strong smell; and the whole plant has a very bitter taste. An ounce of the root in decoction is a full dose, and is sometimes taken in the jaundice and dropsy; but it is a rough medicine, and ought to be used with caution. Boerhaave gave an infusion of this plant to foment ulcers and putrid sores; and Tournefort informs us, that the Turks cure the scurvy with it. Withering says, that an infusion of about a handful of the leaves vomits and purges briskly; and adds, that the Dutch peasants make use of it in smaller doses, as an alterative or purifier of the blood, and against the scurvy. Meyrick affirms, that the fresh-gathered root boiled in ale purges briskly, but without producing any bad effects; and there are, says he, many instances of its having cured the dropsy. It is also a good wound-herb, whether bruised and applied to the parts, or made into an ointment with hog's-lard. Goats are the only cattle that appear to eat this plant.—Found on the banks both of running and stagnant waters, frequently in most parts of Europe, flowering in July and August. In Johnson's edition of Gerarde, it is named *Common Dutch Agrimony.* There is a variety, which is the seedling, and has oval-lanceolate leaves: it sometimes flowers in that state, but not often; the second year it bears leaves in threes. Professor Martyn found this variety with simple leaves; but forgot the place. Dillenius met with it afterwards, before you come to Lee, in the road to Eltham; and Mr. Woodward has since observed it near Bungay in Suffolk. For the propagation and culture, see the first species.

**** Calices eight-flowered.*

22. Eupatorium Coriaceum. Leaves elliptic, coriaceous, smooth, toothed on the outside; petioles an inch long, dilated at the base; corymbs terminating, superdecompound; common peduncle pubescent; pedicels having minute scales scattered on them towards the base; calix seven-flowered; the outer scales ovate, shorter, the inner longer, linear; egret purplish, twice as long as the calix, almost simple.—Supposed to be a native of South America. See the first species.

23. Eupatorium Cinereum. Calices seven-flowered; leaves opposite, lanceolate, tomentose. This very much resembles an *Athanasia* in its flowers and woody rigid stem.—Thunberg found it at the Cape of Good Hope.

24. Eupatorium Purpureum; *Purple Hemp Agrimony.* Leaves in fours, scabrous, lanceolate-ovate, unequally serrate, petioled, wrinkled; stem cylindric, green, but purplish at the base of the petioles; corymb terminating; calices flesh-coloured; corollas whitish; antheræ purple; style very long. It grows to the height of three feet or more, with a suffruticose, upright, striated stem, but little branched. The leaves are subsessile, and of a very dark green. The corymb of flowers is fastigiate. The calix has about eight flowers. The receptacle is narrow, convex, scrobiculate, smooth. The seeds are small, four-cornered, columnar, acuminate at the base, with the streaks and angles rugged with dots, and whitish, the interstices smooth and livid; egret capillary, very minutely toothletted.—Native of North America and Cochin-china. See the third species.

25. Eupatorium Diffusum. Leaves ovate, serrate, three-nerved; panicle very much branched and diffused. The whole plant is smooth; panicle terminating, large, a foot long; the last pedicels capillary; at all the ramifications opposite narrow leaves becoming gradually smaller; calicine leaflets lanceolate, the outer ones shorter; corollets eight; egret white, the length of the calix.—Native of South America. See the first species.

26. Eupatorium Nervosum. Leaves elliptic-lanceolate, attenuated, toothed, triple-nerved, smooth on both sides; calices many-flowered.—Native of Jamaica. See the first species.

27. Eupatorium Rigidum. Leaves petioled, ovate, acute, serrate-toothed, rigid, rugged underneath; stem subherbaceous.—Native of Jamaica. See the first species.

28. Eupatorium Maculatum; *Spotted Hemp Agrimony.* Leaves in fives, somewhat tomentose, lanceolate, equally serrate, veined, petioled; stem annual, about two feet and a half high, purple, with many dark spots upon it; leaves rough, placed by threes towards the bottom of the stalk, but near the top by pairs at each joint; flowers purple, terminating in a sort of corymb, appearing in July and August, and in warm seasons ripening the seeds in autumn; egret simple or capillary.—Native of North America. See the third species.

29. Eupatorium Auriculatum. Leaves ovate, toothletted, tomentose underneath; petioles eared; stem climbing; flowers in spikes. The stem is woody; branches striated, tomentose, hoary, becoming bald with age; petioles tomentose, half an inch in length, with a half-ovate tomentose earlet at the base on each side, the flat floral-leaves having only a rudiment of these; spike compound, flexuose, axillary, and terminating; spikelets alternate; flowers usually in pairs, distant; in the axils of the branches of the spike single; calix smooth, with eight linear leaflets, of a brown ferruginous colour, and at the base a few minute tomentose scales; corollets seven; style

longer by half than the corollet; egret a little longer than the calix, white, when magnified serrate. Annual.—Native of Brazil, Guiana, Jamaica, &c. See the first species.

30. Eupatorium Molle. Leaves petioled, cordate, acute, subserrate, pubescent; stem herbaceous, tomentose.—Native of Jamaica, Guiana, &c. See the first species.

31. Eupatorium Villosum. Leaves opposite, decussated, ovate, subserrate, beneath villose-tomentose; calices eight to fifteen flowered; stem shrubby; branches softly villose; corymbs terminating, decompound; peduncles and pedicels villose-tomentose; at the ramifications short bristle-shaped leaves; calicine leaflets linear, pubescent; corollets small, as far as sixteen; seeds the length of the calix, with a dirty-coloured egret, longer than the calix.—Native of Jamaica and St. Domingo. See the first species.

32. Eupatorium Cordifolium. Leaves cordate, serrate, tomentose, hirsute underneath; petioles very short; corymbs subsessile; calices squarrose; stem shrubby.—Native of Jamaica. See the first species.

33. Eupatorium Montanum. Leaves cordate, acute, toothletted, petioled, rugged, hirsute underneath; corymbs much spreading; stem shrubby.—Native of Jamaica. See the first species.

34. Eupatorium Canescens. Hoary; leaves ovate, sublobed and entire, underneath very soft and three-nerved; corymbs simple. This is a branching shrub, the branches having an ash-coloured bark; branchlets opposite, brachiate, spreading, hoary, and very soft, as are also the tops of the branches; corymbs from the ends of the branches and branchlets, few-flowered; calix cylindrical, subvillose; leaflets linear, obtuse, with pale streaks, the outer ones shorter; florets ten; seed black, when magnified appearing angular, with minute villose hairs scattered over it.—Observed in the island of Santa Cruz. See the first species.

35. Eupatorium Scabrum. Villose: leaves opposite, petioled, ovate, mostly entire, wrinkled, scabrous on the upper surface. The stem seems to be undershrubby; it is upright, branched, roundish, streaked, villose-scabrous, leafy, many-flowered: branchlets opposite, angular, bearing flowers at the end. No stipules; panicles terminating, upright, rough with hairs, many-flowered, contracted; peduncles opposite; pedicels mostly alternate; bractes lanceolate, rough with hairs; flowers upright; calix cylindric, smooth; scales oblong, obtuse, three-nerved, somewhat callous at the tip; the outer ones shorter and broader; florets seven or eight, scarcely longer than the calix, five-sided; seeds black, with a down, scarcely the length of the corolla, serrate, hardly feathered, spreading.—Gathered by Mutis in New Granada. See the first species.

**** *Calices with fifteen or more Floscules.*

36. Eupatorium Perfoliatum; *Perfoliate Hemp Agrimony.* Leaves connate, perfoliate, tomentose; stems annual, from two to three feet high, hairy. The upper part of the stalk divides into many slender peduncles, each sustaining a close cluster of white flowers, coming out in July. The seeds, in warm seasons, will sometimes ripen in England.—Native of North America. See the third species.

37. Eupatorium Cœlestinum; *Blue-flowered Hemp Agrimony.* Leaves cordate-ovate, obtusely serrate, petioled; calices many-flowered. This has a creeping root, which spreads and multiplies very fast. The stalks rise about two feet high. The flowers are produced at the top of the stalks in a sort of corymb, and are of a fine blue colour.—Native of Maryland. See the third species.

38. Eupatorium Aromaticum; *Aromatic Hemp Agrimony.* Leaves ovate, obtusely serrate, petioled, three-nerved; calices simple; stem round, four feet high, strict, brachiate, having the appearance of Scutellaria. Leaves somewhat wrinkled; racemes terminating; flowers twice the length of the calix, snow-white, containing from eighteen to twenty-eight florets, the styles scarcely longer than the floret; in this circumstance it differs from the other species, and in having the calix not imbricate, but the leaflets almost equal.—Native of Virginia. See the third species.

39. Eupatorium Macrophyllum; *Large-leaved Hemp Agrimony.* Leaves heart-shaped, three-nerved, serrate underneath, pubescent; stem pubescent, the thickness of a swan's quill, striated; petioles from two to three inches in length; corymbs terminating, and axillary, peduncled, decompound, close; calix loosely imbricate; the leaflets lanceolate, pale green, very finely streaked.—Native of the Caribbee islands. See the first species.

40. Eupatorium Ageratoides. Leaves ovate, serrate, petioled; stem smooth, annual, five or six feet high, towards the top putting out side-branches. At the ends of the shoots the flowers are produced in large tufts, and are of a pure white; they appear in October.—Native of North America. See the third species.

41. Eupatorium Conyzoides. Leaves ovate, attenuated, sharply serrate, three-nerved, smooth above; calices closely imbricate; branches striated, pubescent; corymb terminating, almost simple, few-flowered; partial peduncles three-flowered; pedicels one-flowered.—Supposed to be a native of South America. See the first species.

42. Eupatorium Odoratum; *Sweet-scented Hemp Agrimony.* Leaves deltoid, toothed at bottom, tomentose underneath; calices many-flowered; stem a fathom in height, shrubby, branched, even; flowers terminating, subcorymbed, white; seeds linear, slightly compressed, with a capillary egret. This weakly shrubby plant is generally observed to grow among other bushes, where it frequently casts its long, slender, flexile, opposite branches to a moderate distance. The flowers are sometimes impregnated with a smell resembling that of the European Meadow-sweet.—It flowers in August and September, and is very common in the lower hills of Jamaica. See the first species.

43. Eupatorium Triplinerve. Leaves lanceolate, triple-nerved, quite entire, smooth; stem round, smooth, very finely streaked; branches spreading, flower-bearing; panicle terminating, subtrichotomous; partial peduncles scarcely pubescent; the last pedicels an inch long, filiform, with a minute leaf at the base of each; calix many-leaved; leaflets linear, nearly equal, acute, villose, and purplish at the tip; the outmost shorter; florets more than twenty, purple at the top. From the island of Santa Cruz. See the first species.

44. Eupatorium Ivæfolium. Leaves narrow-lanceolate, three-nerved, subserrate; calices squarrose, many-flowered; stem subherbaceous, two feet high, erect, strict, branched, hispid; branches simple, elongated; peduncles terminating, and in the axils of the upper leaves opposite, filiform, mostly trichotomous, but the last one-flowered; flowers small, blue.—Common in Jamaica. See the first species.

45. Eupatorium Urticæfolium; *Nettle-leaved Hemp Agrimony.* Hispid: leaves petioled, cordate, gash-serrate; panicle terminating; calices many-flowered, awl-shaped, somewhat pungent. This plant appears very much like a Nettle at first sight, but the leaves are three-nerved at the base; stem upright, branched, round, streaked, hairy, leafy; petioles scarcely the length of the leaves, angular, equal. No stipules; panicle like a cyme, upright, hairy; pedicels alternate or crowded; bractes linear, few; flowers upright, pale purple; calix subcylindric, patulous, pubescent; scales

keeled, three-nerved, attenuated at the edge, the outer ones smaller; floscules little longer than the calix; seeds black; down shorter than the corolla.—Native of New Granada. See the first species.

46. Eupatorium Stoechadifolium; *Cotton-weed Eupatorium.* Tomentose: leaves petioled, linear, crenate, hoary underneath; panicle terminating; stem upright, roundish, covered with a soft, thick, white down. No stipules: panicles upright, somewhat like corymbs, conglomerate; peduncles opposite, variously divided, woolly; bractes none, except a pair of leaves, smaller than the rest at the base of each panicle; flowers purple; calix cylindric, woolly at the base; scale sharp, with a green line along them, membranaceous and ciliate about the edge, the inner ones somewhat tongue-shaped, the outer lanceolate and smaller; floscules very numerous, the length of the calix, a little swelling, five-sided; segments from erect spreading, sharpish, quite entire, scarcely pubescent; antheræ included; style scarcely half-cleft; down shorter than the corolla, yellowish, scabrous.—Native of New Granada. See the first species.

47. Eupatorium Microphyllum; *Small-leaved Hemp Agrimony.* Leaves triangular-ovate, with nine notches, tomentose and veined underneath; panicle conglomerate, terminating; peduncle elongated; stem undershrubby, woody, ascending, a little branched, leafy, round, subhirsute; petioles the length of the leaves, hairy; no stipules; panicle on a long peduncle, resembling a corymb; pedicels variously divided, rough, haired; bractes two at the first ramification of the panicle, usually lanceolate, but sometimes of the same form with the leaves; flowers purple, fewer than in the foregoing; calix subcylindric, scarcely pubescent at the base; all the scales lanceolate, sharp, nerved, attenuated and ciliate at the edge, the outer ones smaller and thicker; floscules scarcely the length of the calix, swelling at top, not angular; segments from erect spreading, bluntish, entire, closely pubescent on the outside; antheræ included; style scarcely half-cleft; seeds brown; egret almost the length of the corolla, hardly rugged when viewed through a glass. The flowers resemble those of the preceding in structure, but differ in several characters.—Native of New Granada. See the first species.

48. Eupatorium Squarrosum. Leaves subcordate, ovate-acute, serrate; calices squarrose; stems a fathom in height, round, subtomentose, with opposite branches; flowers in racemes, on axillary three-flowered peduncles; calix cylindric, with many lanceolate-acute, striated leaflets, the outer ones reflex at the tip, and containing about twenty-four florets; corolla twice as long as the calix; florets greenish yellow, with short, ovate-acute, patulous segments; seeds small, oblong, striated, with very small hairs; egret sessile, obscurely feathered, shorter than the corolla.—Native of Mexico. See the first species.

49. Eupatorium Sinuatum. Leaves ovate, sinuate, hairy, alternate; calices eight-flowered, or thereabouts; stem suffruticose, three feet high, erect, hispid; leaves toothletted; flowers purplish, in terminating panicles; receptacle concave.—Native of the island of Mozambique.

Besides the species above enumerated, Mr. Miller describes five sorts which were sent to him from Vera Cruz by Dr. Houston, viz.

1. Eupatorium Fruticosum; with oblong cordate leaves; flowers in panicles; stem shrubby, climbing. It rises to the height of ten or twelve feet; the leaves are opposite, and about three inches long, and an inch and a half broad, of a lucid green; the panicles are long and branching, and proceed from the side of the stalks; the flowers are white.

2. Eupatorium Betonicifolium; with oblong, blunt, crenate, smooth leaves, and simple calices. It rises with an upright stem nearly two feet high, being towards the bottom leaves of a thick substance; from the upper part, which is naked, the flowers come out in a thick panicle, they are of a blue colour, and appear late in autumn; the root is biennial.

3. Eupatorium Morifolium; with heart-shaped serrate leaves, and an upright tree-like stem. It rises twelve or fourteen feet high, sending out many channelled branches, covered with a brown bark; leaves as large as those of the Mulberry-tree, of a light green colour, opposite, on petioles near two inches long. The branches are terminated by four or five peduncles, which come out opposite from the joints, (there is also an odd one at the end,) these sustain branching panicles of white flowers, forming a long, loose, pyramidal thyrse, without any leaves intermixed, and making a fine appearance.

4. Eupatorium Punctatum; with ovate-petioled entire leaves; stem shrubby, branching; calices simple. The stems are near five feet high, dividing into many slender branches, the joints of which are three or four inches asunder; at each of these is a pair of leaves about three-quarters of an inch long and half an inch broad, having several black spots on their surface, and upon long slender footstalks; the branches are horizontal, terminated by small bunches of white flowers; the calices are composed of seven narrow lanceolate leaflets, divided to the bottom.

5. Eupatorium Paniculatum; with heart-shaped, wrinkled, crenate leaves, and a panicled stem. It rises with an upright branching stem three feet high, sending out two side-branches from the joint, almost the whole length; these are terminated by loose spikes of red flowers, as is also the principal stem; the leaves are rough, sessile, of a light green, and a little hoary.

6. Eupatorium Conyzoides, may probably be the same with *Kuhnia Conyzoides* of Linneus.

Euphorbia; a genus of the class Dodecandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, inflated, somewhat coloured, four-toothed at the mouth, and in some few five-toothed, permanent. *Corolla:* petals four, in some few five, turbinate, gibbous, thick, truncate, unequal in situation, alternate with the teeth of the calix, with their claws placed on the margin of the calix, permanent. *Stamina:* filamenta several, twelve or more, filiform, jointed, inserted into the receptacle, longer than the corolla, breaking forth at different times; antheræ twin, roundish. *Pistil:* germen roundish, three-sided, pedicelled; styles three, two-cleft; stigmas obtuse. *Pericarp:* capsule roundish, tricoccous, three-celled, starting open elastically. *Seeds:* solitary, roundish. Essential Character. *Corolla:* four or five-petalled, placed on the calix. *Calix:* one-leafed, bellying; capsule tricoccous.——This genus consists of milky plants, which are mostly herbaceous; several however are shrubby, upright, for the most part very few of them creeping, some leafless, but most of them leafy; stems angular, or tubercled, or more frequently cylindric or columnar, unarmed, or, in the angular sorts, resembling the upright Cactuses, and armed with prickles, which are either solitary or in pairs, placed in a single row on the top of the ridges; such as have leaves have them simple, most frequently alternate and naked; in some sorts, however, they are opposite, and are then commonly attended with stipules, and in a few they are placed by threes in whorls; peduncles in the leafless sorts naked, bearing from one to three flowers, in the leafy ones axillary, but more frequently from two to five or more, in a terminating umbel, each sometimes in a many-flowered head, but more frequently dichotomous, trichotomous, or even tetrachotomous, with single flowers, between the divisions, at the base and in the forkings having bractes, in number the same with

the peduncles, forming a sort of involucre. Jussieu doubts whether each stamen being jointed and accompanied with chaffs, and breaking forth at different times, may not, as in Box, be considered as so many one-stamined male flowers, encircling one female flower in a common calix or involucre; if so, the flowers of Euphorbia should be regarded as compound, and the plants as belonging to the class Monœcia. ——The species are,

* *Shrubby, prickly.*

1. Euphorbia Antiquorum; *Triangular Spurge.* Almost naked, triangular, jointed; branches spreading. The stem is triangular, compressed, succulent, rising to the height of eight or ten feet, and sending out many irregular spreading twisting branches, for the most part three-cornered, but having some two and others four angles; at their extremities are a few short roundish leaves, which soon fall off, and near these come out now and then a few flowers, which have five thick whitish petals, with a large three-cornered germen in the centre; they soon drop off without producing seeds. It grows naturally in the East Indies, whence the plants were brought to the gardens in Holland, and thence communicated to most of the curious gardens in Europe.—This has generally been mistaken for the true Euphorbium, and consequently directed to be used in medicine; but it is from the second sort that the drug now imported under that name in England is taken. Linneus supposes the 7th (Officinarum) to be the sort which should be used; but as they are all nearly of the same quality, it may be indifferent from which this drug, which is the inspissated juice of the plant, is taken.—There is a variety with a naked, three-cornered, compressed stalk, sending out a great number of erect branches, which are also generally three-cornered, but sometimes four-cornered; they are armed with short crooked spines, but have no leaves, nor have the plants produced here. It is also a native of India.

The plants included from the first to the twenty-fifth species, and which form the two first divisions of this vast genus, are in general known by the name of Euphorbium; the others, before Linneus appeared, were mostly known by the name of *Tithymalus* or *Spurge.* These plants are introduced into the gardens of the curious, principally on account of the oddness of their structure, which is entirely different from that of any European production: they are all full of a milky acrid juice, which will soon raise blisters, and flows out of the plant when wounded in any part. This juice will burn linen almost as much as aquafortis; the plants ought therefore to be handled with great caution, nor should the ends of their branches be ever bruised or injured, for if they be, it frequently causes them to rot down to the next joint, and will sometimes destroy the whole plant, if those injured branches be not cut off in time: so that whenever the branches appear to have been injured, the sooner they are cut off from the plants, the less danger there will be of their suffering from it; nor should any of the branches be cut between the joints, for the same reason. The Dutch imported most of the plants into Europe: that people, it must be confessed, have been very curious to introduce great numbers of plants from India, and also from the Cape of Good Hope; from the last-mentioned place a great variety of curious plants have been recently brought, many of which produce very elegant flowers, and are the greatest ornaments of the conservatory in the winter and spring seasons. These have been brought over in seeds; but most of the different sorts of Euphorbia came over in plants or cuttings; which may be easily transported to any distance, if either of them be secured in boxes, with any soft dry package, to prevent their being bruised, or their spines from wounding each other, and defended from moisture and cold, for they will live thus six months out of the ground, and if carefully replanted take new root, and thrive as well as if they had been just cut off from the old plants, or taken out of the ground, which is a much more expeditious method of obtaining the plants than from seeds, when they can be procured. The greatest part of these succulent plants grow naturally upon barren rocky places, or in dry sandy soils, where few other plants will thrive; therefore they should never be planted in rich or loamy earth in our climate, nor suffered to receive much wet, which will soon rot them. The best mixture of earth for these plants is, about a fourth part of screened lime-rubbish, a fourth part of sea-sand, and half of light fresh earth from a common; these should be mixed well together, and frequently turned over before the mixture is used, that the parts may be incorporated, and the compost sweetened by being exposed to the air. If this mixture be prepared a whole year before it is wanted, it will be the better, that it may have the benefit of the winter's frost and the summer's heat to mellow it; and the oftener it is turned over, and the smaller the heaps are in which it is laid, the air will penetrate it better, and render it more fit for use. These plants are easily propagated by cuttings, which should be taken from the old plants in June; they must be cut off at a joint, otherwise they will rot. When the cuttings are taken off, it will cause the milky juice of the old plants to flow out in plenty, therefore there should be some dry earth or sand applied to the wounded part, which will harden and stop the sap; and the wounded part of the cuttings should also be rubbed in sand, or dry earth applied upon the wounded part, for the same purpose: the cuttings should then be laid in a dry part of the stove for ten days or a fortnight; and some of those whose branches are large and very succulent, may lie three weeks or more before they are planted, that their wounds may be healed and hardened, to avoid rotting. The cuttings should be each planted in small halfpenny pots, laying stones or rubbish at the bottom, and filling them with the mixture before directed; then plunge the pots into a moderate hot-bed, and, if the weather be very hot, the glasses of the hot-bed should be shaded in the middle of the day, and the cuttings gently watered once or twice a week, according as the earth may dry; in about six weeks or two months the cuttings will have put out roots, so, if the bed is not very warm, the plants may continue there, provided they have free air admitted to them every day; otherwise it will be better to remove them into the stove, where they may be hardened before the winter, for if they are too much drawn in summer, they are very apt to decay in winter, unless very carefully managed. During summer these plants require gentle waterings two or three times a week, according to the warmth of the season; but in winter they must be sparingly watered, and only once a week, especially if the stove is not warm. The first species will require more warmth in the winter than any of the others, and also less water, and, if well managed, will grow seven or eight feet high; but the plants must constantly remain in the stove, receiving a large share of air in warm weather, and in winter a temperate degree of warmth. The annual sorts should have their seeds sown in the autumn; they will come up in the spring, and require no farther culture. The perennial sorts may be propagated either by sowing the seeds, or parting the roots, or by cuttings. They are most of them hardy enough to endure the greatest cold of this country, especially if they be planted in a dry soil.

2. Euphorbia Canariensis; *Canary Spurge.* Naked, subquadrangular; prickles in pairs.—In its native country, the Canary Islands, this grows to the height of twenty feet or

more, but in England it is rarely seen more than six or seven. The stem is very thick, green, and succulent, and has four or five large angles, closely armed with black crooked spines, which come out by pairs at every indenture; it sends out from every side large succulent branches of the same form, which extend to the distance of two or three feet, and then turn their ends upwards, so that when the plants are well grown, they have some resemblance to a chandelier; they have no leaves, but are closely armed with black spines like the stem; at the ends of the branches come out the flowers, which are shaped like those of the first species. It flowers in March and April. For its culture and propagation, see the first species.

3. Euphorbia Edulis; *Five-angled Spurge.* Prickly, leafy, five-angled; peduncles many-flowered, terminating; flowers apetalous; stem six feet high, with prickles in pairs, and ascending branches; leaves many, scattered, almost wedge-shaped, rounded at the tip, three inches long, quite entire, fleshy, smooth; corolla none; calix fleshy, ventricose, red within, green without; stamina short, about forty.—Native of Cochin-china, where the leaves are eaten boiled with other herbs. For the culture and propagation, see the first species.

4. Euphorbia Heptagona; *Seven-angled Spurge.* Naked, seven-angled; spines solitary, subulate, flower-bearing; stem roundish, upright, succulent, about three feet high, putting out several branches on the side, of the same form; the angles are armed with long, single, black spines; at the ends of the branches come out small flowers, which are sometimes succeeded by small fruit.—Native of the Cape of Good Hope. This species is at present exceedingly rare in England; those procured from Holland have been most of them destroyed by placing them in stoves, where, by the heat, they have in one day turned black, and rotted immediately after. It will, however, thrive well, if placed in a dry airy case, with other succulent plants, where they may have free air in mild weather, and be protected from frost; in summer the plants may be exposed in the open air in a warm situation, but should be screened from much wet: with this treatment the plants will thrive much better than when they are more tenderly nursed. For further particulars, see the first species.

5. Euphorbia Mammillaris; *Warty-angled Spurge.* Naked; angles tubered, with spines between. This differs from the preceding, in having the angles doubled, and swelling a little, and the spines single between the tubercles, which are placed longitudinally.—It flowers in July and August, and is a native of the Cape of Good Hope. This species, like the eleventh and fourteenth, is pretty hardy, and will live in a good glass-case in winter, without fire, provided the frost be entirely excluded. In summer they may be placed abroad in a warm situation; and as they are very succulent plants, they should not have too much wet; if therefore the summer turn out very moist, it will be very proper to place these plants under some shelter, where they may enjoy the free air, and be screened from the rain, otherwise by receiving too much wet they will soon begin to rot, especially in winter. For further particulars respecting its propagation and culture, see the first species.

6. Euphorbia Cereiformis; *Naked Spurge.* Naked, many-angled; spines solitary, subulate. This sort has stalks and branches very like those of the next, but much more slender; the spines of this are single, and those of the others double; and the ends of the branches in this are closely set with flowers on every angle. It flowers in June and July, and is a native of the Cape of Good Hope. For its propagation and culture, see the first species.

7. Euphorbia Officinarum; *Officinal Spurge.* Naked, many-angled; prickles doubled. This puts out many stalks, just above the surface, which are thick, succulent, and roundish, having eight or ten angles whilst they are young, but as they grow old they lose their angles and become round; the branches grow distorted and irregular, first horizontal, but afterwards turning upwards; the angles are armed with small crooked spines, and on the upper part of the branches, in June and July, come out the flowers; they are small, and of a greenish white.—Native of Africa. For its propagation and culture, see the first species. Gerarde calls it the *Poisonous Gum Thistle.*

8. Euphorbia Triaculeata; *Three-prickled Spurge.* Prickly, naked: stem round, grooved; prickles in threes. This is a shrub of a cubit high, spreading and branchy; branches about the thickness of a finger, sulcated longitudinally; in the interjacent channels are inserted three prickles, of which the exterior are very short, and bent downwards; the middle one about an inch long, subulate, spreading, and curving downwards. The flowers spring by threes from the bosoms of the prickles, and are sessile; the stamina, six in number, two in each angle of the flower; the pistil does not arise from the side, as in many others.—Native of Arabia. For its propagation and culture, see the first species.

9. Euphorbia Neriifolia; *Oleander-leaved Spurge.* Angles obliquely tubercled; stem upright, strong, five or six feet high, with irregular angles, and protuberances oblique to the angles; the lower part is naked, and the upper part branching; the branches are armed with crooked spines; at every protuberance, and at the top, are oblong leaves of a lucid green, very smooth, entire, and rounded at the end; these fall off in spring, and the plants remain naked for some months, and then, in June and July, the flowers come out; they sit close to the branches, and are of a greenish white colour; the leaves come out in the autumn.—Native of the East Indies and Cochin-china, where it is much used for hedges, on account of its strong thorns. For its propagation and culture, see the first species.

** *Shrubby, unarmed: Stem neither dichotomous nor umbelliferous.*

10. Euphorbia Meloformis; *Melon Spurge.* Subglobose, many-angled: trunk fleshy, three inches in diameter, smooth; ridges eight, ten, or more, broad at the base, and keeled; keels flower-bearing, marked with scars of the peduncles and with glands alternately; peduncles cylindric, the thickness of a pigeon's quill, jointed, with very short villose hairs scattered over them, usually first trichotomous, then dichotomous, seldom simple.—It flowers from May to September, and is a native of the Cape of Good Hope. For its propagation and culture, see the first species.

11. Euphorbia Caput Medusæ; *Medusa's Head Spurge.* Imbricate: tubercles furnished with a linear leaf; flowers subpedunculed; petals palmate. It has thick, roundish, succulent stalks, which are scaly; they send out many branches from their sides of the same form, which are twisted, and run over one another, so as to appear like a parcel of serpents, which give it the name of Medusa's Head; at the end of these are narrow, thick, succulent leaves, which drop off, and round the upper part of them the flowers come out; these are white, and of the same form with those of the other sorts, but larger, and are frequently succeeded by fruit.—There are several varieties of this species; that called *Little Medusa's Head,* has a thick short stalk, seldom more than eight or ten inches high, from which come out a great number of slender trailing branches, about a foot in length, intermixing and having the same appearance with the other, but smaller, and much

horter; the ends are beset with narrow leaves, between which he white flowers come out.—It is a native of Africa. This species will require to be supported, to prevent the weight of the branches from drawing them upon the pots, and by training the stems up to stakes, they will grow four or five feet high, and a great number of side-branches will be produced. For further particulars respecting its propagation and culture, see the first and fifth species.

12. Euphorbia Clava; *Club Spurge*. Imbricate: tubercles furnished with a lanceolate leaf; flowers peduncled; petals quite entire. This is a perfectly smooth species, abounding with a milky juice, which seems to be but slightly acrid; stem and branches erect, and round, gradually thickening upwards, till they arrive at the diameter of an inch; leaves sessile, spatule-shaped, and elongated, very entire, and about four inches long, with a prominent back-rib; peduncles one-flowered, axillary, solitary, coated with lanceolate bractes.—It flowers from January to August, and is a native of the Cape of Good Hope. For its propagation and culture, see the first species.

13. Euphorbia Anacantha; *Scaly Spurge*. Imbricate: tubercles furnished with a roundish leaflet; flowers terminating, solitary, sessile; petals palmate. This is one of the smaller shrubby species, and has a scaly and tuberous branched stem; the petals are each three-toothed; the leaves are extremely small, few, and are chiefly produced towards the top of the branches; the flowers are large in proportion to the plant, and spring to the number of three or four, from the top of some of the upper branches, which in this species are covered over with prominent tubercles, and thick scales. It flowers in September and October.—Native of the Cape. For its propagation and culture, see the first species.

14. Euphorbia Mauritanica; *Barbary Spurge*. Half-naked, shrubby, filiform, flaccid; leaves alternate; stems many, taper, succulent, about four feet high, and requiring support; they have a light green bark, and their lower parts are naked, but their upper parts have oblong, smooth, entire leaves, placed alternately on every side; flowers in small clusters at the ends of the branches, of a yellowish green colour, and sometimes succeeded by smooth round fruit; but the seeds rarely ripen in England.—It grows naturally on the African shore of the Mediterranean. For its culture and propagation, see the first and the fifth species.

15. Euphorbia Piscatoria; *Smooth Spear-leaved Spurge*. Shrubby, strict; umbels five-cleft, terminating; involucels oblong; leaves linear, even.—Native of Madeira, and the Canaries. For its propagation and culture, see the first species.

16. Euphorbia Glabrata; *Smooth Spurge*. Unarmed, shrubby, branched; leaves opposite, ovate-acute, smooth, quite entire. The whole of this plant is smooth; stem erect, unarmed, jointed, purplish; branches dichotomous, covered with leaves at bottom; flowers at the ends of the branchlets, axillary, and at the divisions solitary, small, peduncled; capsule nearly the size of a Coriander seed, smooth, and quite even.—Native of the Caribbee islands. For its propagation and culture, see the second species.

17. Euphorbia Linifolia; *Flax-leaved Spurge*. Stem suffruticose, woody at the base, round and smooth at bottom, striated-angular and subhirsute above; leaves opposite and alternate, linear-lanceolate; peduncles from the top of the stem and branches, in fives or thereabouts, umbelled; calix smooth, as is also the throat; petals obovate, truncate, yellowish-green; capsules smooth, quite even, the size of a small pea.—Native of the island of Dominica. For its culture and propagation, see the first species.

18. Euphorbia Cuneata. Shrubby: leaves obovate: peduncles lateral, three-flowered; stem unarmed; branches round, smooth, with an ash-coloured bark. Leaves petioled, several from the tubercles of the branches, unequal, smooth, veinless, quite entire.—Native of Arabia Felix. For its propagation and culture, see the first species.

19. Euphorbia Balsamifera; *Balsam Spurge*. Shrubby, strict: head terminating; leaves lanceolate, even, glaucous.—Native of the Canary islands. For its propagation and culture, see the first species.

20. Euphorbia Tirucalli; *Indian-tree Spurge*. Half-naked, shrubby, filiform, erect: branches patulous, crowded in an orderly manner; stem taper, succulent, eighteen or twenty feet high, sending out many branches of the same form, subdividing into many smaller; they are jointed, but at a great distance, smooth, and of a deep green colour, having a few small leaves at their extremities, which soon fall off. As the plants grow older, their stalks become stronger and less succulent, especially towards the bottom, where they turn to a brown colour, and become a little woody. It does not produce any flowers here. Native of the East Indies. For its propagation and culture, see the first species.

21. Euphorbia Tithymaloides. Shrubby: leaves in a double row, alternate, ovate. This is a wandlike suberect plant, six feet high, the whole of it abounding in a white, bitterish, milky juice. Stems numerous, round, smooth, weak, very pliant, branched, the thickness of a finger or of the thumb, the older ones ash-coloured, the younger green; peduncles one-flowered, short, aggregate about the extremities of the branchlets, coming out principally when the plant is without leaves; flowers void of scent, of a beautiful scarlet colour, and on account of their singular structure, perhaps rightly claiming to form a distinct genus, although possessed of the same characters with the other Euphorbia. The South Americans give a strong decoction of this plant, particularly of the stalks, in venereal cases, and in suppressions of the menses.—It is a native of the Caribbee islands, and of the neighbouring continent. Mr. Miller makes two species of this, under the names of Tithymalus Myrtifolius, and Lauro Cerasifolius, or Myrtle-leaved and Laurel-leaved Spurge. The first grows naturally near Carthagena in South America, whence Mr. Robert Miller, surgeon, sent the branches, which were planted here, and succeeded, rising into shrubby succulent stalks to the height of twelve or fourteen feet; but though often as large in circumference as a man's little finger, were too weak to sustain the weight of their succulent leaves, which bore down the unsupported branches. The leaves are oval, and terminate in acute points; they are two inches and a half long, and one inch and a half broad near their base, about the thickness of bay-leaves, and are ranged alternately on two sides of the branches, to which they sit close. The flowers are produced at the ends of the branches, three or four together; they are of a scarlet colour, of one petal in the shape of a slipper.—The Laurel-leaved Spurge grows naturally in Barbadoes, and most of the other islands in the West Indies, where the English inhabitants know it by the title of Poison-bush: this has thick, shrubby, succulent stalks, which will grow to the height of ten or twelve feet; these are larger than those of the first sort, and are garnished with oblong oval leaves, ending with blunt points; they are above three inches long, and an inch and a half broad in the middle, of a very thick consistence, and of a dark green colour, ranged alternately on two sides of the stalk. The flowers grow at the ends of the branches, are of a deep red colour, and shaped like the other variety. This variety abounds with an acrid milky juice, which will draw blisters wherever it is

applied to the flesh; and, says Mr. Miller, I have been credibly informed, becomes a deadly poison, when mixed with the blood, so that if the points of arrows, or the edges of swords, be rubbed with this juice, it ensures the death of any animal wounded by those weapons.—For the propagation and culture of this species and its varieties, see the first species.

22. Euphorbia Heterophylla; *Various-leaved Spurge.* Leaves serrate, petioled, differm, ovate, panduriform, or dichotomous with a bifid umbel. This is an annual plant, from two to three feet high. Some of the leaves are narrow, and entire, others ovate, and divided in the middle almost to the midrib, in the shape of a fiddle; they also vary in colour, some being inclinable to purple, others of a light green, and their footstalks are short. The flowers are produced in small umbels at the ends of the branches; they are of a greenish white, and are succeeded by small round capsules.—It grows naturally at La Vera Cruz. For its propagation and culture, see the first species. Morison speaks with admiration of the heterogeneous leaves in this plant, a circumstance which is since found not to be uncommon, particularly in plants from the South Seas. He speaks of this species of Spurge as attaining the height of a man, even in this country, with a trunk an inch or more in thickness, spreading out into straight, long, pliant branches, having some leaves three or four inches long, and narrow, resembling those of the Narrow-leaved Willows; others on the same branch soft, like those of an Atriplex or Orach, tending to a sea-green colour, sinuated, and from an inch to two inches in breadth. Varieties are observed in this plant; some having a reddish and somewhat wrinkled bark, whilst in others it is green and smooth; the leaves also being subject to vary much. This being shrubby, and so large a plant, cannot be the annual species first described; and is introduced here for the sole sake of the curious and intelligent botanist.

23. Euphorbia Cotinifolia; *Venice-Sumach-leaved Spurge.* Leaves opposite, subcordate, petioled, emarginate, quite entire: stem shrubby; upright, six or seven feet high, covered with a light brown bark, and divided at top into many branches; leaves smooth, and of a beautiful green, but falling away in winter; flowers from the ends of the branches, yellow and small, soon falling away without fruit.—Native of the islands and continent of South America. For its propagation and culture, see the first species.

24. Euphorbia Ocymoidea; *Basil-leaved Spurge.* Herbaceous, branching: leaves subcordate, quite entire, shorter than the petiole; flowers solitary. This is an annual plant, rising with an upright stalk about a foot high, and dividing into a great number of branches, which spread very wide on every side; leaves roundish, heart-shaped, on pretty long footstalks. The flowers come out singly from the divisions of the stalk; they are small, of an herbaceous colour, and are succeeded by small round capsules.—Native of South America. This, with the twenty-fifth, twenty-eighth, thirtieth, thirty-second, third, fourth, fifth, and sixth, and the forty-sixth, are annual, and must have their seeds sown upon a hot-bed in the spring, and when the plants are fit to remove, they should be planted separately in small pots filled with light earth, and plunged into the hot-bed again; they must afterwards be treated in the same manner as other tender annual plants from hot countries.

25. Euphorbia Lævigata. Shrubby, branched: leaves opposite, oblong, obtuse, smooth, quite entire. The whole of this plant is smooth; stem unarmed; branches dichotomous at the end, three and four times divided; leaves on short petioles, longer than the internodes, shorter and narrower on one side of the base, terminated by a minute dagger-point, even, veinless, glaucous, green: peduncles at top, from the forks of the branchlets, solitary; flowers small; capsule smooth, even, the size of a coriander-seed.—Native of the East Indies. For its propagation and culture, see the preceding species.

*** *Dichotomous, with a bifid umbel, or none.*

26. Euphorbia Origanoides; *Marjoram Spurge.* Leaves serrulate, ovate, obtuse, three-nerved; panicle terminating; stems simple. This plant cannot at first sight be distinguished from Marjoram.—It is a native of the island of Ascension, and the Friendly Isles.

27. Euphorbia Atoto. Dichotomous: leaves ovate, quite entire; umbel terminating.—This is an annual plant, and a native of the Friendly Islands.

28. Euphorbia Hypericifolia; *St. John's-wort-leaved Spurge.* Leaves serrate, oval-oblong, smooth; corymbs terminating; branches divaricate. It rises about two feet high, with a branching stalk; peduncles axillary, alternate, erect, dichotomous, commonly longer than the leaves, with the flowers crowded together; calix very minute. This is an annual plant, found in most of the cultivated grounds in the West Indies; every part of it is poisonous to hogs.—For its propagation and culture, see the twenty-fourth species.

29. Euphorbia Mellifera; *Honey-bearing Spurge.* Leaves scattered, lanceolate-acute, even; peduncles dichotomous; capsules muricated. It flowers in April and May.—Native of Madeira.

30. Euphorbia Prostrata; *Trailing Red Spurge.* Leaves oval, obscurely serrate; peduncles axillary, with about three flowers; stems diffused, smooth, herbaceous, a span in length; flowers on short pedicels, often in threes, but sometimes solitary; petals purple.—Native of the West Indies. For its culture and propagation, see the twenty-fourth species.

31. Euphorbia Maculata; *Spotted Spurge.* Leaves serrate, oblong, hairy; flowers axillary, solitary; calix green, petals red; capsule hairy; branches patulous. This is an annual, acrid, and milky plant, flowering in gardens in the open air, and readily springing from seed. The stems are very numerous, spreading closely on the ground.—Native of Jamaica.

32. Euphorbia Hirta; *Creeping Hairy Spurge.* Leaves serrulate, ovate, acuminate; peduncles in axillary heads; stems hairy; flowers crowded together, pedicelled, minute; calix blood-red.—It is a native of both Indies; and is recommended by Browne as a powerful resolutive and deobstruent, operating by promoting perspiration and the urinary discharge very abundantly. For its propagation and culture, see the twenty-fourth species.

33. Euphorbia Pilulifera. Leaves serrate, oval-oblong; peduncles in two axillary heads; stem upright.—Native of India. See the twenty-fourth species.

34. Euphorbia Hyssopifolia; *Hyssop-leaved Spurge.* Leaves subcrenate, linear; flowers fascicled, terminating; stem upright.—It flowers in August and September, is annual, and a native of the West Indies. Browne extols a decoction of this plant as an active warm medicine, after a passage is procured in the dry belly-ache by bathing in warm water, or on any occasion where resolutive medicines are required. See the twenty-fourth species.

35. Euphorbia Thymifolia; *Thyme-leaved Spurge.* Leaves serrate, oval-oblong; heads axillary, glomerate, subsessile; stems procumbent. The whole plant resembles Thyme, is annual, and a native of India. For its propagation and culture, see the twenty-fourth species.

36. Euphorbia Parviflora; *Small-flowered Spurge.* Leaves serrate, oblong, smooth; flowers solitary; stem erectish, alternately branched; peduncle axillary, an inch long, alternate,

sustaining a few very small flowers. The leaves have frequently a brown spot; calices purple; petals white.—Annual; and a native of India. See the twenty-fourth species.

37. Euphorbia Canescens. Leaves entire, roundish, hairy; flowers solitary, axillary; stems procumbent.—Annual; and a native of Spain, particularly in the province of La Mancha.

38. Euphorbia Chamæsyce; *Crenated Annual Spurge.* Leaves crenulate, roundish, smooth; flowers solitary, axillary; stems procumbent; seeds roundish, angular, black.—Native of the south of Europe, especially of the kingdom of Valencia in Spain, also of Siberia and Mesopotamia; and by way-sides and barren fields in the West Indies.

39. Euphorbia Rubra. Leaves wedge-shaped, emarginate, imbricate; umbels bifid; corollas five-petalled; root annual; seeds whitish, with red grooves.—Native of Spain, near Aranjuez, flowering in April and May.

40. Euphorbia Granulata. Dichotomous; leaves opposite, oblong, quite entire; flowers solitary, axillary; stems procumbent.—Native country unknown.

41. Euphorbia Peplis; *Purple Spurge.* Leaves quite entire, semicordate; flowers solitary, axillary; stems procumbent; root long, slender, fibrous; seeds smooth, tipped with purple. It is annual, and flowers in July and August. Gerarde calls it *Isope Spurge.*—Native of the south of France, Spain, Carniola, and found also on the sea-coast of England, between Penzance and Market-jew in Cornwall, and near Exmouth in Devonshire.

42. Euphorbia Polygonifolia; *Knotgrass-leaved Spurge.* Leaves opposite, quite entire, lanceolate, obtuse; flowers solitary, axillary; stems procumbent. Annual.—Native of Maryland and Virginia.

43. Euphorbia Graminea. Leaves lanceolate, elliptic, petioled, quite entire; stem upright; peduncles dichotomous; calix bell-shaped, hirsute within; petals two, roundish, quite entire, white; capsules shining, smooth, small.—Native of wet grassy places near Carthagena in New Spain.

44. Euphorbia Ipecacuanhæ. Leaves quite entire, lanceolate; peduncles axillary, one-flowered, equalling the leaves; stem upright; root creeping; calix thick.—Native of Virginia and Canada.

45. Euphorbia Portulacoides; *Purslain-leaved Spurge.* Leaves quite entire, oval, retuse; peduncles axillary, one-flowered, equalling the leaves; stem upright, nearly a foot high.—Native of Philadelphia.

46. Euphorbia Myrtifolia; *Myrtle-leaved Spurge.* Leaves quite entire, roundish, emarginate, hoary underneath; flowers solitary; stem upright, shrubby, one to two feet high.—Native of the cooler mountains of Jamaica. See the 24th species.

47. Euphorbia Imbricata. Umbel dichotomous, bifid; involucels roundish, mucronate; leaves obovate, imbricate, serrulate; stem fruticulose. This is a small shrub, a little more than a hand in height, branched at the base; branches simple, round, covered with leaves, toothletted where the leaves fall, smooth, as is the whole plant; petals quite entire; stamina numerous; filamenta whitish.—Native of Portugal.

**** *Umbel trifid.*

48. Euphorbia Peplus; *Petty Spurge.* Umbel dichotomous; involucels ovate; leaves quite entire, obovate, petioled; root annual. Stem upright, nine inches high, round, smooth, and branched; at bottom harder, more slender, and of a reddish colour, leafy, and milky; branches few, not growing in any regular order, the lower ones longest. It is a native of most parts of Europe, in kitchen gardens, and other rich cultivated soil. It flowers in July and August. There is a variety of this species, which has ovate-lanceolate sharp leaves. The involucre is of the same form with the leaves; but the involucels are obliquely cordate.—Found in Savoy, and about Montpellier.

49. Euphorbia Falcata. Umbel dichotomous; involucels subcordate, mucronate; leaves lanceolate, bluntish.—Native of the south of France, Switzerland, Germany, and Austria.

50. Euphorbia Exigua; *Dwarf Spurge.* Umbel dichotomous; involucels lanceolate; leaves linear; root annual; stem upright, branched, very leafy, about six inches high; branches from the lower part of the stem; leaves pressed to the stem, ending very sharp; umbel trifid, quadrifid, seldom quinquefid, dichotomous.—This small and delicate species is found in corn-fields in many parts of Europe, flowering from July to September. There is a variety, which Linneus affirms to be sharp-leaved on hills, and retuse in meadows. Cavanilles, on the contrary, says, that he has found the latter on sandy hills, and the former in corn-fields; and Krocker observed both in corn-fields.

51. Euphorbia Obliterata. Leaves oblong, trapezoid, serrate, pubescent, obliterated on one side of the base; stems hirsute.—Native of Carthagena in New Spain, on the sandy coast: found also in Jamaica.

52. Euphorbia Tuberosa. Involucre four-leaved; stem naked; leaves oblong, emarginate; root tuberose. The leaves are nearly an inch and a half in length, and almost half an inch in breadth, on petioles two or three inches long, springing from the root; they are blunt at the end, and sometimes emarginate. The stems are scarcely a hand and a half in height, naked, dividing at top into two peduncles, each sustaining two flowers; there are two leaves at the division; capsules large, hairy.—Native of Africa.

53. Euphorbia Divaricata. Umbel trifid or quadrifid; stem shrubby, trichotomous. This is a smooth lactescent species, with round shrubby branches; the older ones ash-coloured, the younger reddish brown, marked by the cicatrices of the fallen leaves; leaves very narrow, and lanceolate, obtuse, entire, with very short footstalks, and very numerous; the terminating umbels are generally trifid, with dichotomous rays; the leaves forming the smaller umbels are roundish; petals four, sometimes five, dull yellow, roundish, flat, and obtuse; perianth hairy; antheræ yellow, green; germen pale green; capsule smooth.—Native country unknown.

***** *Umbel quadrifid.*

54. Euphorbia Lathyris; *Caper Spurge.* Umbel dichotomous; leaves opposite, quite entire. The stem is upright and succulent, from three to four feet high, with oblong, smooth, sessile leaves, the upper part dichotomous; an umbel comes out from each division, that in the first division being the largest, and those in the upper the smallest. The flowers are of a greenish yellow colour, appear in June and July, and the fruit follows soon after. It was common in our English gardens in the time of Gerarde, and is a native of France and Italy.—This plant is vulgarly called the *Caper Bush*, and will become a weed in gardens where it is allowed to scatter its seeds; and when once introduced, requires no care, but to keep the young plants clean from weeds.

55. Euphorbia Terracina; *Doubtful Spurge.* Umbel dichotomous; leaves alternate, lanceolate, retuse, mucronate, a finger broad; root annual; stem herbaceous, more than half a foot in height, round; involucre consisting of about four leaves, which are oblong, ovate, blunt, broader than the leaves, scarcely serrate; involucels ovate-truncate at the base; petals yellowish, with two or three teeth; capsules smooth. From the lower axils of the leaves proceed barren branches.—Native of Spain, and the south of France.

56. Euphorbia Diffusa; *Spreading Spurge.* Umbel four

or five-cleft, dichotomous; stem very much diffused; leaves wedge-form, quite entire, alternate; root annual, of a slender fusiform figure; umbels four-cleft or five-cleft, with the rays several times dichotomous; the branches are sometimes divided into a similar umbel, and are sometimes very dichotomous; hence the plant when grown up becomes so spreading, and has such an abundance of branchlets and rays, as to give it an appearance quite different from what it had when young; flowers all fertile, solitary, in the divisions small, sessile; calix smooth, pale; petals four, yellow, two broader; germen smooth; seeds brown, much wrinkled.—Found near Vienna, flowering from July to September.

57. Euphorbia Apios; *Pear-rooted Spurge.* Umbel four-cleft, bifid; involucels kidney-form, the first obcordate. It has a knobbed pear-shaped root, from which arise two or three stalks, about a foot and a half high; leaves oblong, hairy, alternate, on every side of the stalk; flowers in small umbels from the divisions of the stalk, small, greenish-yellow, seldom producing seeds here.—Native of the island of Candia. It may be increased by offsets from the main root: these may be taken off in autumn, and planted in a shady situation, where they will thrive better than in full sun.

58. Euphorbia Læta; *Mezereon-leaved Spurge.* Umbel quadrifid or quinquefid, twice dichotomous; first involucels oblong, upper ones rhomb-roundish; leaves linear-lanceolate, subemarginate, quite entire. The whole plant is smooth; stem shrubby, round; leaves scattered, sessile, an inch and a half in length. The universal involucres resemble the leaves; the involucels of the first division are oval, oblong, somewhat emarginate, half the length of the leaves; those of the second division, and the floral ones, elliptic, roundish, emarginate. It flowers in June and July.—Native place unknown. This species, with the following, together with the ninety-second, and ninety-fifth, may be propagated by cuttings during any of the summer months, and all require protection from frost in winter. The other perennials may be increased by parting the roots, or sowing the seeds in autumn. They are most of them hardy enough to endure the greatest cold of this country, especially if they be planted in a dry soil.

****** *Umbel quinquefid.*

59. Euphorbia Genistoides; *Broom-like Spurge.* Umbel quinquefid, bifid; involucels ovate; leaves linear, erect; stem becoming shrubby. This is an upright shrub, with branches alternate, strict, very simple, short, bearing flowers at the very tip; involucre four-leaved; leaflets lanceolate, the length of the umbel; petals in form of a crescent; capsules smooth.—Native of the Cape of Good Hope. See the preceding species.

60. Euphorbia Spinosa; *Prickly Spurge.* Umbel subquinquefid, simple; involucels ovate, the primary ones three-leaved; leavea oblong, quite entire; stem shrubby. The branches, as they grow old, dry away, and continue on the plant, so that it appears as if it had thorns. The flowers are usually solitary; petals round; capsules warted.—Native of the Levant.

61. Euphorbia Epithymoides. Umbel quinquefid, bifid; involucels ovate; leaves lanceolate, obtuse, villose underneath.—Native of Italy and Austria.

62. Euphorbia Nicæensis; *Nicene Spurge.* Umbel quinquefid; bifid; involucels cordate, roundish, quite entire; leaves lanceolate, mucronate, subcoriaceous; root perennial; stems several, smooth, firm, somewhat woody, green, or reddish; either simple, or a little branched near the umbel, but without any involucre on the branches; rays of the umbel twice dichotomous, the last division two-flowered; in the axil one flower; on the extreme branches two flowers, one yellow, with horned petals, and naked, the other green, supported with two bractes, and abortive; capsules smooth, not grooved, large; universal involucre ovate, terminating in a prickle. It abounds in milk.—Native of the county of Nice; found also by Vahl about Pampeluna.

63. Euphorbia Dulcis; *Sweet Spurge.* Umbel quinquefid, bifid; involucels subovate; leaves lanceolate, obtuse, quite entire; petals entire; fruit red, muricate. It varies with villose leaves; root consisting of little scaly bulbs; stem smooth, upright, simple, a foot high, red at bottom; involucres five-leaved, but sometimes four, three, and even two leaved; flowers sessile; petals red, crescent-shaped, two-horned; stamina two to five; capsule villose, warted below the middle. The milk of this plant is mild.—Native of the south of Europe.

64. Euphorbia Carniolica; *Carniola Spurge.* Rays of the umbel nodding; involucres, involucels, and leaves, lanceolate. The peculiarities of this species are, that the leaves are quite entire, spreading, sessile, acuminate, with the edges pellucid and red; that the leaves and rays of the umbels are very lax; that the colour is yellowish; that the flowers are all peduncled, and most of them barren, except those at the end; they have five rounded, shining, yellow petals; and the capsule is warted. The milk is mild. It flowers after the end of April.—Native of the shady meadows of Idria, in Friuli.

65. Euphorbia Pithyusa; *Juniper-leaved Spurge.* Umbel quinquefid, bifid; involucels ovate, mucronate; leaves lanceolate, the lowest rolled in, imbricate backwards; stems shrubby, simple, many, villose, a foot high. The flowers from the first division of the rays fertile, peduncled; petals reddish brown, hemispherical; capsules the size of a pea, echinated with soft reddish prickles.—It flowers in June and July, and is a native of the south of Europe.

66. Euphorbia Portlandica; *Portland Spurge.* Umbel dichotomous; involucels subcordate, concave; leaves linear-lanceolate, smooth, spreading; stems rather shrubby, a hand-breadth or more high, smooth, cylindric, red, especially during the winter; branchlets lateral, those from the lower axils barren, at length growing up so as to overshadow the stem; flowers subsessile, yellow; the first and second male, having very blunt petals, without horns; the rest hermaphrodite, with horned petals. In the central flowers, the calix has five sides, and five blunt corners, with five slight clefts, and the segments are more or less toothed at the end; the petals are hairy within; the filamenta in number eight or nine; the germen subsessile on the lateral flowers; the segments of the calix are four; the petals four; the stamina fourteen or more; the filamenta surrounded at top with a ring. In all, at the base of the flower, are several flat, slender, shining, woolly substances, cloven at the end; fruit smooth, with the angles muricate. It flowers from May till September; is marked as a shrub by Linneus; as perennial in the Kew catalogue; and as annual by Hudson and Withering. It abides two or three years in gardens.—It was first found upon the narrow neck of land which joins Portland to Devonshire; and since that near Exmouth in the same county; in abundance upon the Cornish coast; and near Carnarvon in North Wales.

67. Euphorbia Saxatilis; *Rock Spurge.* Umbel quinquefid, bifid; involucres and involucels cordate; leaves oblong, smooth; stems five or six inches long, procumbent, and but very few in number; smaller or secondary branches more numerous, each terminated by a rose of leaves, while the older or lower leaves fall away in succession, so as to leave numerous scars; branch-leaves lanceolate; top and flower-leaves round-cordate, all sessile; flowers smallish and yellow;

the plant is glaucous, except the bractes or round leaves, supporting the flowers.—Native of Austria, in stony places.

68. Euphorbia Paralias; *Sea Spurge.* Umbel subquinquefid, bifid; involucels cordate, reniform; leaves imbricate upwards; root perennial; stems upright or ascending, numerous, generally red at bottom, thickly imbricated, with smooth fleshy leaves pointing upwards when wild, but open when cultivated, gradually increasing in size from the lower part of the stem upwards; the lower ones linear, linear-lanceolate, or oblong, sessile, the upper ones oval, lanceolate, half stem-clasping; involucre of five heart-shaped leaves; petals entire; capsules very large, smooth, according to Dr. Withering, rough, though all others say smooth. The juice of Sea Spurge is highly acrid, and, according to Gerarde, the most so of any species. He relates, that putting a single drop into his mouth, his throat inflamed so, that he hardly escaped with his life by riding to the next farm-house, and drinking milk.—It is found on the sandy shores of Europe; and in Great Britain on the coasts of Essex and Kent, and between Southwold and Dunwich in Suffolk; and also in Cornwall.

69. Euphorbia Junoea; *Linear-leaved Spurge.* Umbel dichotomous; leaves and involucres linear-lanceolate, acute; involucels ovate-oblong, acuminate.—It is perennial, flowers in July, and is a native of the island of Porto Santo, near Madeira.

70. Euphorbia Aleppica; *Aleppo Spurge.* Umbel dichotomous; involucels ovate-lanceolate, mucronate; lower leaves bristle-form; stems a foot and a half high; flowers in large umbels, from the divisions of the stem, yellow, appearing in June, but rarely producing seeds in this country.—Native of Aleppo, and other parts of the Levant. The roots, which are perennial, should be confined in pots; for when planted in the full ground, they creep to a great distance.

71. Euphorbia Pinea; *Pine Spurge.* Umbel dichotomous; involucels cordate; leaves linear, acuminate, crowded; capsules smoothish.—Native country unknown.

72. Euphorbia Segetalis; *Corn Spurge.* Umbel dichotomous; involucels cordate, acute; leaves linear-lanceolate, the upper ones broader; root annual; petals crescent-shaped; fruit smooth, except that it is scabrous at the corners. Villars describes it as from six to ten inches high; the lower stem-leaves fall very soon, and sometimes barren branches spring from the bottom of it.—Native of Barbary and Russia, of the south of France, Austria, Silesia, and the county of Nice.

73. Euphorbia Taurinensis; *Piedmont Spurge.* Umbel quinquefid, bifid; involucre four-leaved, hanging down; leaves linear-lanceolate; stem branched, eight or ten inches high, erect, smooth, round, red at bottom; root annual. The terminating umbel has generally four rays, three or four inches in length, naked, and dividing again into pairs; where these divide, a single flower sits on a peduncle, about an inch in length; petals crescent-shaped; the fruit is smooth, except at the angles.—It flowers from the beginning of April to the end of June, and is a native of Dauphiny.

74. Euphorbia Helioscopia; *Sun Spurge*, or *Wartwort.* Umbel quinquefid, trifid, dichotomous; involucels obovate; leaves wedge-form, serrate, smooth; capsules even; root annual; stem upright, from six to nine inches high, round, slightly hairy, having opposite branches at bottom; involucre of five leaves like the other leaves; calix greenish-yellow, with four or five yellow segments; petals or nectaries four, entire, roundish, or oval, yellowish-green; filamenta fourteen, two, three, or more, visible at a time; capsule smooth; all the flowers hermaphrodite.—Native of most parts of Europe, in cultivated grounds, flowering from July, through the autumn. The country people call it *Wart-wort, Churn-staff*, and *Cat's-milk.* The juice is very acrimonious, and hence is often applied to warts for the purpose of destroying them. It should be cautiously used where the parts are tender, particularly near the eyes, as it will inflame the face to a great degree. Linneus informs us, that when sheep eat it, they are purged by it, and their flesh acquires a bad taste; but that this is not the case with cows.

75. Euphorbia Pubescens; *Hairy Spurge.* Umbel quinquefid, trichotomous; involucels semicordate; leaves wedge-shaped, hairy, serrulate; capsules muricate; root annual. The top of the stem, the leaves, peduncles, and pedicels, are villose, and the capsules muricated with small tubercles.—Found in cultivated grounds about Tunis.

76. Euphorbia Serrata; *Narrow Notch-leaved Spurge.* Umbel quinquefid, trifid, dichotomous; involucels two-leaved, kidney-form; leaves stem-clasping, cordate, serrate. This is a foot high, and easily known by its oblong leaves, with frequent and sharp serratures. The leaves, however, vary very much, being sometimes cordate on the flowering stems, and linear on the branches and barren stems, and sometimes linear on all. The umbels are also sometimes three-rayed and bifid, with the involucres and involucels cordate-attenuate.—Native of the south of Europe.

77. Euphorbia Verrucosa; *Warty-fruited Spurge.* Umbel quinquefid, subtrifid, bifid; involucels ovate; leaves lanceolate, serrate, villose; capsules very much warted; root biennial; stem from eight inches to a foot in height, simple, cylindric, decumbent; flowers of the first, second, and third rank abortive; petals four, entire, yellow.—It flowers in July, and is a native of corn-fields in the south of Europe, and the Levant. In England, it is found in Essex, near Gransden Lodge in Cambridgeshire, and also near York.

78. Euphorbia Punicea; *Scarlet-flowered Spurge.* Umbel quinquefid, trifid; involucels ovate, acuminate, coloured; capsules smooth; leaves obovate, lanceolate. This most splendid plant, by far the most beautiful of the genus, is the height of a man; the stem shrubby, rather fleshy, full of milky juice, round, abruptly branched; the branches curved upwards, three together; the smaller branches sometimes four or five together; bark smooth, whitish, marked with spots or scars where former leaves have grown; leaves on the summits of the smaller branches crowded together, almost sessile, spreading in every direction, bluntish, ending in a small point, smooth, opaque, dark green, glaucous underneath; the younger ones turned inwards, and those nearest the umbels coloured; principal nerve of all the leaves dull yellow, and in the younger ones near the umbels it is besides stained with red; umbels terminating, erect, having five, six, or seven rays; peduncles club-shaped, smooth, dichotomous; involucels two or three together under each flower, of a most vivid scarlet; flowers solitary, turbinate, yellowish, soon turning reddish; calix five-toothed; petals five, divaricated, yellow, full of very sweet pellucid honey; stamina fifteen or twenty, fertile, many, abortive; germen reflex; styles reflex, red; receptacle occupied by chaffy branched filamenta; capsule smooth.—It flowers in January; and was discovered in Jamaica, where it is not easily procured. It must be kept in the hot-house, and being so eminently beautiful, it is to be lamented that it is yet confined to the most choice collections; which is the more remarkable, as it not only may be increased by cuttings, but also grows readily from seeds, both sent from Jamaica, and produced in England.

79. Euphorbia Corollata. Umbel quinquefid, trifid, dichotomous; involucels and leaves oblong, obtuse; stem-leaves

lanceolate, very obtuse; petals membranaceous, erect, snow-white, spread out flat in fives, not shaped like a petal, but very slender.—Native of Virginia and Canada.

80. Euphorbia Coralloides; *Coral-stalked Spurge.* Umbel quinquefid, trifid, dichotomous; involucels ovate; leaves lanceolate; stems quite simple, annual, round, rush-like, upright; petals four, entire; capsules globular, scarcely grooved, covered with a thin long white wool.—Native of Sicily, Barbary, and the Levant.

81. Euphorbia Pilosa; *Hairy Spurge.* Umbel quinquefid, trifid, bifid; involucels ovate; petals entire; leaves lanceolate, somewhat hairy, serrulate at the tip; root perennial. The umbels are so confounded with the lateral umbellets, that the primary one is distinguished with difficulty; the petals and involucres are yellow; the primary flowers are male, and five-petalled, the rest hermaphrodite, and four-petalled; the petals are transversely oval; capsules warted, with very fine white hairs scattered over them; there are barren branches from the lower axils of the leaves.—It flowers from May to August, and is a native of Siberia.

82. Euphorbia Orientalis; *Willow-leaved Spurge.* Umbel quinquefid, quadrifid, dichotomous; involucels roundish, acute; leaves lanceolate; root perennial; stems many, succulent, three feet high, covered with a purple bark; the upper part of the stalks divides, and in the fork is situated an umbel of flowers of a greenish yellow colour, appearing in June, and ripening seed in August.—Native of the Levant.

83. Euphorbia Platyphyllos; *Broad Notch-leaved Spurge.* Umbel quinquefid, trifid, dichotomous; involucels hairy along the keel; leaves serrate, lanceolate; capsules warted; root annual; stem upright, from a foot to two or three feet high, smooth; petals entire, suborbiculate, yellow; germina obscurely warted; a trifid umbellet grows from the axils of the leaves. The upper part of the plant is of a greenish-yellow.—Native of England, France, Germany, Switzerland, Austria, Carniola, and Piedmont, in corn-fields. It has been found in England, at Black Notley in Essex; between Harefield common and Battle's-well; near Northfleet; at Ripton in Huntingdonshire; and in the Isle of Wight.

84. Euphorbia Glauca. Umbel subquinquefid; involucres and involucels ovate; leaves scattered, oblong-lanceolate, quite entire; stem frutescent.—Native of New Zealand.

******* *Umbel multifid.*

85. Euphorbia Esula; *Gromwell-leaved Spurge.* Umbel multifid, bifid; involucels subcordate; petals obscurely two-horned; leaves on the barren and fertile branches the same. Perennial: stem a foot, eighteen inches, or two feet in height, upright, round, smooth, sea-green, much branched, leafy. All the flowers fertile, according to Linneus; but Scopoli says, that those on the first divisions are male; petals four, yellowish, obscurely horned; capsules smooth, somewhat warted on the prominent parts. The milk is very acrid.—Native of France, Holland, Germany, Switzerland, Carniola, and Savoy.

86. Euphorbia Seguierii. Umbels multifid, bifid, dichotomous; involucels kidney-form, acuminate; petals mooned; capsules smooth; leaves lanceolate, acuminate. The lateral umbels are so crowded together at the top of the stalk as hardly to be distinguished from the primary one; the rays half a foot long, angular, twice bifid; flowers between the branches barren and deciduous, the rest fertile and peduncled; petals four, red; capsule without warts or hairs, but somewhat wrinkled on the back of each lobe.—Native of Istria, Verona, and Piedmont.

87. Euphorbia Gerardiana. Umbel dichotomous; involucels roundish; petals quite entire; branches none; leaves all of one form. Perennial; stems procumbent, a foot in length; peduncles from the upper axils simple, fertile; flowers sessile, in threes; petals four, broad, blunt, truncated; capsules smooth.—Native of Provence and Austria.

88. Euphorbia Cyparissias; *Cypress Spurge.* Umbel dichotomous; involucels subcordate; branches, barren with setaceous, fertile with lanceolate leaves. This bears a great resemblance to the eighty-fifth species, and in the spring the umbels are very much alike; this however differs in being larger; in having leaves not all alike, but the upper ones, or those of the branches, bristle-shaped or linear; the lower, or those of the stem, lanceolate; the involucre consisting of about twenty leaves, which are broader; the involucels two-leaved, ovate-cordate, yellowish or reddish; the petals crescent-shaped, yellow; capsules smooth according to some, and warted according to others. As the umbel withers, lateral branches with very narrow filiform leaves grow up, resembling the Pine.—It is a native of the South of France, Germany, Austria, Carniola, Switzerland, and Piedmont, where it is found on hills, by road-sides, and in dry barren places. It flowers from May to September in England; and Parkinson informs us, that it was often found in the country gardens of poor folks, who knew it by the name of *Welcome-to-our-house;* from which we may presume it was a favourite plant, and probably then much used as a purgative. The Spurges were at that time also much in request, not only for taking away warts, but for curing the leprosy, and other cutaneous disorders.

89. Euphorbia Myrsinites; *Glaucous Spurge.* Umbel with about eight bifid rays; involucels subovate; leaves spatulate, spreading, fleshy, mucronate, scabrous at the edge; root perennial; stems many, a foot long, trailing, with scars at bottom from the fallen leaves; these are alternate, succulent, concave, sea-green, sessile, the upper ones reflex; flowers within the primary and secondary involucels male, the rest hermaphrodite; calices serrate about the edge; petals four, yellow, horned with round tips, shining; capsules smooth. It flowers from April to June.—Native of the South of France, Spain, and Italy.

90. Euphorbia Palustris; *Marsh Spurge.* Umbel multifid, subtrifid, bifid; involucels ovate; leaves lanceolate; branches barren; root perennial; stem three, four, or five feet high, round, smooth, with branches towards the top, which are alternate, and shorter than the stem. The primary flowers male, five-petalled, abortive; the secondary hermaphrodite, four-petalled; calix very pale yellow; petals entire, yellow, blunt, not horned; capsules warted.—Native of Sweden, Denmark, Germany, Holland, Switzerland, France, and Piedmont.—It flowers from May to August.

91. Euphorbia Hibernica; *Irish Spurge.* Umbel multifid, bifid; involucels ovate; leaves oblong, emarginate, somewhat villose underneath; stem simple; capsules warted-ramentaceous; root perennial; stems several, a foot or more in height, upright, unbranched, round, smooth, very light green, with red blotches here and there. The number of rays in the umbel is usually five, but sometimes on the middle and stronger stems another ray or two branches out, with a leaf or two under each somewhat bigger than the rest; of the two flowers on each ray, one only usually comes to maturity; the flower has usually five petals, but sometimes only four. Mr. Ray relates the case of a boy who was killed by a dose of the juice of this plant.—Native of Ireland, in the mountains of Munster, where it is known by the name of *Makinboy.* It flowers in May and June; and is said to have been found near Twickenham park, over against Richmond; near Otterspool, Herts; and between Feversham and Sittingbourn, in Kent.

92. Euphorbia Dendroides; *European Tree-Spurge.* Umbel dichotomous; involucels subcordate, the primary ones three-leaved; stem arboreous. It rises to the height of four feet, with an upright branching stem; the leaves are oblong, pointed, and alternate; flowers in umbels from the forks; they are small and yellow, and rarely produce seeds in England.—Native of Italy, Sicily, and Candia. See the fifty-eighth species.

93. Euphorbia Amygdaloides; *Wood Spurge.* Umbel dichotomous; involucels perfoliate, orbiculate; leaves obtuse; root perennial; stem herbaceous, not woody, slightly downy, purple, two or three feet high; the flowering part, during the time of flowering, grows to more than twice its original length; leaves alternate, remote, thin, slightly downy, especially the root-leaves underneath.—It is common in woods and hedges in a clayey soil, and flowers in May, and sometimes before, and continues to July. This, with the two following species, being inhabitants of woods, require a shady situation. They will come up from scattered seeds, and may be increased by the roots.

94. Euphorbia Sylvatica. Umbel quinquefid, bifid; involucels perfoliate, subcordate; leaves lanceolate, quite entire; stems shrubby, proliferous, thick; petals crescent-shaped, erose, or gnawn, whereas those of the next species are entire. Scopoli says, the leaves are very finely serrate at the tip; the flowers between the rays and the branches male and sessile, with most of the stamina imperfect, and five petals; the other flowers fertile, and four-petalled; germen neither villose nor warted.—Native of woods in the southern countries of Europe. See the preceding species.

95. Euphorbia Characias; *Red Spurge.* Umbel multifid, bifid: involucels perfoliate, emarginate; leaves quite entire; stem becoming shrubby, four feet high; flowers small, those within the first involucels male, the rest perfect; petals four, purple; styles scarcely cloven; germen villose. The whole plant is very downy.—Native of France, Spain, Italy, and Germany, in woods and hedges. It flowers in June, and is seldom seen in England. See the ninety-third species.

96. Euphorbia Cretica. Umbel multifid, bifid; involucels orbiculate; leaves linear-lanceolate, villose. This rises with a shrubby purple stem nearly three feet high; umbels terminating, and forming a sort of spike; the flowers appear in May, and the seeds ripen in July.—It may be propagated from seeds or from cuttings, and will live abroad, if planted in a dry rubbishy soil and warm situation, otherwise the plants are frequently killed by severe frost. The young plants raised from seed are generally very fruitful; but the old ones, and those raised from cuttings, are barren.

97. Euphorbia Linearis. Dichotomous: peduncles solitary; leaves opposite, linear, quite entire; stem round, naked, jointed; petals entire; capsules seem to be smooth.—Native of the island of Santa Cruz.

98. Euphorbia Rosea. Dichotomous: leaves obovate, oblique at the base, toothletted at the tip; stem depressed, diffused; root almost simple, a span in length, going straight down, a little writhed; flowers heaped at the ends of the branches, males mixed with hermaphrodites; the petals of a beautiful rose-colour; capsules smooth.—Native of the East Indies, in driving sand.

Euphrasia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, cylindric, four-cleft, unequal, permanent. *Corolla:* one-petalled, ringent; tube length of the calix; lip superior, concave, emarginate; lip inferior, expanding, three-parted; divisions equal, obtuse. *Stamina:* filamenta four, filiform, inclined under the upper lip; antheræ two-lobed, of which the inferior are sharpened into a little spine on the lower lobe. *Pistil:* germen ovate; style filiform, of the situation and figure of the stamina; stigma obtuse, entire. *Pericarp:* capsule ovate-oblong, compressed, two-celled. *Seeds:* numerous, very small, roundish. Essential Character. *Calix:* four-cleft, cylindric. *Capsule:* two-celled, ovate-oblong. *Lower Antheræ:* have a little thorn at the base of one of the lobes.—The plants of this genus are all annuals, and can only be propagated from seed, sown soon after they are ripe, or in the spring, in the borders of the garden. All, except the second and fourth species, are natives of the southern countries of Europe, and are not easily preserved in gardens.—The species are,

1. Euphrasia Latifolia; *Broad-leaved Eyebright.* Leaves tooth-palmate; flowers in a kind of head; root annual; stem a handbreadth high, or less, square, reddish, slightly hairy, simple, or dividing at bottom into two small branches, not more; corolla purple, sometimes white; bractes palmate, subhirsute.—Found about Montpellier. It spreads a purple carpet on many of the hilly pastures of Italy; it is found in Montferrat, the county of Nice, and near Turin; Verona; on Monte Testaccio, near Rome; in Apulia; and in the Spanish kingdom of Castile, particularly near the palace of the Escurial.

2. Euphrasia Officinalis; *Common Eyebright.* Leaves ovate, marked with lines, sharply toothed; root annual; stem from two to four inches high or more, upright, round, hoary, purple, for the most part branched, in opposite pairs; flowers from the axils of the leaves, on short peduncles, opposite, forming a spike or raceme at the tops of the branches and stem; corolla-tube rather crooked, a little hairy, white, stained with yellow at the mouth; border bluish white, with purple streaks; germen bearded, or a little hairy at the top; style pubescent on the upper part; stigma fringed, with very minute glands round the edge. It varies much in size, and in the colour of the corolla, which changes to quite white and yellow; it is more or less branching, and sometimes wholly unbranched.—This plant is common on heaths, and other dry pastures, especially on a chalky soil, flowering from July to September. It seems to have been unnoticed by the ancients, but the Arabians mention it under the name of *Adhil.* Mattheus Sylvaticus, a physician of Mantua, who lived about the year 1320, recommended this plant in disorders of the eyes. It is still in use, particularly as an ingredient in British herb tobacco; and Mr. Lightfoot informs us, that the Highlanders in Scotland make an infusion of it in milk, and anoint the patient's eyes with a feather dipped in it. It is, however, neglected by the faculty, and even thought by some to be injurious, at least in inflammations of the eyes. Meyriek, however, assures us, that it is famous for curing disorders of the eyes, and the common method of using it is, to apply the recently expressed juice, by way of collyrium, twice or three times a day; but where the disorder is bad, or of long standing, the whole herb, dried and reduced to powder, should be taken for a long time together, in the quantity of half a drachm twice or thrice daily. It also promotes evacuation by urine.—This species will not grow in a garden, unless it has grass or some other herbs to protect it.

3. Euphrasia Tricuspidata. Leaves linear, three-toothed; corolla like that in the preceding species.—Annual, and a native of Italy.

4. Euphrasia Odontites; *Red Eyebright.* Leaves linear, all serrate; root annual. The whole plant is commonly of a brownish red; stem upright, stiff, very much branched, from six inches to a foot or more in height, hispid, obtusely four-cornered; branches opposite; flowers in long leafy spikes,

pointing one way, nodding a little at top, in pairs or single, on short peduncles; calix hairy on the outside, the teeth equal and sharp; corolla dusky red or purple, sometimes varying to white, hairy, very differently formed from the preceding, the upper lip being compressed, and scarcely emarginate, the three lobes of the lower lip shorter than the upper, equal, truncate, crenulate; all the lobes of the antheræ are thorny at the tip, and bearded at the base; at the back, where the filament is inserted, are several small club-shaped threads or appendages; seeds ovate, very white, with a membranaceous margin on one side, elegantly latticed, with longitudinal ridges, and similar transverse streaks.—It is common both in corn-fields and pastures, especially those that are moist, and flowers from July to September.

5. Euphrasia Lutea; *Yellow Eyebright.* Leaves linear, serrate, the upper ones quite entire. This resembles the fourth species, but differs from it in having yellow flowers; the upper lip bearded or villose within and without, and emarginate; the lower lip concave, trifid, with the segments equal; stem one, seldom more, rough, hard, woody, upright, wandlike, dusky red; style yellow; stigma simple, both permanent; antheræ beardless; capsule smooth, and green at bottom, at top villose, blackish-red; seeds brown, oblong.—Native of Switzerland, Savoy, Austria, Friuli, Silesia, the Palatinate, Piedmont, Tuscany, and the south of France.

6. Euphrasia Linifolia; *Flax-leaved Eyebright.* Leaves linear, all quite entire; calices smooth. This is a little stiff, narrower, finer, but frequently higher, than the common sort; the leaves are entire; the flowers yellow.—Native of France and Italy.

7. Euphrasia Viscosa; *Clammy Eyebright.* Leaves linear; calices glutinous-hispid. This plant is described by Gouan to be only three inches high, and simple, or a foot high and branched, smooth or villose. All the leaves are broader at the base, thence gradually attenuated, and rough with hairs, most frequently quite entire, but sometimes toothed, the lower ones are opposite, the rest alternate, whence the branches themselves are seldom opposite; flowers on a very short peduncle, alternate, each within a single bracte.—Native of Provence, Dauphiny, Switzerland, Savoy, Piedmont, and the county of Nice.

8. Euphrasia Cuneata; *Wedge-leaved Eyebright.* Leaves somewhat wedge-shaped, gashed.—Native of New Zealand.

9. Euphrasia Longiflora; *Long-flowered Eyebright.* Pubescent, viscid: leaves linear, quite entire; tube of the corolla filiform, three times as long as the calix. Cavanilles describes the stem as a foot high, of a dark red colour; the branches decussated and four-cornered. Flowers axillary, in spikes; calix cut half way; tube of the corolla half an inch long, lower lip broader, with rounded segments; filamenta short, fastened to the upper part of the tube, within the upper lip; antheræ ovate, twin, two-awned at the base, and perforated; style red, the length of the corolla; stigma club-shaped; seeds longitudinally streaked.—It flowers in September, in Spain, where it is a native, having been found there, near Espexa, Rivas, and in the kingdom of Arragon.

Eurya; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, concave, obtuse, smooth, surrounded at the base with a two-leaved similar calicle, one-third only of the size of the calix. *Corolla:* petals five, roundish-ovate, concave, the size of the calix; nectary, dots on a purple rim, at the base of the filamenta. *Stamina:* filamenta thirteen, very short, so as to be scarcely any; antheræ upright, four-sided, almost the length of the corolla. *Pistil:* germen superior, convex, smooth; style subulate, shorter than the antheræ; stigmas three, reflex. *Pericarp:* capsule globular, with the style permanent, sharp, smooth, five-celled, five-valved. *Seeds:* somewhat three-cornered, dotted, very many. *Observe.* The flowers seem very frequently to be dicœcous. Essential Character. *Calix:* five-leaved, calicled. *Corolla:* five-petalled. *Stamina:* thirteen. *Capsule:* five-celled.——The only known species is,

1. Eurya Japonica. All parts of the plant are smooth: stem shrubby; branches and twigs alternate, lax, from upright, bent in, ash-coloured; leaves on the twigs alternate, frequent, petioled, elliptic or oblong, drawn to a point at both ends, serrate, a little turned back at the edge, entire at the base, very smooth, thickish, evergreen, in two rows, upright, with an emarginate point, nerved, the upper surface green, but underneath yellowish, an inch or more in length; flowers axillary, in pairs, peduncled, drooping, seldom either single or in threes; peduncles filiform, one-flowered, scarcely longer than the petioles.—It flowers in September and October, and is a native of Japan.

Euryandra; a genus of the class Polyandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved; leaflets roundish, concave, the two outer smaller. *Corolla:* petals three, roundish, concave, longer than the calix. *Stamina:* filamenta very many, capillary, very much dilated at the tip; antheræ twin, with the cells disjointed. *Pistil:* germina three, ovate; styles three, very short; stigmas two, slightly divided. *Pericarp:* follicles three, ovate, divaricate, opening longitudinally on the inner side. Essential Character. *Calix:* five-leaved. *Corolla:* three-petalled. *Filamenta:* much dilated at the tip, with twin disjointed antheræ; follicles three.——The only known species is,

1. Euryandra Scandens; which is a climbing plant, and a native of New Caledonia.

Exacum; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved; leaflets ovate, obtuse, from erect spreading, permanent. *Corolla:* one-petalled, permanent; tube globose, length of the calix; border four-parted; divisions roundish, spreading. *Stamina:* filamenta four, filiform, sitting on the tube, length of the border; antheræ roundish. *Pistil:* germen roundish, filling the tube; style filiform, upright, length of the border; stigma headed. *Pericarp:* capsule roundish, compressed, two-furrowed, two-celled, length of the calix. *Seeds:* numerous; receptacle filling up the capsule. Essential Character. *Calix:* four-leaved. *Corolla:* salver-shaped, with an inflated tube; capsule two-furrowed, two-celled, many-seeded, bursting at the top. For the propagation and culture of this genus, see *Gentiana.*——The species are,

1. Exacum Albens. Leaves subdecurrent; stamina protruded; root annual; stem a handbreadth high, dichotomous, herbaceous, four-sided, smooth, fastigiate; corolla salver-shaped, white: tube cylindric, longer than the calix, border the length of the tube; filamenta very short; antheræ oblong; stigmas two, thickish.—Native of the Cape of Good Hope.

2. Exacum Pedunculatum. Flowers four-cleft, terminating; calicine leaflets ovate; leaves lanceolate, three-nerved, undotted; root annual; stem upright, a palm in height, four-cornered, with acute angles, branched, very smooth, as is the whole plant; branches few, simple, opposite, shorter than the stem; peduncles from the top of the stem and branches, solitary, one-flowered, short; calix four-parted, four-cornered; the parts ovate-acuminate, membranaceous at the edge; corolla subcampanulate, violet-coloured, larger than in the other sorts, permanent; tube the length of the calix; segments of the border lanceolate-obtuse; antheræ linear, a little shorter than the border;

style the length of the corolla; stigma thickened.—Native of the East Indies.

3. Exacum Aureum. Leaves sessile; stamina protruded; root annual; stem a handbreadth high, dichotomous, slightly four-cornered, smooth, brachiate; peduncles from the divisions one-flowered, the length of the flower; calix five-leaved; corolla yellow, salver-shaped, four-cleft; segments lanceolate, sharp; filamenta bristle-form; antheræ oblong.—Native of the Cape of Good Hope.

4. Exacum Sessile. Flowers four-cleft, lateral, and terminating; capsules nodding; leaves heart-shaped; stem erect, a span high, four-cornered, even, simple, dichotomous; flowers from the divisions of the stem, solitary, sessile, larger than the leaves.—Native of the East Indies.

5. Exacum Cordatum. Flowers five-cleft; calicine leaflets heart-shaped, striated; corolla yellow, salver-shaped; tube cylindric, longer than the calix; border five-parted, obovate: filamenta short, in the throat of the corolla; antheræ oblong; style the length of the stamina.—Native of the Cape.

6. Exacum Guianense. Corollas four-cleft; calices membranaceous, keeled, even. This plant is often scarcely a finger's height, with a stem either quite simple or very little branched, and quite smooth, upright, and sharply four-cornered; leaves lanceolate, opposite, attenuated, the lower ones shorter and sharp; peduncles terminating, or from the upper axils, solitary, one-flowered, very short, angular.—Native of Cayenne.

7. Exacum Spicatum. Flowers spiked, in whorls of threes; leaves lanceolate; stem herbaceous, two feet high, erect, quite simple, except that sometimes there are two flowering branches from the last axils, obscurely four-cornered, without decurrent lines, smooth, the whole plant also is very smooth; spike terminating, erect, pyramidal, almost a span long, with abundance of flowers; corolla twice the length of the calix, with a cylindrical tube; border, before it is unfolded, four-cornered, attenuated, rolled up spirally at the top; divisions lanceolate, the length of the tube; antheræ sagittate.—Native of Cayenne.

8. Exacum Ramosum. Flowers subspiked, opposite; leaves lanceolate; stem erect, branched. The whole plant is smooth; flowers distant, on very short pedicels, with two bristle-shaped appressed bractes at the base of the calix, which is one-leafed, oblong, four-cleft; the clefts lanceolate, attenuated, membranaceous at the edge; segments of the corolla ovate-acute.—Native of Guiana.

9. Exacum Punctatum. Leaves on very short petioles, oblong, three-nerved, dotted; stamina protruded. This is larger than the other species; corolla bluish; stamina yellow.—Native of the East Indies.

10. Exacum Viscosum. Leaves oblong, nerved, embracing; flowers five-cleft; bractes heart-shaped, perfoliate, longer than the calix; root perennial; stem somewhat shrubby, erect, roundish; three feet high; branches opposite, erect, slightly quadrangular, green, leafy, many-flowered; flowers of an elegant golden colour, inodorous, slightly drooping.—Native of the Canary Islands.

Excœcaria; a genus of the class Diœcia, order Triandria.—Generic Character. *Male. Calix:* ament cylindric, covered with floscules. *Corolla:* none. *Stamina:* filamenta three, filiform; antheræ roundish. *Female. Calix:* ament as in the male. *Corolla:* none. *Pistil:* germen roundish, slightly three-sided; styles three; stigmas simple. *Pericarp:* berry tricoccous, smooth; divisions marked out by a furrow. *Seeds:* solitary, smooth. Essential Character. *Ament:* naked. *Calix* and *Corolla:* none; styles three; capsules tricoccous.——The species are,

1. Excœcaria Agallocha. Capsule small, the size of a juniper-berry, subglobular, three-grooved, smooth, black, three-celled, of a papery substance, not divided within into three distinct grains, but merely opening when pressed by three valves; seeds one in each cell, subglobular, acuminate at top, convex on one side, very bluntly angular on the other.—Native of Amboyna and Tongataboo.

2. Excœcaria Cochin-chinensis. Leaves two-coloured, shining; scales of the ament many-flowered. This species is an arboreous shrub, about eight feet high, with the stem and branches irregular, spreading, reclining. The female flowers have three long, awl-shaped, reflex stigmas; capsule three-lobed, somewhat fleshy, red, small, three-celled; seeds ovate, smooth and even. It has an astringent agglutinating quality; the whole plant abounds in a glutinous milky juice, which has not the reputation of destroying the sight, nor is the agallochum, even of a bastard sort, found in it.—Native both of China and Cochin-china, where it is cultivated for the beauty of its red leaves.

Exoacantha; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal manifold, spreading, the inner rays gradually smaller, the inmost very short; partial manifold; involucre universal with rays, usually twelve, channelled, spiny at the end; partial halved, with the middle ray very long, similar to the rays of the involucre; perianth proper scarcely observable. *Corolla:* universal uniform; proper five-petalled; petals inflex, heart-shaped, equal. *Stamina:* filamenta five, capillary, longer than the corolla; antheræ roundish. *Pistil:* germen inferior, ovate; styles two, shorter, straight; stigmas two, simple. *Pericarp:* fruit subovate, striated, bipartile. *Seeds:* two, ovate, convex and striated on one side, flat on the other. *Observe.* This genus is allied to Echinophora, but with uncalicled flowers, all hermaphrodite, equal petals, and naked seeds. Essential Character. *Involucre:* spiny; involucels halved, with unequal rays; flowers all hermaphrodite, with equal inflex heart-shaped petals. *Seeds:* ovate, striated.——The only known species is,

1. Exoacantha Heterophylla. Leaves pinnate; smooth; root-leaflets ovate, toothed, gashed; stem-leaves lanceolate, acute, usually entire, with the middle leaflet very long; root simple, thickish, biennial; stem two feet high or more, striated, subflexuose, smooth; the two umbels have about forty rays; those of the umbellule nearly equal; antheræ yellowish.—Found near Nazareth, in Judea.

Eyebright. See *Euphrasia.*

FAGARA; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four-cleft, very small; leaflets concave, permanent. *Corolla:* petals four, oblongish, concave, spreading. *Stamina:* filamenta four, or from three to eight, longer than the corolla; antheræ ovate. *Pistil:* germen ovate; style filiform, length of the corolla; stigma two-lobed, obtusish. *Pericarp:* capsules globular, one-celled, (or two-celled, according to Gærtner,) and two-valved. *Seed:* single, round, bright. Essential Character. *Calix:* four-cleft. *Corolla:* four-petalled. *Capsules:* two-valved, with one seed.——These are tender plants, and must be kept constantly in the bark-stove.

They may be increased by seeds, and also by cuttings properly managed.——The species are,

1. Fagara Euodia; *Sweet-scented Fagara.* Leaves simple, lanceolate, elongated, opposite; racemes branched, axillary, solitary. Forster made a new genus of this species, under the title of *Euodia*, from its fine smell. But it has no distinct marks, except that the stigma is four-cleft, whereas in Fagara it is two-cleft; and that it has four capsules, whereas Fagara has but one.—Native of the Friendly Isles, and the New Hebrides.

2. Fagara Trifoliata; *Three-leaved Fagara.* Leaves ternate; leaflets obovate, subemarginate, entire, shining, dotted underneath.—This is a native of the island of Dominique.

3. Fagara Pterota; *Lentiscus-leaved Fagara*, or *Bastard Ironwood.* Leaflets emarginate. It rises, by a branched and somewhat prickly stalk, frequently to the height of eight or ten feet; the wood is very hard, and the branches are abundantly furnished with little leaves, and small white flowers, that rise on double spikes from the axils of the ribs. It has a goatish smell; and is very common in the lower lands of Jamaica. It flowers in August and September.

4. Fagara Piperita; *Ash-leaved Fagara.* Leaflets crenate; stem shrubby, scarcely a fathom in height; branches round, prickly, purple; prickles scattered, horizontal; leaves many from the ends of the twigs, unequally pinnate, with about six pairs of leaflets; these are alternate and opposite, subsessile, ovate, emarginate, smooth, half an inch in length; flowers among the leaves terminating, panicled, small, white; capsule wrinkled, one-celled, containing one smooth black seed. The bark, leaves, and fruit, being aromatic, are frequently used in soups instead of spice. The bruised leaves, made into a cataplasm with meal of rice, are laid upon the parts afflicted with rheumatism, and on buboes. The root, which is woody, with a corky yellow bark, and a sharp subaromatic flavour, is warm, diaphoretic, and emmenagogue, and is much esteemed in intermittent fevers, rheumatism, &c.—Native of China, Cochin-china, and Japan.

5. Fagara Horrida; *Spiny Fagara.* Leaves pinnate; pinnas ovate-crenate; spines of the branches armed with spinules. This is a small upright tree, smooth in all its parts; branches alternate, striated, flexuose, upright, from ash-coloured purplish, elongated, almost simple.—Native of Japan, where the natives call it *Sai-katfi.*

6. Fagara Tragodes; *Prickly-leaved Fagara.* Joints of the pinnas prickly underneath. A shrub, branching, almost erect, five feet in height; prickles in pairs, subulate, recurved, strong, subaxillary, brown, shining; there is one similar, but smaller, on the back of each joint of the leaves; flowers small, axillary, aggregate.—It flowers in February, and is a native of St. Domingo.

7. Fagara Emarginata. Leaves pinnate; leaflets ovate, emarginate, veined; racemes terminating, compound; flowers three-stamined. The trunk of this tree is of the size of the human leg, sometimes beset with many short prickles. It rises twenty feet high, and its branches are inclined towards the ground. The wood is white, solid, and odoriferous, with a pretty large pith; flowers white, small, like those of Elder, three-petalled; fruit round, the size of black pepper; seed black, smelling somewhat like Bay-berries. The smoke of this wood in burning is odoriferous, and probably occasioned the fine scent which Columbus perceived near the south-shore of Cuba, on his discovery of that island.—Native of Jamaica, and other West India islands.

8. Fagara Spinosa. Leaves pinnate, sessile, ovate, acuminate; both they and the branches spiny underneath; flowers three-stamined.—Native of Jamaica.

9. Fagara Acuminata. Leaves pinnate; leaflets entire, elliptic, acuminate, shining, coriaceous; flowers in cymes, three-stamined.—Native of Jamaica.

10. Fagara Octandra; *Downy Fagara.* Leaflets tomentose; branches thick, few, long, irregular; leaves pinnate, tomentose on both sides, winged, deciduous, coming out from the ends of the smaller branches with the flowers, or a little after them; racemes many, simple, an inch or an inch and a half long; flowers very small, with white calices, and yellowish corollas; fruit green, the size of peas: when broken, the valves distil drops of balsam. It is an inelegant tree, frequently more than twenty feet in height, abounding in a balsamic glutinous juice, much like that of Burseria in its qualities. The wood is very white, and light. The natives of some of the West India islands make saddles of it, in one piece; they have no pad, and only a sheep's-skin thrown over them when they ride. Jacquin calls it Elaphrium, from the lightness of the wood.—Native of Curaçao and the adjacent islands, where it flowers in July and August.

Fagonia; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, erect, patulous, very small, deciduous. *Corolla:* petals five, heart-shaped, spreading; claws long, slender, inserted into the calix. *Stamina:* filamenta ten, subulate, erect, longer than the calix; antheræ roundish. *Pistil:* germen five-cornered, superior; style awl-shaped; stigma simple. *Pericarp:* capsule round-acuminate, (five-cornered, according to Gærtner,) five-celled, five-lobed; ten-valved; the cells compressed. *Seeds:* solitary, roundish. Essential Character. *Calix:* five-leaved. *Petals:* five, cordate. *Capsule:* five-celled, ten-valved, with one seed in each cell.—This genus consists of herbaceous plants, with a woody base. The leaves are either simple or ternate; the stipules in the two first species become thorns. The flowers are solitary and axillary. In order to propagate them, sow the seeds upon a warm border of fresh light earth in autumn, where they are designed to remain, for they do not bear transplanting well: in frosty weather shelter the plants with mats, or some other covering; thin them out to the distance of ten inches or a foot, and keep them clean from weeds. It is, however, a better plan to sow them in pots, and place them under a frame in winter; in the following spring, shake them out of the pots, and plant them in a warm border; thus they will flower early, and ripe seeds may be obtained. ——The species are,

1. Fagonia Cretica; *Cretan Fagonia.* Thorny: leaflets lanceolate, flat, even. This is a low plant, spreading its branches close to the ground, a foot or more every way. The flowers are solitary, from the forks of the stem, or terminal, of a beautiful purple, with yellow stamina. It flowers in July and August, but, unless the season proves warm, does not ripen seeds in England.—Native of the island of Candia.

2. Fagonia Arabica; *Arabian Fagonia.* Thorny: leaflets linear, convex. This is a low plant, with a shrubby stalk, from which come out several weak branches, armed with long thorns; the leaves are thick, narrow, and convex on their under side; the flowers come out as in the first sort.—It was discovered in Arabia by Dr. Shaw. This and the following species seldom flower in the first year; and on that account require shelter, like the first, for two winters.

3. Fagonia Hispanica; *Spanish Fagonia.* Without thorns. This differs from the first species, in being smooth; the branches having no thorns; it will also live two years, whereas that is annual.—Native of Spain.

4. Fagonia Idinca. Thorny: leaves simple, oval; flowers yellow. Annual.—Grows in Persia.

Fagræa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-parted; divisions obtuse, incumbent, membranaceous at the end. *Corolla:* one-petalled, funnel-shaped; tube round, gradually widening to the top, long; border twisted, five-parted; divisions oblong, oblique, obtuse, entire, patulous. *Stamina:* filamenta five, filiform, equal, inserted into the tube, shorter than the corolla; antheræ ovate, twin, vertical, convex outwards, four-furrowed, flat on the inner side, easily bipartile. *Pistil:* germen superior; style filiform, the length of the corolla; stigma peltate, orbiculate, flat. *Pericarp:* berry ovate, fleshy, covered with an epidermis, two-celled. *Seeds:* orbiculate, smooth. Essential Character. *Calix:* bell-shaped. *Corolla:* funnel-shaped. *Berry:* two-celled, fleshy. *Seeds:* globular. *Stigma:* peltate.——The only known species is,

1. Fagræa Zeylanica. Stem becoming shrubby, erect, somewhat four-cornered, a finger in thickness, and two feet high; leaves fastigiately opposite, petioled, frequent, obovate-oblong, very obtuse, entire, coriaceous, a hand broad, and a span long; petioles semicolumnar, an inch in length; flowers terminating, subumbelled, peduncled; the umbel has about three flowers; peduncles one-flowered, bracted, half an inch in length; bractes opposite, ovate, obtuse.—It is a native of Ceylon, flowering in December and January.

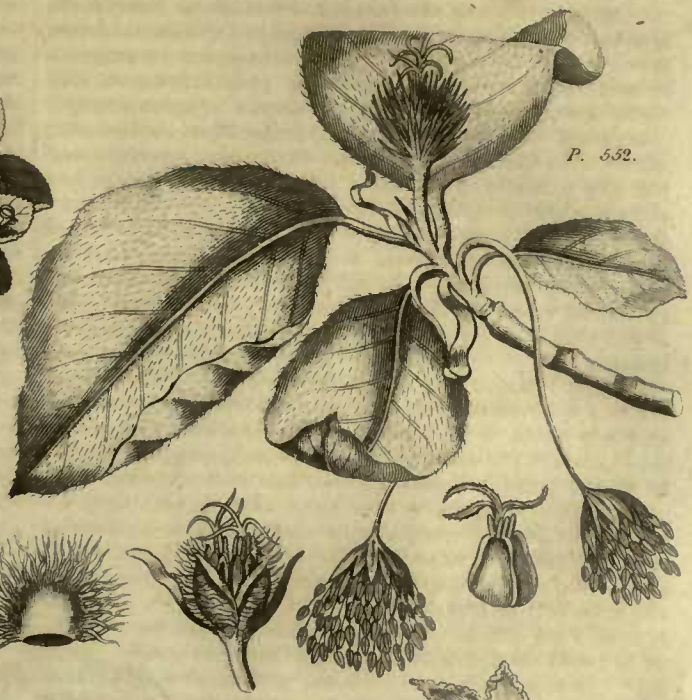
Fagus; a genus of the class Monœcia, order Polyandria.—Generic Character. *Male Flowers,* fixed to a common amentaceous receptacle. *Calix:* perianth one-leafed, bell-shaped, five-cleft. *Corolla:* none. *Stamina:* filamenta many, the length of the calix, setaceous; antheræ oblong. *Female Flowers,* in a bud of the same plant. *Calix:* perianth one-leafed, four-toothed, erect, acute. *Corolla:* none. *Pistil:* germen covered with the calix; styles three, subulate; stigmas simple, reflex. *Pericarp:* capsule (which was the calix) roundish, very large, covered with soft spines, one-celled, two or four valved. *Seeds:* nuts one or two, ovate, three-cornered, three-valved, acuminate. *Observe.* In the third species, or Beech, the male flowers are in a ball; in Chestnut they are in a cylinder. Essential Character. *Male. Calix:* five-cleft, bell-shaped. *Corolla:* none. *Stamina:* twelve. *Female. Calix:* four-toothed; styles three. *Capsule:* (which was the calix) muricate, four-valved. *Seeds:* two.——The species are,

1. Fagus Castanea; *Common Chestnut Tree.* Leaves lanceolate, with acuminate serratures, naked underneath. This tree will grow to a very great size, and spread its branches finely on every side where it has room, but planted closely, will shoot up straight to a great height. The leaves, which are large, and of a lucid green, end in a very long taper point, and the serratures terminate in a tender kind of prickle; they are about four or five inches long, and two wide, somewhat wrinkled, having several transverse veins, prominent on the under surface, and proceeding from a strong midrib. The aments or catkins of male flowers are pendulous at the ends of the branches, very long, and resemble those of Walnut. They have a strong spermatic smell; and the flowers, which are sessile, are collected in remote little balls. The proportion of male flowers to the females is prodigious. The stamina are about nine in number, some say from five to eighteen. In the female flowers, the number of styles varies from four to seven, but six is the most common. The calix becomes an echinate capsule of four valves, of a silky smoothness on the inside, and containing two nuts, sometimes three, or only one.—This tree has long been naturalized in the southern countries of Europe, and is said to have been brought by the Roman emperor, Tiberius Cæsar, from Sardis to Lydia in Italy, whence it was transplanted into France, and latterly into England. It is indigenous in many parts of Asia, in China, Cochin-china, Japan, &c. The Chestnut abounds now in the mountainous parts of Italy, in the south of France, Switzerland, the Valais, and many parts of the Alps towards Italy, in Corsica, and Sicily, where it grows half way up the side of Mount Ætna, as well as in Carniola, some parts of Germany, Portugal, and Spain. Mr. Miller supposes it formerly to have been more plentiful than at present in England, but it is probable that the timber in various old buildings in London, which he supposed to be Chestnut, was nothing but Oak of a different grain, and inferior quality. Evelyn makes little doubt that the Chestnut-tree is a native of Great Britain; and Dr. Ducarel, who is of the same opinion, among other ancient records to which he appeals, produces a deed of gift from King Henry II. to Flexley Abbey, of the tithe of all his Chestnuts in the forest of Dean. The Hon. Daines Barrington, on the contrary, thinks that it is not a native. It certainly is not in the woods north of the Trent; and, though it has been long in the southern parts, yet, says Hunter, there is no appearance of its being indigenous. This tree seems to be very long-lived, and grows to a very great size. The famous *castagno de cento cavalli,* or Chestnut of a hundred horses, on Mount Ætna, as measured by Mr. Brydone in 1770, was 204 feet in circumference; but some maintain that it is not one tree, and even Brydone himself confesses that it had the appearance of five distinct trees, but that he was assured the space was once filled with solid timber, and that no bark could be discovered on the inner parts. Kircher, who wrote a century before, declares, that a whole flock of sheep might be commodiously enclosed within it, as in a fold. In the same neighbourhood is another tree, called *il castagno del galea,* which is undoubtedly single, and measured at the same time seventy-six feet round, at two feet from the ground; but it should not be forgotten, that both these monstrous trees grow upon a deep rich soil, formed from the ashes of the volcano. The most remarkable of these trees in England, is that at Tortworth, the seat of Lord Ducie, in Gloucestershire. Even in the year 1150, says Bradley, it was styled the great or old Chestnut-tree of Tortworth; and in all probability is at least one thousand years old. It fixes the boundary of the manor; and in the year 1720, girted fifty-one feet, at a man's height from the ground. It divided at the crown into three limbs, one of which then measured twenty-eight feet and a half in circumference, five feet above the ground. The soil in which this tree grows is a soft, and somewhat loamy clay, and its situation on the north-west side of a hill. Lord Ducie has a beautiful painting of this ancient tree, from which an etching was made in the year 1772, under which is the following inscription: "The east view of the ancient Chestnut-tree at Tortworth, in the county of Gloucester, which measures nineteen yards in circumference, and is mentioned by Sir Robert Atkyns, in his history of that county, as a famous tree in King John's time; and by Mr. Evelyn, in his *Sylva,* to have been so remarkable for its magnitude, in the reign of King Stephen, as then to be called the Great Chestnut of Tortworth; from which it may reasonably be presumed to have been standing before the conquest." When the above-mentioned etching was made, it was barely included within the garden-wall, which bore hard upon it; but the present Lord Ducie removed the incumbrance, and applied fresh earth to the roots, which seems to have enlivened it. So late as the year 1788, it produced great quantities of fruit, which, though small, were sweet, and well-flavoured. Mr. Lysons, however, who measured this famous tree in 1791, says, that

EUPHORBIA HELIOSCOPIA — *Sun Spurge.*

FAGUS SYLVATICA — *Common Beech Tree.*

P. 542.



P. 552.

P. 548.

P. 550.

FAGUS CASTANEA — *Common Chesnut Tree.*

FERRARIA UNDULATA — *Cape Ferraria.*

T. Dixon sculp.

Published by Henry Fisher, Caxton, London, 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

it measured only forty-four feet four inches round in the thickest part; and adds, that there does not seem to be any authority, to shew at what period it became remarkable for its size, except a very vague tradition; and it could never have been a boundary of a manor, for it stands in the centre of it. There are some fine Chestnut-trees on the banks of the river Tamar in Cornwall, at an old house belonging to the Edgecumbe family, and at Beechworth Castle in Surry; there are not fewer than seventy or eighty trees, measuring from twelve to eighteen or twenty feet in girth. At Wimley, near Hitchin Priory, in Hertfordshire, a Chestnut-tree, in 1789, girted somewhat more than fourteen yards, at five feet above the ground; its trunk was hollow, and in part open, but its vegetation was vigorous. In the park adjoining to the garden, at Great Canford, in Dorsetshire, are four large Chestnut-trees, one of them measuring thirty-seven feet round, still bearing fruit plentifully, though much shivered and decayed by age. There was an old decayed tree at Fraiting, in Essex, whose very stump yielded thirty sizeable loads of logs. Another, in Gloucestershire, contained within its bowels a pretty wainscoted room, enlightened with windows, and furnished with seats. Ben Jonson, in his poem on Penshurst, makes mention of a Chestnut, planted at the birth of the celebrated Sir Philip Sydney. There have been, and still are, many fine Chestnut-trees in Ireland, as an avenue at Dunganstown: some of these were cut down in 1793, one of the trees measuring fourteen feet three inches, another fifteen feet, and a third sixteen feet six inches round; the length of one was twenty-four feet, and of another thirty-six.—The Chestnut, says Mr. Gilpin, in maturity and perfection, is a noble tree, and grows not unlike the Oak. Its ramification is more straggling, but it is easy, and its foliage loose. This is the tree which graces the landscapes of Salvator Rosa, who painted in the mountains of Calabria, where it flourishes. This tree deserves our care as much as any of the trees which are propagated in this country, either for use or beauty, being one of the best sorts of timber, and affording a goodly shade. The leaves continue late in the autumn, turning then to a golden colour, and are not so liable to be devoured by insects, as those of the Oak, which renders that tree very unsightly during a great part of the summer. On this account, the Chestnut is more valuable, as an ornament for parks and plantations; and there can be no better food for deer, and many other animals, than their nuts, which most of them prefer to acorns; but yet there should not be many of these trees planted too near dwelling-houses, because, when in flower, they emit an odour which is very offensive to most people. The shade of the Chestnut, like that of the Ash, is injurious to other plants; it should, therefore, be planted in thickets, or in detached plantations. Or, if these trees be planted in large wilderness quarters, next the walks, or in woods by the side of the ridings, and left untrimmed, as they ought to be, they will feather to the bottom, and hide the naked and crooked stems of other trees. To recommend the restoration of this noble and useful tree, which has unaccountably lost ground among us, we must observe, that it may be cultivated in England so as to afford an equal profit with any other sort of timber-tree; since the wood is equal in value to the best Oak, and for many purposes far exceeding it, particularly for casks, for which it is much used in Italy, and for pipes to convey water under ground. In Italy it is planted as coppice-wood, to make stakes for their vines, which will continue seven years. It must therefore be very proper for stakes in espaliers and dead hedges, for hop-poles, hurdles, &c. The timber was formerly used for all the same purposes as Oak, in building, mill-work, and household furniture; and lately, some of it that was finely variegated, has been successfully employed for doors, and the balustrades of a staircase: a colour being given to it, by rubbing it over with alum-water, then laying on with a brush a decoction of logwood chips, and lastly a decoction of Brazil-wood, which process has produced a strong resemblance to Mahogany. Some persons assert, that the timber of Chestnut is brittle, and decays at heart; whilst, according to others, it will last longer than Oak, is not subject to cracks or flaws, and is never attacked by spiders or other insects. Old Chestnut is certainly brittle, and liable to crack, and therefore should never stand longer than whilst it is in a growing state. If cut when it squares only six inches, it will be as durable as Oak of six times its size and age, having very little sap in proportion to other trees. The durability of it, when exposed to the weather, has been sufficiently ascertained, from its use for gate-posts at Wellington in Somersetshire, of which the following is an authentic account. In or about the year 1763, some gate-posts of Oak, and others of Chestnut, were to be repaired; they had the appearance of being put in at the same time, but the latter were much more sound, insomuch that some of them were adjudged good enough to remain as gate-posts, and were still to be seen there in 1788. Such as were too small were taken up, and set as posts to fix rails to. At the same time some new posts of Oak were put in, there not being a sufficient quantity of the old Chestnut posts; which, twenty-five years afterwards, were found to be sounder than the Oaken posts, which were then new. One side of the Chestnut posts was the outside of the tree; but the timber was as sound there as in any other part, which would not have been the case with Oak, the sap of which, next the bark, soon decays. These Chestnut gate-posts had been put down many years before 1745, and have, therefore, probably resisted the weather for above half a century. Another account says, that a chestnut-branch, about thirteen inches square, which, in the year 1726, was put down as a hanging-post for a gate, and carried the gate fifty-two years, when taken up appeared perfectly sound, and was put down for a clapping-post in another place. A large barn, built of Chestnut timber, in 1743, was sound in every part in 1792. At the former period, also, several posts and rails were put down, which, after standing thirty or forty years, appeared to be so sound, as in general to allow of being set up in some other place. In 1772, a fence was made of posts and rails converted from young Oaks and Chestnuts of the same age and scantling. In 1791, this fence was removed, and the Chestnut-posts were found as sound as when first put down; but the Oaken ones were so much wasted just below the surface of the ground, that they could not be used again without a spur.—The nuts are the usual, and, in some places, almost the only food of the common people in the Apennine mountains of Italy, and in Savoy, some parts of the south of France, and in Portugal. They are not only boiled and roasted, but made into puddings, cakes, and bread. They are reckoned a very flatulent and indigestive diet; although in Italy there are instances of men's living to the age of eighty, and even a hundred years, who have fed wholly upon Chestnuts. They are brought even to fashionable tables in desserts. Mr. Ray observes, that the Italians eat them with orange or lemon juice, and sugar, and that they are there sold commonly about the streets, roasted upon a portable furnace; by which we may infer, that this *luxury* was unknown at London in the last century. These nuts are also used for whitening linen-cloth, and for making starch, and are excellent for feeding hogs. The leaves likewise make useful litter, and, when mixed with the dung of the cattle,

form a good manure. It is hoped that the above interesting account will have some tendency to encourage the growth of this noble, though neglected tree. Mr. Peter Collinson, who thought it a native of this country, assigned the great profit arising from Chestnuts, when cut for hop-poles, as the reason why large trees are so rarely met with in our woods. Let us hope, however, that it will once more be suffered to rear its head as a timber-tree amongst us. An arrêt of the council of Paris was published in May, 1720, ordering that all the great roads in France should be planted with Chestnut, or other such fruit or forest trees as are suitable to the nature of the ground, at thirty feet distance from each other, and within six feet of the top of the ditch. The principal plantations which have been made of late years in Great Britain, are in the northern parts of the island. The Earl of Fife has planted above 60,000 trees in the county of Murray; George Ross, Esq. 4000 in Cromarty. In England, Mr. Windham's plantations, at Felbrigg in Norfolk, made in 1676, are well known. Mr. Joseph Mace has planted six acres, seventeen perches, with above 3000 trees, at Ashford in Biddenden, Kent. John Sneyd, Esq. 8000, at Belmont in Staffordshire, from 1784 to 1786; and Mr. Joseph Cowlishaw, six acres in Carlton forest, with above 1800 of these trees, mixed with Larch, Ash, &c.—There are several varieties of the Chestnut which have accidentally arisen from seeds; but the difference is chiefly in the size of the fruit and leaves. One sort, however, which has variegated leaves, is admitted into the nurseries as a curiosity. The Striped Chestnut is among the most beautiful of the variegated trees, the blotches being of a rich shining gold colour, strongly marked. The Dwarf Branching Chestnut is no more than a variety of the common sort.——The Chestnut-tree is propagated by planting the nuts in February, in beds of fresh undunged earth. The best nuts for sowing, are such as are brought from Portugal and Spain, and are commonly sold in the winter for eating, provided they are not kiln-dried, which is generally the case with most of those brought from abroad, which is done to prevent their sprouting or shooting in the passage; therefore, if they cannot be procured fresh from the tree, it will be much better to use those of English growth, which are full as valuable, either for timber or ornament, as any of the foreign nuts, notwithstanding their fruit is much smaller; these should be preserved until the season for sowing, which is the beginning of March, in sand, where mice or other vermin cannot come at them, for they will soon destroy them. Before you plant them, it will be proper to put them into water to try their goodness, which is known by their weight; those that swim upon the surface of the water should be rejected as good for nothing; but such as sink to the bottom you may be sure are good. In setting these seeds or nuts, the best method is to form a drill with a hoe, as is commonly practised in setting kidney-beans, about four inches deep, in which you should place the nuts at about four or six inches' distance, with their eye uppermost; then draw the earth over them with a rake, and make a second drill at about a foot-distance from the former, proceeding as before, allowing three or four rows in a bed, with an alley between, three feet broad, for the conveniency of clearing the beds. When you have finished your plantation, set traps to destroy the mice and other marauders, or else they will infallibly destroy your work. In April these nuts will appear above ground; observe therefore to keep them clear from weeds, especially while young; in these beds they may remain for two years, when you should remove them into a nursery, at a wider distance. The best season for transplanting these trees, is either in October, or at the end of February, but October is the best season: the distance these should have in the nursery, is three feet row from row, and one foot or eighteen inches in the rows; be careful, when about to transplant them, to take them up without injuring the roots, nor should they remain long out of the ground; but if they have a downright tap-root, it should be cut off, especially if they are designed to be again removed: this will cause them to put out lateral roots, and render them less subject to miscarry, when they are removed for good. The time generally allowed for them to remain in this nursery, is three or four years, according to their growth; but the younger they are transplanted, if designed for timber, the better they will succeed; during this time be careful to keep them clear from weeds, and to prune off lateral branches, which would retard their upright growth; where you find any that are disposed to grow crooked, either by their upper bud being hurt, or from any other accident, you may, the year after planting, in March, cut them down to the lowermost eye next the surface of the ground, which will cause them to make one strong upright shoot, and they may be afterwards trained into good straight trees: but this should not be done, unless the plants have absolutely lost their leading shoot; for although the stems of the trees should be very crooked, as is generally the case with them when young, yet when they are transplanted out, and have room to grow, as they increase in bulk they will grow more upright, and their stems will become straight, as has been frequently observed where there have been great plantations made of them. But in doing this, care must be taken not to disturb or break their roots, which might probably destroy them. They require no other manure than their own leaves, which should be suffered to rot upon the ground; and, in the spring of the year, the ground should have a slight digging, when these should be buried between the roots, yet not too close to the trees, which might be injurious to their young fibres. After remaining three or four years in the nursery, they will be fit for transplanting, either in rows to grow for timber, or in quarters for wilderness plantations, avenues, clumps, or the orchard: but if you intend them for timber, it is by far the best method to sow them in furrows, as is practised for Oaks, and let them remain unremoved; for these trees are apt to have a downright tap-root, which being hurt by transplanting, is often a check to their upright growth, and causes them to shoot out into lateral branches, like the Oak, Walnut, &c. Let it be observed, however, that where the fruit is more sought after, then it is certainly the better way to transplant them: for, as transplanting is a check to the luxuriant growth of trees, so it is a promoter of their fructification, as may be proved by observing low Shrubby Oaks, Walnuts, &c. which generally have a greater plenty of fruit than any of the larger and more vigorous trees; and the fruit of such trees is much superior in taste, though the seeds of vigorous trees are vastly preferable for plantations of timber; for it is a constant observation, that, by saving seeds from dwarf trees or plants, from time to time, they may be rendered much lower in their growth than in their natural size: but where the fruit is most desired, then they should be taken from such trees as produce the largest and sweetest nuts, which are commonly found upon such trees as spread the most, and have horizontal roots; for the weaker trees being less capable of furnishing a supply of nourishment, and having a greater quantity of fruit upon them, to which this must be distributed, together with their roots near the surface of the ground, by which means the juices are better prepared by sun, air, &c. before it enters their vessels, it is certain that their juices are better digested, and their fruit better matu-rated, than those can possibly be which grow upon strong

vigorous trees, which have long tap-roots running several feet deep in the earth, and consequently take in vast quantities of crude unprepared juice, which is buoyed up to the extreme parts of the tree; and these seldom have many lateral branches to digest and prepare their juice, by perspiring and throwing off the crude part before it enters the fruits. This remark will, in all probability, extend to all sorts of fruit-trees, and is often the occasion of the good and bad qualities of the same sorts of fruits growing on the same soil. What has been related about grafting this tree into the Walnut to promote its bearing, or render the fruit fairer, or inoculating Cherries into the Chestnut for later fruit, is very whimsical and silly, since neither the Chestnut nor the Walnut will receive its own kind in any other way than by inoculating or inarching, and it is the latter only by which the Walnut can be propagated; nor was it ever known that any two trees of a different genus would take upon each other so as to produce either a good tree or good fruit; therefore we may justly explode all those different graftings of various trees upon each other, so much talked of by the ancients, at least we may suppose those trees are not known by the same names now, that they are mentioned by in their writings; for, says Mr. Miller, "I have made many trials upon them, which, though performed with the utmost care, and in different seasons, have very seldom succeeded."—But to return: If you design a large plantation of these trees for *timber*, after having two or three times ploughed the ground, the better to destroy the roots of weeds, make your furrows about six feet distance from each other, and lay the nuts in them ten inches apart, covering them with earth about three inches deep; and when they come up, you must carefully clean them from weeds: the distance allowed between each row is for the use of the horse-hoeing plough, which will despatch a great deal of this work in a short time; but it should be very carefully done, so as not to injure the young plants; therefore the middle of the spaces only should be cleaned with this instrument, and a hand-hoe must be used to clean between the plants in the rows, and also on each side, where it will be unsafe for the plough to be drawn; and in hand-hoeing there must be great care taken not to cut the tender rind of the plants. If in the following spring the spaces are carefully stirred with the plough, it will not only make the ground clean, but also loosen it, so as that the sun and moisture may more easily penetrate the same, which will greatly promote the growth of the plants; and the oftener these ploughings are repeated, the cleaner will be the ground, and the greater the progress of the plants, which cannot be kept too clean while they are young. When these have remained three or four years, if the nuts succeed well, you will have many of these trees to remove, which should be done at the seasons before directed, leaving the trees about three feet distance in the rows; at which distance they may remain for three or four years more, when you should remove every other tree to make room for the remaining, which will reduce the whole plantation to six feet square, a distance sufficient for them to remain in until they are large enough for poles, when you may cut down every alternate tree, selecting the most unpromising, within one foot of the ground, in order to make stools for poles, which in eight or ten years' time will be strong enough to lop for hoops, hop-poles, &c. for which purposes they are preferable to most other trees, so that every tenth year there will be a fresh crop, which will pay the rent of the ground, and all other incumbent charges, and at the same time a full crop of growing timber left upon the ground. But as the larger trees increase in bulk, their distance of twelve feet square will be too small; therefore when they have grown to a size for small boards, you should fell every other tree, which will reduce them to squares of twenty-four feet, which is a proper distance for them to remain for good; this will give air to the underwood, which by this time would be too much overhung by the closeness of the large trees, by which means that will be greatly encouraged, and the small timber thus felled will pay sufficient interest for the money at first laid out in planting, together with the principal also; so that all the remaining trees are clear profit, for the underwood still continuing will pay the rent of the ground, and all other expenses; and how fine an estate the succeeding generations will find in the course of fourscore years, when the timber-trees shall have arrived at maturity, every one may easily conceive.—In raising Chestnut woods for *timber*, Mr. Boutcher advises for the first two years to take a line of Beans between the drills; and at the end of two years, early in the spring, to remove every second plant in the rows, which will leave them about two feet and a half asunder, at which distance they may remain for three years. Then remove every second row, and every second tree in the remaining rows, which will leave them at the distance of eight feet by five; these plants will be useful for stakes and poles. The ground may now be levelled, and dug for any kitchen-garden crops; in the February following cut them down, reserving only the straightest and most vigorous, at the distance of twenty-five or thirty feet. Dwarf crops may be taken between the rows for two years more, after which the trees will soon cover the ground. Both Mr. Boutcher and Dr. Hunter prefer February to October for transplanting. Mr. Marshall advises the nuts to be set by the dibble, six inches asunder, in a quincunx order; because drills serve as conductors to the field-mouse. Mr. Hanbury contends for planting a Chestnut wood from the nursery: he advises to plant out the trees when they are five feet high, because they will not be so large as to require staking, nor so small as to be within the reach of hares, rabbits, &c. the distance to be two yards, which is far enough asunder for poles; when they are large enough for this use, they should be cut down, leaving a sufficient number of the most thriving trees for timber, this will be in fourteen years; if they are cut within a foot of the ground, there will be stools for another crop in ten years more. If the plantation be large, the first fall of poles may be begun so early, and the latter deferred so late, that the year after the last fall, the stools of the first-cut poles shall have sent forth others ready for a second cutting. Thus the proprietor will enjoy the benefit of an annual sale, and the country will not be glutted with too great a quantity. Mr. Hanbury prefers this method, because when the tree is raised from nuts, it is subject to a tap-root, which strikes beyond the reach of nourishment, and grows slower in consequence; and because while they are in the nursery a vast quantity will stand in a small space; whereas when they are raised from the nuts, the whole wood must be kept clear of weeds till the plants are grown of a sufficient size to need no further weeding.—In making a plantation of Chestnut-trees for the *fruit*, the ground should have three or four ploughings in the preceding summer and winter; and if one good digging be added a little before planting, it will be a great improvement. Plant your trees in rows six feet distant every way, dig the ground annually, and when the branches begin to meet, take up every second row, and every second plant, which will leave all the trees at twelve feet distance, while the wood of those that are taken up will be found of great use for many purposes. Having dug or half-trenched the land, if it be of good quality it may for some years be cultivated with Potatoes, Cabbages, and Turnips

When the branches begin again to meet, they must be reduced as before, and left twenty-four feet asunder, at which distance they may remain. The wood of this last felling will saw into small boards, and being about twenty years old, must be rooted out, for the Chestnut shoots vigorously from stools. The remaining trees, having produced fruit for several years, will now bear vast quantities, and make great returns of profit.—The Chestnut will thrive on almost any soils, and in all situations, if there be no standing water; it succeeds best in a rich loamy land; but will flourish very well on gravel, clay, or sand. All mixed soils suit it, as well as exposed places, and the declivities of hills. In foreign countries, where the Chestnut is cultivated for the fruit, they graft cions from trees bearing the largest and fairest fruit, upon stocks raised from the nut. These grafted trees are, however, unfit for timber, and are called *marroniers* by the French. The varieties with striped or blotched leaves are maintained by budding, and inarching upon common Chestnut stock. The Chestnut-tree has its name *Castanea*, from a town of the name of Castanis, in Thessaly, about which this tree grew in great abundance: it has the same appellation in all the European languages; the Germans call it *castanienbaum*; the Swedes and Danes, *castanientræ*; the French, *chataignier*; the Italians, *castagno*: the Spanish, *castano*; the Portuguese, *castanheiro*; the Russians, *keschtan*.

2. Fagus Pumili; *Dwarf Chestnut Tree*, or *Chinqua Pine*. Leaves lanceolate-ovate, acutely serrate, tomentose underneath; aments filiform, knotty. This seldom grows above twelve or fourteen feet high, but produces abundance of nuts, which are generally single in each capsule. This tree is very hardy, and will resist the severest of our winters in the open ground, but is very apt to decay in summer, especially in a dry soil. But although it delights in moisture, yet, if the wet continues long upon the ground in winter, it frequently destroys the trees. It is very common in the woods of America, but rare in England.—The nuts of the Chinqua Pine, or Dwarf Virginian Chestnut, should be put up in sand as soon as they are ripe, and shipped off immediately, otherwise they will lose their vegetating quality. When the nuts arrive in England, they should be put into the ground as soon as possible; and if the winter should prove severe, cover the ground with leaves, tan, or pease-haulm, to prevent the frost from penetrating to the nuts.

3. Fagus Sylvatica; *Common Beech Tree*. Leaves ovate, obscurely serrate. This tree will grow to a very large size, lofty, and spreading, the trunk straight, and covered with a whitish bark; the leaves are smooth and glossy, waved on the edges, rather than serrate, or slightly sinuate-toothed, three inches and more in length, and two or upwards in breadth; the petioles reddish, slightly grooved above, four or five lines in length, pubescent, as is also the midrib of the leaf; stipules reddish-brown, shining, lanceolate, conspicuous. It retains the old leaves through the winter. The male catkins come out in bunches from the ends of the small branches; they are roundish, obtuse, half an inch long, and almost as broad, on peduncles from half an inch to fourteen lines in length, pendulous, round, and pubescent; calix cut half way into six sharp villose yellowish segments; stamina uncertain, four, six, eight, nine, eleven, or twelve, from the bottom of the calix; the female aments come out from the same place, a little above the others, they are erect, and on round, whitish, villose peduncles, four lines or upwards in length; the common involucre has two flowers, is four-cleft, and covered with soft spines; calix superior, six-leaved, tomentose; germen three-celled, with two rudiments of seeds in each cell; styles three, or, according to Gœrtner, one-cleft; stigmas awl-shaped, and slightly hooked, yellowish and smooth; at the top of the germen there are also six whitish villose segments, shorter than the styles. The fruit is composed of two nuts joined at the base, covered with an almost globular four-valved involucre, with soft spines on the outside, but within very smooth and silky; the nuts, when ripe, are one-celled and triangular, and contain one or two angular seeds.—The Beech is very well adapted to form lofty hedges, to surround plantations or large wilderness quarters, or for screens, where there is not room for trees to extend their branches naturally. Although the timber of this tree is not so valuable as that of many others, yet as it grows very fast in chalky or stony ground of little value, with a clear smooth bark and straight trunk; as it will thrive on such soils and in such situations as better trees will scarcely grow on; and as it will resist winds on the declivities of hills better than most other trees; the planting of it should be encouraged, especially as it affords an agreeable shade, and the leaves both make a fine appearance in summer, and continue green as long in autumn as any of the deciduous trees, when they turn brown or orange, and frequently hold on all the winter. In parks, therefore, and other plantations for pleasure, this tree deserves to be cultivated among those of the first class, especially where the soil is adapted to it. But though the wood of the Beech be brittle, and decays soon in the air, yet it will endure long under water, and serves for a great variety of uses, as will appear from the following account: It is of great use to turners for making trenchers, dishes, trays, buckets, &c. to the joiner, for stools, bedsteads, and other furniture; to the wheel and millwright; it makes shovels and spade-graffs for the husbandman; and is useful to the bellows-maker: floats for fishermen's nets, instead of corks, are made of its bark. It is good for fuel, billet, bavin, and coals, though one of the least lasting; and the very shavings are excellent for fining of wine. When the timber lies altogether under water, it is scarcely inferior to Elm. Baskets for Strawberries are made of the bark; of the thin lamina or scale of the wood, scabbards for swords, band-boxes, hat-cases, &c. The leaves are used abroad, on account of their elastic quality, instead of straw, for the *paillasse*, to lay under their mattresses. To the above enumeration of its uses by Mr. Evelyn, we may add many other. It is now in much repute among the cabinet-makers, for chairs, both plain and painted; for bedsteads, with the posts frequently stained the colour of mahogany. In the country it is much used for rafters, in building. Much of it is cut out into quarters and planks for various purposes; and barn floors are frequently laid with it. The millwright uses it for cogs, &c. and the wheelwright for spokes and fellies; it goes to the dock-yards for wedges, and may be used in ships' bottoms from the keel to the floor-heads; and is known in the coal mines under the name of Newcastle railing. Being of an even grain, and without knots, it makes beautiful benches and railing for public rooms, and many sorts of inside work in houses. It is formed into gun-stocks, tool-handles, mallets, carpenters' planes, heel-pieces, pegs for heels; and into sounding-boards for harpsichords, by the musical-instrument makers. The soap-cask coopers cut it into staves for dry goods, for which purpose a considerable quantity is imported as ballast from Bremen and Dantzic, in slabs and clapboards about five feet in length. It is said that these coopers consume from twenty to thirty thousand of these clapboards yearly, except in time of war, when the importation is stopped. It is excellent fuel, and in burning affords a large quantity of potash. Much of it is sent to the metropolis, under the name of

London billet, for the use of the bakers, glasshouses, &c. The stackwood, which is made up of the branches, is burnt chiefly into charcoal; the nuts or mast, as they are commonly called, fatten swine, but the fat is not firm; and they are greedily devoured by mice, squirrels, and birds: they are said to occasion giddiness and headache, but, when dried and powdered, to make wholesome bread; they are sometimes roasted as a substitute for coffee; and the poor people in Silesia use the expressed oil instead of butter. At the beginning of the last century, Aaron Hill had a project for paying off the national debt with the oil of Beech-nut; but they seem to yield so little oil in northern countries, that Linneus informs us, that scarcely any oil can be expressed from them. If the soil be tolerably good, Beech will become fit to be felled in twenty-five years; the woods are then drawn, as it is called, that is, the trees fit for firewood or billet, poles, timber, &c. are taken down, and no crooked trees are suffered to remain. Formerly it was the custom to leave the old stools to produce new trees, but as these seldom grow well and handsome, now during the winter the old stools are grubbed up, and the plants which spring spontaneously from the mast are encouraged, to supply the places of the trees which are taken down. Once in six or seven years this operation of drawing the woods may be repeated; and thus there is a constant and regular succession of trees fit to cut. The price which firewood or billet fetches in Buckinghamshire, is nearly fourpence the foot solid measure; the poles and better stuff, for gun-stocks, wedges, &c. sell for fivepence the foot; and the largest trees, for millwrights, sell for sixpence or sevenpence; stackwood is fifteen or sixteen shillings per load, and faggots fifteen or sixteen shillings the hundred. Cæsar's assertion, that the Fagus was not in Britain when he visited the island, can hardly be controverted but by supposing that his Fagus is not the Beech. But whatever may have been the case in Cæsar's time, the Beech is now no uncommon tree in many considerable tracts of Great Britain, particularly on that large ridge of chalk-hills which runs from Dorsetshire, through Wiltshire, Hampshire, Surry, Sussex, and Kent, branching out into Berkshire, Buckinghamshire, and Hertfordshire; on the declivities of the Cotswold and Strondwater hills in Gloucestershire, and on the bleak banks of the Wye, in the counties of Hereford and Monmouth; and it is, in short, to be found in almost every county of England. Some plantations of it have been lately made by the Earl of Fife, in the county of Murray, where his lordship has planted nearly two hundred thousand of these trees. George Ross, Esq. has also set 13,000 of them in Cromarty. In England, John Sneyd, Esq. has planted above 14,000 at Belmont in Staffordshire, between the years 1784 and 1786; and in 1788, the Bishop of Llandaff planted 2000 at Ambleside.—The Beech is a native of the greater part of Europe, and the southern provinces of the vast Russian Empire; but it is not fond of very high and cold situations, being seldom found in the northern provinces of Sweden. Mr. Lightfoot doubts whether it be indigenous in Scotland; and Mr. Marshall thinks it not a native of the northern counties of England. It prospers in a chalky and rocky soil, but not in light sands, and thrives prodigiously in sheltered bottoms, but seldom flourishes in a western exposure. In some parts of Herefordshire, where the soil is a strong clay full of flints, this tree grows to a great size, and is extremely beautiful. Beech, says the late Mr. White, is one of the most grand and lovely of all the forest-trees, whether we consider its stately trunk, its smooth silvery rind, its glossy foliage, or graceful spreading pendulous boughs. No tree, says another writer, is more beautiful, when standing singly in parks or ornamental grounds, as it throws out its branches very regularly, and feathers almost to the ground: in woods or groves it grows clear of branches to a great height. Mr. Gilpin is not inclined to rank the Beech much higher in picturesque beauty than utility. Its trunk, he allows, is often highly picturesque, being studded with bold knobs and projections, and having sometimes a sort of irregular fluting, which is very characteristic; the bark too wears often a pleasant hue; it is naturally of a dingy olive, but is overspread, in patches, with a variety of mosses and lichens; its smoothness also contrasts agreeably with these rougher appendages. This is all the merit Mr. Gilpin allots to the Beech; for, says he, we rarely see it well ramified, and in full leaf it has the appearance of an overgrown bush. Virgil, indeed, was right in choosing it for his shade, for no tree forms so complete a roof, although its bushiness gives it a great heaviness. The Beech, therefore, is most pleasing in its young state; it is then light and hairy, with spiry branches often hanging in the most easy and beautiful forms; and some of the finest oppositions of tint arise in the autumn from the union of this tree with the Oak. Although this tree is supposed not to be a native of Ireland, several fine Beeches are mentioned in that country; as at Tiny-park, the seat of Sir Skeffington Smyth, three noble trees together, the smallest fourteen feet round; the next, fifteen feet six inches at the butt, and fourteen feet eight inches at seven feet from the ground; the third, is sixteen feet three inches round, and continues nearly of the same girth for thirty-six feet. The celebrated Arthur Young, in his "Travels in France," speaks of a Beech at Chantilly, as the finest he ever saw, straight as an arrow, and not less than eighty or ninety feet high, forty feet to the first branch, and four yards in diameter at five feet from the ground.—The Beech derives its Latin name *Fagus*, from a Greek word which signifies to eat, either because mankind lived on Beech-mast before the use of corn, or because it was the food of the common people: the appellation is the same in all the northern languages, and in all the dialects of the Sclavonian: in German *Buche*, *Buke*, or *Boke;* in Danish, *Bog;* in Swedish, *Bok;* in Russian and Polish, *Buk;* the French *Hêtre*, is from the German *Hester*, which signifies a young Beech; the Italians call it *Faggio*, from the Latin, which the Portuguese have softened into *Faya*, and the Spaniards into *Haya*, although they sometimes calls it *Fagos*.—There are some planters who suppose that there are two species of this tree, the Mountain Beech and the Wild Beech; the first of which has a whiter wood than the second; but this difference arises only from the soil. There are also seeds of a Beech brought from North America, by the name of Broad-leaved Beech; but the plants raised from them proved to be the common sort. There are two varieties in the nurseries, one with yellow, and the other with white stripes. In Germany they have another variety, with dark red leaves, which is called the *Purple Beech*. There are also some trees in our woods with rougher bark, which the woodmen call *Hay Beech*.——The Beech-tree is propagated by sowing the mast, the season for which is any time from October to February, only observing to secure the seeds from vermin when early sowed; if this be carefully done, the sooner they are sown the better. Since Beech-mast, however, keeps very well, and is greatly relished by field mice and other vermin, many planters prefer spring sowing; in which case the seeds should be spread on a mat in an airy place for a few days to dry, and then put up in bags. A small spot of ground will be sufficient for raising a great number of these trees from seed: they must be kept clean from weeds, and if they come up very thick, draw the strongest

the autumn following; and thus if a seed-bed be husbanded carefully, it will afford a three years' draught of young plants, which should be planted in a nursery; and if designed for timber-trees, at three feet distance row from row, and eighteen inches asunder in the rows; but if designed for hedges, two feet row from row, and one foot in the rows, will be sufficient. In this nursery they may remain two or three years, observing to clear them from weeds, and to dig up the ground between the rows at least once a year; but be careful not to cut or bruise the roots, and never to dig the ground in summer, when it is hot and dry. The Beech will prosper on stony barren soils, but then the nursery for the young plants ought to be upon the same soil, for if they be raised in a good soil and a warm exposure, and afterwards are transplanted into a bleak barren situation, they will seldom thrive. See *Nursery*. For hedges, the Beech may be kept in a regular figure, if sheared twice a year, at least when it shoots strong; in which case, if the hedges be neglected but a season or two, it will be difficult to reduce them again. The varieties with striped leaves may be continued by budding or grafting upon the common Beech, observing not to plant them in too good a soil, which will frequently cause the leaves to become plain.—The above directions being in some respects imperfect, we subjoin the following from Mr. Boutcher: Being provided with mast from the straightest and freshest trees in September, as soon as the husks are quite dry, mix them with sand, and lay them under an old frame or other covering, to protect them from frost and wet. The beginning of March, sow them in beds four feet wide, in shallow drills eighteen inches asunder, covering them one inch deep; if the season be dry, give them frequent but moderate waterings, from the time of their appearance above ground, until the middle of August. In March, next season, with a spade made very sharp, undermine the roots, and cut them over between four and five inches under ground. In the following autumn or spring, either raise the whole, or give them another cutting under ground; when gently raising such as are too thick, leave the remainder at proper distances to stand another season: plant such as you have raised, after smoothing the bruised and broken roots, and cutting away some of the small hairy fibres, in lines two feet asunder, and nine or ten inches in the line; here they may remain two, or, if the land be poor, three years. Next autumn or spring treat the rest in like manner; trim off only cross ill-placed branches, and those sparingly. From this nursery they must be removed to another, and planted in rows three feet and a half asunder, and eighteen inches in the rows; here they may remain three years, in poor land four, observing always to prune moderately at removal, and to leave abundance of small branches. These plants will now be fit for common and extensive plantations; but such as are designed for removal when large trees, must again be transplanted in rows five feet asunder, and two feet distance in the rows, to remain in good ground three, in poor ground four years. From this remove them again into rows eight feet asunder, and six feet in the row, to remain four years; if required of a still larger size, plant them ten feet asunder every way. Mr. Young informs us, in his Irish Tour, that Mr. Mahon made a plantation of all sorts of forest trees in his park, in order to see how far the deer would let them escape; they devoured every tree except the Beech, not one of which they touched, either in leaf, branch, or bark; many of these Beeches, of not more than thirty years' growth, were three or four feet in girth, and from thirty to forty feet high.

4. Fagus Ferruginea; *American Beech Tree*. Leaves ovate-oblong, remotely and acutely serrate, acuminate, tomentose underneath. The leaves of this are much more distinctly serrated, and broader, than in the foregoing species; and the fruit smaller, of a tawny colour.—Native of North America.

5. Fagus Cochin-chinensis. Leaves ovate, crowded; capsules three-celled, three-valved. This is a small tree, about five feet high, with branches ascending a little; leaves obscurely serrate, smooth, petioled; male flowers in terminating aments, with a five-cleft calix and corolla, and twelve stamina; female flowers below on the same branch, with a five-cleft calix, and no corolla; capsule muricated, three-celled, three-valved, one-seeded. The seeds are of the same form and colour with the common sort, but very small. The corolla of the male flowers being very thin and membranaceous, may be considered as a nectary. There appears to be some doubt whether this be a distinct species from the common Beech.—Native of Cochin-china.

Falkia; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, somewhat inflated, five-cornered, shorter by half than the corolla, five-parted; angles widened in the middle, compressed, standing out; divisions ovate, acute. *Corolla:* one-petalled, bell-shaped, crenate, ten-parted; border spreading. *Stamina:* filamenta five, filiform, inserted into the tube of the corolla, erect, unequal, shorter than the corolla; antheræ ovate, compressed. *Pistil:* germina four, superior, smooth; styles two, capillary, divaricate, the length of the corolla; stigmas capitate, obtuse, simple, orbiculate, peltate. *Pericarp:* none. *Seeds:* four, globular, arilled at the bottom of the calix. *Observe.* This genus is allied to Convolvulus, having the herb and flower of the same structure, but differing in the seed. Essential Character. *Calix:* bell-shaped, five-cleft. *Corolla:* bell-shaped; stigmas orbicular, peltate. *Seeds:* four, arilled.——The only discovered species is,

1. Falkia Repens; *Creeping Falkia*. A perennial plant, flowering from May to August; and a native of the Cape of Good Hope.—It is generally increased by parting the roots, planting in loamy earth, and watering freely in summer.

Fan, Palm. See *Chamærops*.

Feather, Prince's. See *Amaranthus*.

Feathered Columbine. See *Thalictrum*.

Feather Grass. See *Stipa*.

Felwort. See *Gentiana*.

Fences.—In hotter climates than England, where walls are not wanted to ripen fruit, the gardens lie open, where they can have water, fence, or prospects, or else they bound their gardens with groves, in which are fountains, walks, &c. which are much more pleasing to the sight than a dead wall; but in colder countries, and in England, we are obliged to have walls to shelter and ripen our fruit, although they deprive us of the pleasant prospect of the garden. Since, therefore, we are under the necessity of having walls to secure our gardens from the injury of winds, as well as for the conveniency of partitions or enclosures, and also to ripen our fruit, brick walls are accounted the warmest and best for this purpose; and these walls being built in the shape of pannels, with pillars at equal distances, will save a great deal of expense, because they may be built thinner than when built plain without these pannels; for then it would be necessary to build them thicker every where; and it must be allowed that the panels are an ornament to the wall. Stone walls are preferred by some persons, and especially those of square hewn stone; but where they are designed for fruit, they should be faced with brick. Those that are made of rough stones, though they are very dry and warm, yet, by reason of their unevenness, are inconvenient to nail up trees to, except pieces of timber be laid in them here and there,

to fasten a trellis to them. But in large gardens, it is better to have the prospect open to the pleasure-garden, which should be surrounded with a fosse, that from the garden the adjacent country may be viewed; but this must depend on the situation of the place, for if the prospect from the garden be not good, it had better be excluded by a wall, or any other fence, than remain exposed to view. And where a garden lies near a populous town, and the adjoining grounds are open to the inhabitants, if the garden be open, there will be no walking there in good weather, without being exposed to the passers by, which is very disagreeable. When fosses surround a garden situated in a park, they are extremely proper, because hereby the prospect of the park will be enjoyed in the garden, which will thus be rendered much more agreeable than those which are confined. There have been numberless inventions for making these fosses, but there are none in all respects preferable to those which have an upright wall next the garden, which, where the soil will admit of a deep trench, should be six or seven feet high, so as to be above the reach of boys; and from the foot of this wall, the slope on the outside should rise with a gradual easy slope, to the distance of eighteen or twenty feet; and where it can be allowed, if it slopes much farther, it will be easier, and less perceptible as a ditch to the eye, when viewed at a distance. But if the ground be naturally wet, so as not to admit of a deep fosse, then, in order to make a fence against cattle, if the wall be four feet high, and slight posts of three feet and a half high are placed just behind the wall, with a small chain carried on from post to post, no cattle or deer will ever attempt to jump against it, therefore it will be a secure fence against them; and if painted of a dark lead colour, they will not be discerned at a distance; at the same time that the chain will secure persons walking in the garden from tumbling over; and if another chain be carried through the posts at one foot from the ground, it will more effectually prevent cattle from creeping under. In places where no good prospects can be obtained from a garden, it is common to make the enclosure of park-paling, which, if well performed, will last many years, and has a much better appearance than a wall: this pale may be concealed by plantations of shrubs and evergreens within, or else by a quick hedge, which may be trained up so as to be an excellent fence by the time the pales begin to decay. There are some persons who make stockade fences round their gardens to keep out cattle, which, when well made, will answer the purpose of a fence; but these being very expensive in the making, and not very lasting, has prevented them from being brought into common use. As to park fences, they are generally of paling, which, if well made of winter-fallen oak, will last many years; but a principal thing to be observed in making these pales is not to make them too heavy, for when they are so, their own weight will cause them to decay; therefore the pale should be cleft thin, and the rails should be cut triangularly, to prevent the wet from lodging upon them; and the posts ought to be good, not placed too far asunder, burning that part of them which goes into the ground. If these directions be observed, the pales will last upwards of forty years in good order. The common way of making such fences, is to have every other pale nine or ten inches above the intermediate ones, so that the fence may be six feet and a half high, which is enough for fallow deer; but where there are red deer, the fence should be one foot higher, otherwise they will leap over. Some enclose their parks with brick walls; and in countries where stone is cheap, the walls are built with this material, some with, and others without mortar. A kitchen-garden, if rightly contrived, will contain walling enough to afford a supply of such fruits as require the assistance of a wall for any family; and this garden being situated on one side, and quite out of sight of the house, may be surrounded with walls, to screen those persons in the kitchen-garden from the sight of those in the pleasure-garden; and being locked up, the fruit will be much better preserved than it can be in the public garden; and the having too great a quantity of walling is often the reason why so many defective trees are frequently seen in large gardens, where there is not due care observed in their management. The borders of pleasure-gardens are also, in general, too narrow for the roots of fruit-trees, which it is therefore useless to plant there. The height of garden-walls should be from ten to twelve feet high, which is a moderate proportion; and if the soil be good, it may in time be furnished with bearing wood in every part, especially those parts planted with pears, notwithstanding the branches being trained horizontally from the bottom of the walls. The White Thorn, the Holly, the Black Thorn, and the Crab, are separately recommended for outward fences to a good ground, but it is said to be injudicious to intermix them. The White Thorn is the best to plant, because it is the most common, and may be clipped so as to render it the closest and hardiest fence of any other tree, and being very durable, is preferred to all others for outward fences, or for the division of fields, where they are exposed to cattle. The Black Thorn and Crab make very good fences, and are to be raised like the White Thorn; but if the kernels of Apples or Crabs be sown, it is the best to sow the pummace with them, and they will come up the sooner, that is, in the first year, if sown in the autumn soon after the fruit becomes ripe. If Crab-stocks be planted while young, in the same manner as the quick, they soon make excellent hedges; and so will some sorts of plums, especially such as are thorny. The Black Thorn is not so much esteemed for fences as the White Thorn, because it is apt to run more into the ground, and is not certain as to the growing, especially when the plants are not set while very young; but then, on the other hand, the bushes are by much the better, and are also more lasting than the White Thorn, or any other, for dead hedges, or to mend gaps; nor are they subject to be cropt by cattle as the others are. The richer the mould is, the better they will prosper, but yet they will grow on the same sort of soil that the White Thorn does. The Holly will make an excellent fence, and is preferable to all the rest, except that at first it grows slowly; but when once it does grow, it makes amends by its height, strength, and thickness. It is raised of young seedling plants or berries, as the White Thorn is, and the berries will lie as long in the ground before they come up. It delights most in strong grounds, but will grow upon the driest gravel among rocks and stones. French Furze will often do well upon dry sandy banks, where few other plants will grow; but they must be kept very clean at the bottom, and cut thin, and never suffered to grow too high, nor should they be cut in dry weather, or late in autumn, nor early in the spring; the doing either of which, is likely to make it die in patches, which is irrecoverable; it will never break out from old wood if cut close in, after it has been suffered long to grow out. Fences may likewise be made of Elder; if the soil be tolerably good, you may put sticks of Elder, or truncheons ten or twelve feet long, slopeways in your banks, so as to make a chequer-work; and they will make a fence for a garden the quickest of any thing, and be a good shelter. But these fences are improper for a fine garden, because they shoot very irregularly, and are ungovernable; the roots of these trees also spread very far, and draw away all the heart of the ground,

so as to starve whatever plants grow near them: add to this the scattering of the berries, which will fill the ground near them with young plants, and if not weeded out in time, will spoil every thing about them, so that this sort of fence is seldom planted where a hedge of White Thorn can be had. Elder planted on a bank, the side of which is washed with a river or stream, will make an extraordinary fence, and will preserve the bank from being undermined by the water, because it is continually sending suckers from the roots and lower branches, which is of great advantage where the stream washes away the bank. For middle fences in a garden, the Yew is the most governable and durable plant. For surrounding wilderness quarters, Elm, Lime, Hornbeam, and Beech, are very proper.—For farther particulars, see the article *Hedges*.

Fennel. See *Anethum.*

Fennel Flower. See *Nigella.*

Fennel-Giant. See *Ferula.*

Fennel, Hog's. See *Peucedanum.*

Fenugreek. See *Trigonella.*

Fern. See *Filix.*

Fern, Female. See *Pteris.*

Fern, Flowering. See *Osmunda.*

Fern, Male. See *Polypodium Filixmas.*

Fern, Stone. See *Osmunda Crispa.*

Fern, Sweet. See *Scandix.*

Ferraria; a genus of the class Monadelphia, order Triandria.—Generic Character. *Calix:* spatha of several inflated leaves; perianth none. *Corolla:* petals six, regular, cohering by their claws, oblong-acuminate, revolute, curled and fringed, alternately smaller. *Stamina:* filamenta three, sitting on the style; antheræ roundish, twin, rough, hairy. *Pistil:* germen inferior, roundish, three-cornered, obtuse; style simple, erect; stigmas three, bifid, cowled, fringed and curled. *Pericarp:* capsule oblong, three-cornered, thicker at top, three-celled, three-valved. *Seeds:* numerous, roundish. Essential Character. One-styled. *Spatha:* inflated. *Petals:* six, regular, waved and curled. *Stigmas:* three, cowled. *Capsule:* three-celled, inferior.——The species are,

1. Ferraria Undulata; *Cape Ferraria.* Border of the corolla thrice as long as the claws; lobes of the anthers close. Root tuberous, roundish, compressed, in shape like that of the Indian Corn-flag, but larger; in the centre of the upper side it has a hollow like a navel, whence comes out the stalk; the outer skin is of a light brown colour, and the inside white. It lies inactive every other year, and sometimes will remain two years without putting out either leaves or fibres. Stem a foot and a half high, taper, and about the thickness of a man's little finger. It has lanceolate leaves the whole length, placed alternately, and embracing; the lower leaves are from four to five inches long, and an inch and a half broad towards their base, ending in obtuse points; they are a little keel-shaped, and of a light green colour. Flowers axillary, solitary, from the upper part of the stem, wrapped in a double sheath, out of which the flowering bud rises about an inch. The sheath is composed of a double row of keel-shaped leaves, the inner row being shorter than the outer, and situated obliquely to it. The petals are of a pale sky-blue on the inside, and of a dirty white on the outside. The antheræ are situated below the division of the filamenta, and are terminated by small silky hairs. The above described plant is one of the most singular and beautiful vegetable productions; and it is much to be regetted that its flowers are only of short duration, opening in the morning, and finally closing in the afternoon of the same day; a strong plant, however, will throw out many flowers in succession. It flowers from February to May.—Native of the Cape. Both this and the third species are propagated by offsets, sent out from the roots, in the same way as the Ixia, and should be cultivated in the same manner as is directed for those and the African Gladiolus, being too tender to thrive in the open air in England, nor do they succeed well in a green-house; therefore the best method is to make a border four feet wide, either in the front of the green-house or stoves, covering it with a proper frame and glasses, so that the plants may enjoy the free air in mild weather, but be protected from frost. In such a frame, most of the African bulbous and tuberous-rooted plants may be brought to great perfection.

2. Ferraria Pavonia; *Mexican Ferraria.* Scape one-flowered; root bulbous; leaves sheathing, the lower ones longer and narrower; spathe two-leaved, compressed; corolla bell-shaped; filamenta sheathing the style; antheræ three, linear; germen pedicelled; stigmas two-parted, filiform; capsule linear.—Native of Mexico.

3. Ferraria Antherosa. Claws of the corolla equal to the border; lobes of the antheræ divaricated. It resembles the first species, but differs in the greater length of the claws of the petals, the shape and greater size of the anthers, and the stigmas being more toothed at their base.—Native of the Cape.

Ferreola; a genus of the class Dicœcia, order Hexandria.—Generic Character. *Male. Calix:* perianth one-leafed, a little ventricose, hairy, three-cleft; clefts ovate, acute, erect, shorter than the tube, the third still shorter and blunter. *Corolla:* one-petalled, tubular, smooth, somewhat fleshy; border three-cleft; clefts erect, acute, hirsute on the outside, with long white hairs, pressed close, within naked. *Stamina:* filamenta six, short, inserted round a semiglobosa receptacle, upright, much shorter than the tube of the corolla; antheræ oblong, acute, erect, white, longer than the filamenta. *Female. Calix* and *Corolla,* as in the male. *Pistil:* germen oval; style short; stigma flat, three-notched. *Pericarp:* berry round, smooth, red, pulpy, size of a large pea. *Seeds:* two, large, on one side flat, on the other round. Essential Character. *Calix:* one-leafed, three-cleft. *Corolla:* one-petalled, three-cleft. *Male:* filamenta six, inserted into a semiglobose receptacle. *Female:* germen oval; berry round, smooth, two-seeded.——The only known species is,

1. Ferreola Buxifolia. Trunk irregular, covered with a dark rust-coloured bark, dividing into very numerous irregular branches; leaves alternate, short-petioled, oval, entire, very smooth, shining, firm, about half or three-quarters of an inch long, and half an inch broad. Among the mountains, this grows to a small tree; but in the low countries it is only a shrub. It flowers during the hot season. The ripe berries are well tasted, and universally eaten. The wood is dark-coloured, remarkably hard and durable, and where its size will admit, is employed for such uses as require the most durable heavy wood.—Native of Coromandel.

Ferula; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, manifold, globular; partial similar; involucre universal, caducous; partial many-leaved, linear, small; proper perianth, scarcely observable. *Corolla:* universal uniform; floscules all fertile; proper consisting of five oblong straightish petals, nearly equal in size. *Stamina:* filamenta five, the length of the corolla; antheræ simple. *Pistil:* germen turbinate, inferior; styles two, reflex; stigmas obtuse. *Pericarp:* fruit oval, plane-compressed, submargined, marked on both sides with three raised lines, and bipartile. *Seeds:* two, very large, elliptic, flat on both sides, and marked

with three distinct streaks. *Observe.* The peduncle of the primary umbel sometimes throws out opposite lateral flower-stalks. ESSENTIAL CHARACTER. Fruit oval, plane-compressed, with three streaks on each side.—All the plants of this genus have roots which will continue several years; these have thick strong fibres which run deep in the ground, and divide into many smaller, spreading to a considerable distance every way: the stalks are annual, and decay soon after they have perfected their seeds. As these plants spread very widely, so they should have each four or five feet room; and ought not to stand near to other plants, which their roots will utterly deprive of nourishment. They are all propagated by seeds, which should be sown in the autumn; for if they are kept out of the ground until the spring, they frequently fail, and those which succeed remain a year in the ground, so that much time is lost. The seeds may be sown in drills, which render it easier to keep the ground clean: these drills must be at least a foot apart, and the seeds scattered two or three inches asunder. When the plants come up, they must be kept clean from weeds; and where they are too close together, they should be thinned, to allow them room to grow, for they will not be strong enough to remove till they have had two years' growth; then in the autumn, as soon as their leaves decay, the roots should be taken up with great care, so as not to cut or injure the tap or downright root, and then planted in the places where they are designed to remain, for after this transplanting they should not be removed. They succeed best in a soft, gentle, loamy soil, not too wet; and are very rarely injured by the hardest frost.——The species are,

1. Ferula Communis; *Common Fennel-Giant.* Leaflets linear, very long, simple. This, if planted in a good soil, will grow to a great height, and divide into many branches. The lower leaves spread more than two feet every way, and branch out into many divisions, which are again subdivided into many smaller; they are of a lucid green, and spread near the ground. From the centre of the plant comes out the flower-stem, which, when the plants are strong will be nearly as large as a common broom-stick, and ten or twelve feet high, with many joints; there issues from it, when cut, a fetid yellowish liquor, which will concrete on the surface of the wound. This stem is terminated by large umbels of yellow flowers, which come out at the end of June, or the beginning of July. The seeds ripen in September, and the stalk decays soon after. The stalk is filled with a light pith, which when dry easily takes fire: this pith the Sicilians use for tinder; and hence arose the fable of Prometheus. The leaves of this plant decay soon after the seeds are formed; but the roots continue several years, especially in a dry soil, and annually produce flowers and seeds.—Native of Italy, the south of France, Sicily, and Greece. In Apulia, where it abounds, it is grateful to the buffaloes, which form the principal wealth of the farmers. When it arrives to a considerable size, they use it to make stools and bee-hives. All the parts of this plant have a very strong smell, and abound with a milky juice, which is acrid to the taste, and concretes into a gummy substance, resembling galbanum or assafœtida, which are produced by two other plants of the same kind. "It is not," says Meyrick, "much regarded in medicine, but its smell and taste indicate that it possesses considerable virtues, which, from its affinity with the abovementioned antispasmodic and nervous drugs, I am led to conclude are of a similar nature."

2. Ferula Glauca; *Glaucous Fennel-Giant.* Leaves superdecompound; leaflets lanceolate-linear, flat; stem from three to four feet high, terminated by an umbel of yellow flowers, appearing in July, and succeeded by oval compressed seeds, ripening in autumn.—Native of Spain, Italy, and Sicily.

3. Ferula Tingitana; *Tangier Fennel-Giant.* Leaflets laciniate, the little jags three-toothed, unequal, brilliant; leaves large, spreading near the root, of a very lucid green, divided and subdivided into many parts. The leaflets are much broader than in the other sorts, and divided at the end into three unequal segments; the stems are strong, eight or ten feet high, terminated by large umbels of yellow flowers; and the fruit lenticular-bracted, calicled, of a dirty bay colour.—Native of Spain and Barbary.

4. Ferula Ferulago; *Broad-leaved Fennel-Giant.* Leaves pinnatifid; pinnas linear, flat, trifid. Height seven or eight feet. The umbels are large, and the flowers yellow.—Native of Sicily.

5. Ferula Orientalis; *Narrow-leaved Fennel-Giant.* Pinnas of the leaves naked at the base; leaflets bristle-form. This is much humbler in its growth than any of the preceding species, the stalks seldom rising much more than three feet high. The lower leaves branch into many divisions, with fine bristle-shaped leaflets. The umbel of flowers, and the seeds, are small.—Found by Tournefort in the Levant.

6. Ferula Meoides; *Spignel-leaved Fennel-Giant.* Pinnas of the leaves appendicled on each side; leaflets bristle-form. This has very branching leaves, with angular channelled foot-stalks. At every joint are two opposite branches; those towards the bottom are nine or ten inches long, and the others diminish gradually to the top: these side-branches send out smaller ones at each joint in the same manner, having very fine leaves on them, like those of *Spignel* or *Meum*, standing quite round in shape of whorls. The flower-stalks are three feet high, having a pretty large umbel of yellow flowers at the top: these are succeeded by oval flat seeds, which ripen in the autumn.—Native of the Levant.

7. Ferula Nodiflora; *Knotted Fennel-Giant.* Leaflets appendicled; umbels sessile. This plant is about three feet high; involueres very short, and reflex; rays of the universal umbel to fourteen, of the umbellule to twelve; petals yellow.—Native of Istria, Austria, and Carniola.

8. Ferula Canadensis. Lucid. See *Angelica Lucida*; from which, however, the specimen in Gronovius's *Herbarium*, afterwards in the possession of the late Sir Joseph Banks, is very different.

9. Ferula Assafœtida; *Assa-fœtida.* Leaves alternately sinuate obtuse. The Assa-fœtida, as described by Dr. Hope, is an umbelled plant, three feet high, upright, branching, glaucous, with a yellow flower; root perennial; root-leaves six, procumbent, three-lobed, ovate, many times pinnate; leaflets gashed, subacute, subdecurrent; common petiole flat above, with a raised line running longitudinally through the middle of it; stem two feet high, roundish, annual, slightly streaked, having only one pair of imperfect leaves about the middle. The branches are naked, and spreading; the three lower ones alternate, and supported by the concave membranaceous petiole of the imperfect leaf; the four middle ones are in whorls, the uppermost from the top of the stem, eight in number, the inner ones erect; all these support a compound sessile terminating umbel, besides from three to six branchlets placed on the outside, bearing the compound umbels: in this manner the lower branches support five, seldom six branchlets, the middle ones three or four, the upper ones one or two. The universal umbel has from twenty to thirty rays; the partial from ten to twenty, with subsessile florets. There is no involucre, either general or partial

The florets of the sessile umbel are fertile, of the peduncled umbel mostly abortive; petals equal, flat, ovate, at first spreading, then reflex, with the tip ascending; filamenta awl-shaped, longer than the corolla, curved in; antheræ roundish; fruit oblong. Every part of the plant, when wounded, pours out a rich milky juice, resembling the imported drug in smell and taste; and at times a smell like garlic, such as a faint impregnation of Assa-fœtida yields, was perceivable at the distance of several feet.—Assa-fœtida is the concrete juice of the root, and is procured by the peasants who live in the neighbourhood of the mountains of Persia, in the province of Chorasan and Laar. It seldom flowers till it arrives at twenty or thirty years of age; and when it does, and has ripened its seeds, the plant perishes. In the latter end of April, when the leaves begin to decay, the Persians go in search of the plants, and after having cleared away the earth from the roots, to the depth of six or seven inches, they twist off the leaves, and then earth up the root again nearly to the top, which they cover with weeds, in order to keep off the heat of the sun, that would otherwise greatly prejudice, if not totally destroy it. In this state they leave the plant for the space of a month or six weeks; at the end of which time they take away the covering, and with a sharp knife cut about an inch in length from off the top of the root. They then cover the wounded root again with weeds, and leave it for two or three days; at which time they return, and find the wound covered with the exudated juice of the root; this they carefully gather, and preserve in vessels. They then clear away the earth a little lower from the root, cut a second slice from its top, and cover it up again with weeds for another gathering; which having made, they cover them up for eight or ten days more, and during this time they spread the gum which they have already collected in the sun to harden, and then carry it home. Four or five men generally go in a company, for the purpose of collecting this gum, and it is no uncommon thing for them to carry home forty or fifty pounds weight at each excursion they make. When the roots have remained covered up eight or ten days, they pay them another visit, take off the weeds, and collect the gum. They then cut another slice from the roots, and after that a third; this is done at the distance of two or three days betwixt the times of cutting, and the whole process is managed as in the first gathering. When they have thus made their third collection in this second expedition, they cover up the roots again for three or four days, and return home with their stores. They then return, and cut them three several times as before, after which they leave them to perish.—Assa-fœtida is well known by its peculiarly nauseous fetid smell, the strength of which is the surest test of its goodness: this odour is extremely volatile, and of course the drug loses much of its efficacy in keeping. It is imported in large irregular masses, composed of various shining little lumps or grains, partly whitish, partly brownish or reddish, and partly of a violet hue: those are accounted the best which are clear, of a pale reddish colour, and variegated with many fine white tears. It is a gummy resin, but has the gum in largest quantity. This drug is an excellent medicine in all nervous and hysteric disorders. It removes flatulencies, helps the colic, promotes the menses, expels the after-birth, and is a powerful sudorific. It is likewise serviceable in asthmatic and hypochondriacal complaints, convulsions, and other fits. Joined with opium, it considerably diminishes the efficacy of that narcotic drug; and applied externally in form of a plaster, it softens and disperses hard swellings. Though Assa-fœtida has been used in medicine for many ages, having been introduced by the Arabian physicians nearly a thousand years ago, yet there was no satisfactory account of the plant which produces it, until Kæmpfer described and figured it in his *Amœnitates Exoticæ*, published in 1712. Kæmpfer travelled over a great part of Asia, towards the end of the last century, and was in Persia, upon the spot where this drug is collected; where it is called *Hingisch*. His plant differs in many respects from that above described; and as his fidelity has never been impeached, we must conclude that this gum, like many others, is the produce of more than one species. According to Kæmpfer's account, the root of the Assa-fœtida is perennial, tapering, ponderous, increasing to the size of a man's arm or leg, covered with a blackish bark, and near the top beset with many strong rigid fibres: the internal substance is white, fleshy, and abounds with a thick milky juice, yielding an excessively strong, fetid, alliaceous smell: stem simple, erect, straight, round, smooth, striated, herbaceous, six or seven inches in circumference at the base, and rising luxuriantly to the height of two or three yards or more; root-leaves six or seven, nearly two feet long, bipinnate; pinnules alternate, smooth, variously sinuated, lobed, and sometimes lanceolate, of a deep green colour, and fetid smell; umbels compound, plano-convex, terminating, many-rayed; seeds oval, flat, foliaceous, reddish-brown, rough, marked with three longitudinal lines, having the garlic smell, and a sharp bitter taste. It varies much from soil and situation, not only in the form of the leaves, but in the quality of the juice.

Fescue Grass. See *Festuca.*

Festuca; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* glume many-flowered, two-valved, upright, containing the floscules in a slender spikelet; valves awl-shaped, acuminate, the lower smallest. *Corolla:* two-valved, lower valve largest, of the same form with the calix, but larger, roundish, acuminate, ending in a dagger-point; nectary two-leaved; leaflets ovate-lanceolate, acute, gibbous at the base, or one-lefed, plano-concave, horizontal, emarginate. *Stamina:* filamenta three, capillary, shorter than the corolla; antheræ oblong. *Pistil:* germen turbinate; styles two, short, reflex; stigmas simple. *Pericarp:* none. *Corolla:* very closely shut, growing together, and not gaping. *Seed:* single, slender, oblong, very sharp at both ends, grooved longitudinally. Essential Character. *Calix:* two-valved; spikelet oblong, roundish, with acuminate glumes.—For the propagation and culture of this genus, see *Grass.*——The species are,

1. Festuca Bromoides; *Barren Fescue Grass.* Panicle directed to one side; spikelets upright, one valve of the calix entire, the other acuminate. It is about half a foot high; the culms are inclined; the leaves thin and smooth, the lower part of them quickly drying up: the panicles branch at the base; they are composed of smooth flatted spikelets, containing six or seven flowers; the outer valve of the corolla terminates in a long awn; the calix has the outer base very small, the inner is large, and ends in an awn like the corolla. Annual: flowering in June and July.—Native of England and France, where it is found on walls, and in sandy pastures.

2. Festuca Ovina; *Sheep's Fescue Grass.* Panicle directed to one side, contracted, awned; culm four-cornered, almost naked; leaves bristle-shaped. This is a small grass, scarcely exceeding six inches in height; perennial, flowering in June and July. Floscules three to six in each spikelet, generally acuminate, or acuminate awned; culms somewhat angular, with two or three coloured joints; root-leaves hirsute; stem-leaves smooth; lower spikelets peduncled, linear, four-flowered, with the rudiment of a fifth; glumes unequal, the larger ovate, the smaller sharp. It is chiefly found on dry sandy

soils, and in elevated situations; and is common on all our finest sheep-downs. This grass has been much celebrated for feeding sheep; Linneus asserts, that it is their principal food, and that they have no relish for hills and heaths that are without it. Gmelin says, that the Tartars choose to fix during the summer wherever there is the greatest plenty of this grass, because it affords a most wholesome nourishment to all kinds of cattle, but chiefly sheep. It certainly is a very sweet feed, as far as it goes, on sheep-downs. Mr. Anderson does not scruple to affirm, that it is capable of affording an immense quantity of hay, and that it promises to be one of the best grasses our country produces, and to make a most valuable acquisition to the farmer. This, however, seems to be carrying our prejudices very far indeed, for in its native soil, on dry elevated heaths and commons, its foliage is hard and wiry, and its produce very trifling. In such situations, it is of a puplish-brown colour in summer. In a rich moist soil, indeed, the foliage retains its verdure, and becomes much longer; but being after all but a small plant, it can never be productive, and consequently cannot have any pretensions to be considered as fit for a hay-grass. Were the Sheep's Fescue to be sown in such a soil, the grasses and other plants natural to that soil would quickly overpower it; and it is not merely the grass, but the nature of the soil in which it grows, the elevated situation, and the dry salubrious air, that are acceptable to sheep. Mr. Curtis, who has combated the vulgar notion of the excellence of this poor wiry grass for feeding cattle, particularly sheep, has however found out that it is excellent for the purpose of making a fine grass-plat, requiring little mowing: when it has once got possession of the soil, it will form so thick a turf, as to suffer few intruding weeds, and may be kept in order with little trouble. For this purpose it must be sown about the middle of August, in an open but not too dry situation, broadcast, and that thickly, on ground nicely prepared and levelled.—There is a variety which grows in Sweden, and on the mountains of Wales, Yorkshire, and Westmoreland.

3. Festuca Rubra; *Purple* or *Red Fescue Grass.* Panicle directed to one side, scabrous; spikelets six-flowered, awned; floscule at the end awnless; culm semicylindric. Red Fescue Grass is distinguished from the preceding by its greater size, its red colour when ripe, and the culm being cylindric, only flatted a little on one side. The leaves are covered with a woolliness on the upper side, barely perceptible to the naked eye; culms smooth, but rough within the panicle. According to Villars, the stiff hard leaves, those of the stem, like those next the root, fine, and of a shining green, with the brownish-red shining colour of the flowers, distinguish this from the innumerable varieties of other species; the glumes of the corolla are smooth.—Found on high heaths and dry pastures; perennial, and flowering in July.

4. Festuca Amethystina. Panicle flexuose; spikelets directed to one side, inclined, nearly awnless; leaves bristle-shaped.—This species was found near Paris; and is probably no more than a variety of the second species.

5. Festuca Reptatrix. Branches of the panicle simple; spikelets subsessile; root perennial, the thickness of a goose-quill, creeping very far under ground, covered with broad rudiments of leaves; culms more than a foot and a half in height; leaves involute, filiform. Panicle oblong, with alternate very simple branches, pointing one way; spikelets alternate, very many, lanceolate, six-flowered, alternate, acuminate, awnless.—Native of Arabia and Palestine.

6. Festuca Duriuscula; *Hard Fescue Grass.* Panicle directed to one side, oblong; spikelets oblong, of an even smooth surface; leaves bristle-shaped; root perennial. Culm twelve or eighteen inches in height; branches of the panicle alternate; spikelets peduncled, linear, compressed, six-flowered, ascending. It is early and productive; and from these circumstances, and from its natural place of growth, appears to be a proper grass for sheep pastures. It varies much in size and breadth of leaf, as well as in the colour of its panicle; but in all situations it is very distinct from the *Ovina*. All these grasses form an admirable pasture for sheep, and seem to flourish most when they are bit the closest, but are in general unproductive.—Native of dry pastures, flowering in June.

7. Festuca Dumetorum; *Pubescent Fescue Grass.* Panicle spike-form, pubescent; leaves filiform; culms a foot or eighteen inches in height, filiform, cylindric, with two swelling knots; root-leaves a foot long, cylindric, scarcely ancipital; stem-leaves shorter, channelled; glumes terminating in a minute awn; bulbs very often produced within the sheaths of the culm.—Grows in woods and hedges, flowering in June and July.

8. Festuca Elatior; *Tall Fescue Grass.* Panicle directed to one side, upright; spikelets mostly awned, the outer ones cylindric; leaves from a foot to eighteen inches long; florets about eight; calicine glumes unequal, acuminate, of the corolla nearly equal, pointed, the outer a little larger and longer, the inner often bifid. Hudson, who joins the Meadow with the Flote Fescue, doubts whether this be a distinct species, since it has so many things in common with them; but Curtis, although he allows it to be very similar, asserts that it is specifically different: he says, that it grows to a great height in marshes, is hardy, and very productive, but too harsh and coarse for hay; yet allows that it may perhaps be a good grass for soils which cannot be drained of their too great moisture, or are very liable to be overflowed.—It is found in moist meadows and woods, but most frequently in wet situations, as by river sides, and in Osier grounds. It grows in large tufts, and is conspicuous by the breadth of its leaves, the height of its stems, and the drooping of its panicle, at least before it flowers. In very luxuriant spots the leaves are sometimes half an inch wide, but in general this grass varies little, except in size, and sometimes in having awns. Perennial, flowering in June and July.

9. Festuca Myurus; *Wall Fescue Grass.* Panicle spiked; calices extremely minute, awnless; flowers scabrous; awns long; culms aggregate, cylindric, a foot or eighteen inches in height; spikelets subsessile, linear, with five floscules in each; glumes very unequal; awns longer than the spikelets; according to Haller, growing from below the tip. It is annual; and is called *Capon's-tail Grass.*—Found upon walls and barren places, flowering in June.

10. Festuca Spadicea; *Bronze-flowered Fescue Grass.* Panicle erect; spikelets ovate, four-flowered; glumes acuminate, awnless; leaves bristle-shaped, smooth, pungent; root perennial. Culms three feet high, erect, strict, round, striated, very smooth, with one or two purple joints; leaves involute-setaceous, strict, very smooth, striated, mucronate, pungent, glaucous, widened into a membrane at the base, sheathing, whitish; peduncles angular, subflexuose, erect; spikelets compressed, usually four-flowered, smooth. Dr. Smith, whose sagacity and attention in developing this species are eminently conspicuous, informs us, that he has learnt from Savoy, that this grass is likely to become of considerable use, and that large quantities of it are now in cultivation.—Native of the south of France, Switzerland, &c.

11. Festuca Phœnicoides. Raceme undivided; spikelets alternate, almost sessile, cylindric; leaves involute, mucronate, and pungent; root creeping. Culms two feet high and upwards,

straight, branched at the base; spike from two inches to a foot or more in length; spikelets remote, two inches long, sharpish, from six to eight flowered; glumes mucronate.—Perennial: native of the sandy shores of Provence.

12. Festuca Fusca. Panicle erect, branched; spikelets sessile, keeled, awnless; culm lofty, branched; leaves from broadish sheaths, narrow, longitudinally involute, long, subulate.—Native of Palestine.

13. Festuca Decumbens; *Decumbent Fescue Grass.* Panicle upright; spikelets subovate, awnless; calix larger than the floscules; culm decumbent, from a foot to eighteen inches in length, somewhat bulbous at the base, having three knots, lying on the ground, but when in flower, ascending obliquely; root perennial; root-leaves narrowish, flat, hairy on the upper surface, especially at the base; stem-leaves the same, only shorter; sheaths villose above; nectaries two, obtuse.—It flowers in July and August, and is frequent on moorish ground, in both dry and wet pastures.

14. Festuca Pauciflora. Panicle effuse; spikelets with about four flowers, awned, and scabrous; leaves villose; culm round, streaked, upright, two feet high; calices marked with lines, lanceolate, with long awns.—Native of Japan.

15. Festuca Fluitans; *Flote Fescue Grass.* Panicle branched, erect; spikelets subsessile, cylindric, awnless; root perennial, striking deep into mud; culm from one to three feet in length, or even much longer in water, creeping at bottom, and sending forth young shoots, afterwards nearly upright, covered with the sheaths of the leaves as far as the panicle; valves of the corolla equal in length, the lower nerved; the nerves towards the top frequently coloured, at top membranaceous, rather blunt, with uneven points, the upper valve more pointed, flat, and bifid; nectary a small heart-shaped gland, resembling a scale, placed horizontally at the bottom of the germen; stigmas very much branched, but the styles not feathered to the germen, as in Schreber's figure, and in the *Flora Danica;* seed shining, olive-coloured, with two little horns, and naked. When it has nearly done flowering, the branches of the panicle generally project from the main stalk in an acute angle: in every situation the spikelets are always pressed close to the stalk or branches of the panicle; this circumstance, joined to the length and roundness of the spikelets, sufficiently characterizes this species; which being common in ditches, watery places, and slow streams, flowering all the summer, and having the parts of fructification beautiful, and large enough to be distinctly discerned by the naked eye, without the trouble of dissection, is peculiarly adapted for the investigation of the student. It appears that horses, cows, and hogs, are fond of this grass. Mr. Stillingfleet informs us, that having been told of a field of four acres, always under water, maintaining five farm horses in good heart from April to the end of harvest, without any other food; he obtained some of the grass, and found it to be the *Flote Fescue*, with a mixture of Marsh-bent. Cows, in spring, are frequently enticed into bogs, by endeavouring to get at the sweet young shoots of this grass, which appear earlier than those of most other grasses. Professor Kalm, observing that swine go a great way into the water after the *Flote Fescue*, and that they eat the leaves with great eagerness, had small bundles of it gathered and dried for hay, which they greedily devoured; hence he concludes, that wet and swampy places might be rendered useful by cultivating this grass. It has been recommended to be sown on meadows that admit flooding; but Mr. Curtis remarks, that this grass will not flourish, except on land that is constantly under water, or converted into a bog or swamp.—The seeds are small, but very sweet and nourishing, and are collected in many parts of Germany and Poland, under the name of *Schwaden*, or manna-seeds, and are reckoned a delicacy in soups and gruels. When ground to meal, they make bread very little inferior to that prepared from Wheat; the bran is given to horses that have the worms, but they must not be suffered to drink for some hours afterwards. Geese, and other water-fowl, are very fond of the seeds; so are also fish: trout in particular thrive in those rivers where this grass grows in plenty. Schreber says, that the seeds are collected not only from this grass, but also from *Panicum Sanguinale*, or *Cock's-foot Panic-grass*, which is cultivated in several parts of Germany for this purpose. The common method of gathering and preparing them is as follows: At sun-rise, they are gathered or beaten from the dewy grass into a horse-hair sieve, spread on a sheet, and are dried for a fortnight in the sun; they are then beaten gently with a wooden pestle, in a wooden trough or mortar, with straw laid between them and the pestle, till the chaff comes off, and then they are winnowed: after this, they are once more put into the mortar or trough in rows, with dried Marigold flowers, Apple and Hazel leaves, and pounded till they appear bright; they are then winnowed again, and being made perfectly clean by this last process, are fit for use. The Marigolds are added, to give the seeds a finer colour. The most proper time for collecting the seed is in July. A bushel of seed with the chaff, yields only about two quarts of clean seed. Mr. Curtis has observed a disorder in the ear of this grass, similar to that which has been noticed by the French in Rye, and called by them *Ergot*.

16. Festuca Pratensis; *Meadow Fescue Grass.* Panicle directed one way, oblique; spikelets without awns, almost linear; leaves flat. This has been often confounded with the eighth species, from which it differs, in having only half its height or little more; the leaves only half the breadth; the panicle shorter, and containing about half the number of flowers. The panicle is but once branched, droops but slightly, leans to one side when in flower, and the flowers all grow in one way. This is also more common and less local than the *Elatior*, being found more dispersed in open meadows, and does not form such large tufts; they differ a fortnight or three weeks in their time of flowering. Mr. Curtis, who has cultivated it, recommends it among the six grasses, which he prefers before all others, and particularly for land either moist or moderately dry. This, says he, comes nearest in appearance to *Lolium Perenne*, or *Ray Grass*, to which, however, it seems in many respects greatly superior, at least for the purpose of forming or improving meadows; it is larger, and more productive of foliage; is strictly perennial, very hardy, and is found in all situations, from the sand-pits at Charlton, to the Osier grounds at Battersea, and abounds in the very best meadows about London; in short, there is no grass more likely to supply the deficiencies complained of in *Ray Grass*. One quality it has, which bids fair to introduce it quickly into general use; it produces more seeds than any of the others, which are easily gathered, and readily grow. In one respect it is inferior to *Vernal Meadow Fox-tail*, and *Smooth-stalked Meadow Grass (Poa Pratensis;)* it does not produce its flowering-stems earlier than about the middle of June, a fortnight or three weeks later than Meadow Fox-tail Grass; yet it cannot be considered as a late grass, for the most of the Agrostis genus, and *Meadow Cat's-tail Grass, (Phleum Pratense,)* flower at least three weeks later.

17. Festuca Cristata. Panicle spiked, lobed; spikelets ovate, broad, six-flowered, hirsute; culms many, scarcely the length of a finger.—Native of Portugal, on barren hills.

18. Festuca Calicina; *Bearded-leaved Fescue Grass.* Pa-

nicle contracted; spikelets linear; calix longer than the floscules; root annual; leaves bearded at the base; root-leaves collected into a tuft; culms filiform, narrow, of a finger's length. According to Cavanilles, who observed it near Madrid, a short fibrous root produces slender culms from four to six inches in height, somewhat prostrate at the base, but from the first joint upright; joints purple; valves of the corolla awnless, the outer ovate, striated, white, and scariose at the tip, including the inner; the genitals so minute as not to be visible to the naked eye.—Native of Spain, where it flowers in May, and here in June and July.

19. Festuca Misera. Panicle condensed; glumes awned, scabrous: culm kneed, broken; leaves ensiform, smooth, a finger's length: panicle resembling a spike, mostly pointing one way, smooth, a finger's length; calicine glumes containing few flowers.—Native of Japan.

20. Festuca Spinosa; *Thorny-branched Fescue Grass.* Becoming shrubby: branches and branchlets thorny; pedicels prickly; culms perennial, the size of a pigeon's quill feather, solid, proliferous. The branches crowded, upright, simple, thorny at the end; leaves with dilated sheaths, ending in an awl-shaped, pungent, very short leaf; flowers distich.—Native of the Cape of Good Hope.

21. Festuca Uniglumis; *Sea Fescue Grass.* Panicle almost simple, condensed, directed one way, awned; calix one-valved; floscules distant; root annual; culms many, from six inches to a foot in height, oblique, round, smooth, somewhat branched; leaves petioled, somewhat involute, sharp, naked, much shorter than the petiole, which is sheathing, ventricose, and naked.—Native of the sea-coast, where it is found in loose sand, flowering in May and June.

22. Festuca Cambrica; *Welsh Fescue Grass.* Panicle directed one way, oblong, upright, branched; spikelets awned, smooth; leaves flattish, naked; root perennial; culm about a foot in height, oblique, round, leafy, smooth, having two or three joints; root-leaves somewhat erect, ensiform, sharpish, channelled; stem-leaves two or three, petioled, sharpish, nerved. It flowers in July and August, and grows on the highest mountains about Llanberis, in Wales.

23. Festuca Indica; *Indian Fescue Grass.* Panicle contracted, upright; spikelets compressed, somewhat awned, with about six flowers. This species has the appearance of a *Poa;* culms three feet high and more, the thickness of a pigeon's quill, streaked, leafy. It is distinguished at a distance by its bluish-green colour; one half of the panicle flowers and expands, contracting again, whilst the other half flowers.—Native of Tranquebar, in the East Indies, where it is found in the Rice-grounds, with erect culms in flooded, and decumbent culms in dry lands.

24. Festuca Scabra; *Rugged-flowered Fescue Grass.* Panicle directed the same way, squeezed close, erect; spikelets compressed, six-flowered; florets rugged. This grass is a foot and a half high or more, with a round, smooth, striated culm, and involuted leaves; spikelets lanceolate; calicine glumes smooth; outer valves of the corolla rugged, acute, villose, when viewed by a magnifier.—Native of the Cape.

25. Festuca Pungens. Spike glomerate, ovate; spikelets six-flowered, columnar, lanuginose; leaves involute, rigid; culm creeping; branches erect, divided at top, commonly into four divaricated branchlets, a span long, and the thickness of a pigeon's quill; the internodes an inch in length; leaves alternate, in two rows, spreading very much, pungent, smooth, very finely streaked; sheaths twice as long as the joints, covering the culm, broader than the leaves, ciliate, bearded at the throat on each side, without any ligule or strap; spike compound, sessile, terminating.

26. Festuca Loliacea; *Darnel Fescue Grass.* Spiked: spikelets alternate, sessile, compressed, awnless. In deference to the judgment of Mr. Curtis, who has bestowed so much laudable attention on this useful tribe of grasses, the *Darnel* Fescue Grass is here given to a distinct species, though Mr. Hudson regarded it as a variety of the *Fluitans,* and others of the *Pratensis.* In root-stalk, leaves, and habit, it comes so near *Lolium perenne,* or *Common Ray Grass,* as scarcely to be distinguished from it; but it is usually higher by about one-third; the flowers in general grow in a simple spike, from eight inches to a foot in length, bending a little towards the top; the spikelets are sessile, nearly an inch long, diverging from, and for the most part placed obliquely to, the rachis, sometimes on peduncles of different lengths, the lowermost about an inch long, nearly round, flattened a little on the sides, running out to a point, the uppermost shorter and somewhat broader, containing from ten to fifteen flowers; calicine valves unequal in size, the innermost frequently small, lateral, and sometimes wanting.—It abounds in moist fertile meadows, and flowers about the same time with the Pratensis. It is a hardy perennial, of very quick growth, producing a crop somewhat similar to Ray Grass, but larger, and succeeding best in a moist soil; it is, however, harsh and stalky. This and the eighth species (*Elatior*) do not seem to produce seeds, at least in a state of cultivation: may not this circumstance arise from their running so much at the root?

Feverfew. See *Matricaria.*

Fever Root. See *Triostium.*

Feuillea; a genus of the class Diœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth bell-shaped, one-leafed, half five-cleft, rounded at bottom, spreading at top. *Corolla:* one-petalled, wheel-shaped; border half five-cleft: divisions convex, rounded; navel closed with a double little star, respecting the sun's motion, the rays alternately longer and shorter. *Stamina:* filamenta five, subulate; antheræ twin, roundish; nectary consists of five compressed threads bent in, and alternate with the stamina. *Female. Calix:* perianth as in the male, but with a germen at the base. *Corolla:* as in the male; the star of the navel is formed of five heart-shaped plates. *Pistil:* germen inferior; styles three or five, filiform; stigmas heart-shaped. *Pericarp:* berry, or rather pome, very large, fleshy, with a hard skin, ovate, obtuse, surrounded with the calix. *Seeds:* compressed, orbicular nuts. Essential Character. *Male. Calix:* five-cleft. *Corolla:* five-cleft. *Stamina:* five. *Nectary:* five converging filamenta. *Female. Calix:* five-cleft. *Styles:* three. *Pome:* hard, three-celled, corticose.——The species are,

1. Feuillea Trilobata. Leaves lobed, dotted underneath; stem angular, the thickness of a thread: at the axils of the leaves are tendrils and bulbs.—Native of the East Indies.

2. Feuillea Cordifolia. Leaves heart-shaped, angular, petioled, alternate; stem suffrutescent at bottom, divided at top, with herbaceous branches, climbing frequently to the tops of trees, roundish, and very smooth; flowers racemed, dusky yellow; the fruit is a globular, corticose, hard, many-sceded pome; the nuts are orbicular, compressed, rugged, and ferruginous, enclosing a very white kernel: the whole plant is very bitter. There is a remarkable analogy between the fruit of this plant and that of the *Faba Ignatii.* It is frequent in the inland parts of Jamaica, and is generally found climbing among the tallest trees in the woods: the seeds are very oily, and often burnt by the negroes instead of candles. The kernels are extremely bitter, and commonly infused in rum for the use of the negroes: a small quantity

of this liquor opens the body, and provokes an appetite, but a larger dose works both by stool and vomit. Browne calls it the *antidote cocoon;* as it is frequently taken when there is any suspicion of poison, and often on other occasions. Some think this to be a variety of the first species; and Swartz affirms, that they are not so much as varieties.

Ficus; a genus of the class Polygamia, order Dicœcia.—Generic Character. *Calix:* common obovate, very large, fleshy, concave, closed with many semi-lanceolate, sharp, serrate, inflex scales. The inner surface is covered with floscules, the outer of which, or those which are nearer to the edge of the calix, are male, these are fewer in number; the rest, lower down, are female, and more numerous. *Male, each on its proper peduncle. Calix:* perianth proper, three-parted, erect; divisions lanceolate, erect, equal. *Corolla:* none. *Stamina:* filamenta three, bristle-shaped, length of the calix; antheræ twin. *Pistil:* rudimenta caducous, intorted. *Female, each on its proper peduncle. Calix:* perianth proper, five-parted; divisions lanceolate-acuminate, straight, nearly equal. *Corolla:* none. *Pistil:* germen oval, the size of the proper perianth; style subulate, inflex, coming out from the germen at the side of the tip; stigmas two, acuminate, reflex, one shorter than the other. *Pericarp:* none, except the perianth enlarged and become pulpy. *Seed:* single, roundish, compressed. Essential Character. *Receptacle:* common turbinate, fleshy, converging, concealing the floscules, either on the same or on a distinct individual. *Male. Calix:* three-parted. *Corolla:* none. *Stamina:* three. *Female. Calix:* five-parted. *Corolla:* none. *Pistil:* one. *Seed:* one.—Linneus tells us, that he removed this genus from the class Cryptogamia to Polygamia, on account of the different structure of the fructification, the spreading *umbilicus,* navel, or opening of the receptacle in some species, its want of genuine affinity to the plants of the class Cryptogamia, and by the advice of baron Munchausen, a very acute botanist. Some modern authors have again removed the genus into the class Triandria. There are two treatises on this genus; one in the first volume of the *Amœnitates Academicæ,* in 1744, and the other by Thunberg, in 1786.——The species are,

1. Ficus Carica; *Common Fig Tree.* Leaves palmate-subtrilobate, rugged underneath; fruits smooth, pear-shaped, umbilicated. The common Fig-tree seldom exceeds two yards in height; the trunk is about the thickness of the human arm; the wood porous and spongy; the bark ash-coloured, full of chinks, and rugged; branches smooth, with oblong white dots, erect or ascending, flexuose, or bent back; stipules in pairs, sessile, ovate, acute, ferruginous, caducous; leaves deciduous, a span long, in three or five deep rounded lobes, of which the central one is the largest, they are of a deep green; petioles round, grooved, about an inch in length; fruits axillary, solitary, the size of a pear, on very short round peduncles, generally of a purplish colour, with a soft, sweet, and fragrant pulp. The first Figs introduced into England, are still remaining in the archbishop's garden at Lambeth; they are of the white Marseilles kind, and still bear delicious fruit: they cover a surface of fifty feet in height, and forty in breadth; the circumference of the trunk of the southernmost is twenty-eight inches, of the other twenty-one. On the south side of the building is another tree of the same age, the circumference of which is twenty-eight inches at the bottom. Tradition says, they were planted by cardinal Pole; which is very probable, for it is generally allowed, that Fig-trees were brought into England in the reign of Henry the Eighth; and it seems likely, that the cardinal, who had resided long in Italy, should be fond of cultivating those fruits to which he had been there accustomed. To the objection arising from their great age, it may be replied, that we do not well know how long a Fig-tree will flourish, if properly cultivated. There is also a concurrent tradition of an older tree, and instances of two very ancient ones, with the time of their plantation well ascertained. The first at Mitcham, in the garden of the manor-house, formerly the private estate of archbishop Cranmer, and still belonging to one of his descendants: it is also of the white sort, and is confidently asserted to have been planted by that venerable prelate: the branches are very low, but the stem, which measures thirty inches in girth, has every mark of great age. The other is in the dean's garden at Winchester, where, in the year 1757, there was a very ancient Fig-tree, the fruit of which was of the small red sort: it was enclosed in a wooden frame, with a glass door and two windows on each side of it, for the admission of sun and air: the frame protected it from wind and rain. On the stone wall to which the tree was nailed, there was a plastering, and several inscriptions, one of which stated, that "in the year 1623, king James the First tasted of the fruit of this tree with great pleasure." Since the above time, this tree has been suffered to perish, for the want of necessary repairs to the frame-work. At Oxford also, in the garden of the regius professor of Hebrew, is a Fig-tree brought from the East, and planted by Dr. Pococke in the year 1648, which is in a thriving condition, and bears a black Fig. In 1792, though this last-mentioned tree bore marks of great age, and had its trunk perforated by insects, and damaged by time and weather, yet the branches of the new wood were clean, made vigorous shoots, and produced a number of small figs, which were touched by the frost, and were then falling off. Turner, in his Herbal, says, that the Fig-tree was cultivated in England in the year 1562; Gerarde says in 1597, and adds, "that the fruit never cometh to kindly maturity with us, except the tree be planted under a hot wall, whereto neither north nor north-east winds can come." Parkinson also, in 1629, says, that "if you plant it not against a brick wall, or the wall of an house, it will not ripen so kindly; that the dwarf Fig is more tender, and is therefore planted in great square tubs, to be removed into the sun in the summer time, and into the house in winter." In his time only three sorts were known: 1. The Figs of Algarva, sweet and delicate, bluish when ripe; 2. the white ordinary sort, that cometh from Spain; 3. the Dwarf Fig, not higher than a man's shoulders, bearing excellent blue fruit, but not so large as the first. Mr. Miller informs us, "that there are many varieties in the warm countries, which have been obtained from seeds, and might be increased, if the inhabitants were careful in propagating the trees from the seeds of the best sorts." In England, we had not more than four or five sorts, till within a few years past; for as the generality of the English were not lovers of this fruit, there were few who troubled themselves with the culture of it. We shall here introduce such of the varieties as are best worth cultivating, placing them in the order of their ripening: 1. The brown, or chestnut-coloured Ischia Fig.—This, says Mr. Miller, is the largest of any I have yet seen; it is short, globular, with a pretty large eye, pinched in near the footstalk, of a brown or chestnut colour on the outside, and purple within; the grains are large, and the pulp sweet and high-flavoured: this sort very often bursts open when it ripens, which it does at the end of July and the beginning of August. It has ripened well on standards in a warm soil, and if planted against hot walls, two plentiful crops of fruit may be annually ripened. 2. The Black Genoa Fig. This

is a long fruit, which swells pretty large at the top, where it is obtuse, but the lower part is very slender towards the stalk; the skin is of a dark purple colour, almost black, and has a purple farina over it, like that of some plums; the inside is of a bright red, and the flesh is very highly flavoured: it ripens early in August. 3. The Small White Early Fig. This has a roundish fruit, a little flatted at the crown, with a very short footstalk; the skin thin, and, when fully ripe, is of a pale yellowish white colour; the inside white, and the flesh sweet, but not high-flavoured: this ripens in August. 4. The Large White Genoa Fig; which is a large globular fruit, a little lengthened towards the stalk; the skin is thin, of a yellowish colour when fully ripe, and red within. This is a good fruit, but the trees are not good bearers. 5. The Black Ischia Fig. This is a short fruit, of a middling size, a little flatted at the crown; the skin is almost black when ripe, the inside of a deep red, and the flesh very highly flavoured: the trees produce a good crop of fruit, but the birds are great devourers of them when not protected. This ripens in August. 6. The Malta-Fig; which is a small brown fruit much compressed at the top, and greatly pinched towards the footstalk; the skin is of a pale brown colour, as is also the inside; the flesh is very sweet, and well-flavoured. If this sort be permitted to hang upon the trees till the fruit be shrivelled, it becomes a fine sweetmeat. 7. The Murray, or Brown Naples Fig. This is a pretty large globular fruit, of a light brown colour on the outside, with some faint marks of a dirty white; the inside is nearly of the same colour: the grains are pretty large, and the flesh is well-flavoured. It ripens in the latter end of August. 8. The Green Ischia Fig. This is an oblong fruit, almost globular at the crown; the skin is thin, of a green colour, but, when it is fully ripe, it is stained through by the pulp to a brownish cast: the inside is purple, and will stain linen or paper; the flesh is high-flavoured, especially in warm seasons. It ripens towards the end of August. 9. The Madonna, commonly called the Brunswick, or Hanover Fig; is a long pyramidal fruit of a large size: the skin is brown; the flesh is of a lighter brown colour, coarse, and has little flavour. This ripens at the end of August and the beginning of September: its leaves are much more divided than those of most others. 10. The common Blue or Purple Fig; is of an oblong shape, and a great bearer: the fruit ripens in August. 11. The Long Brown Naples Fig. The leaves of this tree are deeply divided; the fruit is long, and somewhat compressed at the crown; the footstalks are pretty long; the skin is of a dark brown when fully ripe; the flesh inclining to red, and well-flavoured, with large grains: it ripens in September. 12. The Yellow Ischia Fig. This is a large fruit, of a pyramidal form; the skin is yellow when ripe, and the flesh is purple, and well-flavoured; but the trees do not produce much fruit here: they grow very luxuriant in branches, with large leaves, which are but slightly divided: it ripens in September. 13. The Small Brown Ischia Fig; which is a small pyramidal fruit, with a very short footstalk; the skin is of a light brown, the flesh inclining to purple, of a very high flavour. The leaves of this tree are less divided than any of the other sorts. It is not a good bearer, and ripens late in September. 14. The Gentile Fig. This is a middling-sized globular fruit; the skin when ripe is yellow, and the flesh inclines to the same colour; the grains are large, and the flesh well-flavoured; but it ripens very late, and the trees are bad bearers, so that it is not propagated much in England.—There are several sorts which have been lately introduced from Italy, but some of them rarely ripen their fruit, and others are very unproductive, and not worth propagating; and therefore not worth enumerating here. Those above specified continue in succession during the season for these fruits, and are preferable to the others; and few persons will care to fill their gardens with a greater variety of these trees than are of real use, especially as they require good walls, and a very large share of room.—The common Fig-tree is, in all probability, originally a native of Asia, though it has been introduced into Europe in the very early ages. It has the same name slightly varied in all the European languages. The Germans call it *feigenbaum*, or *figenboom*; the Danes, *figentræ*; the Swedes, *fikonträ*; the French, *le figuier*; the Italians, *fico* or *figo*; the Spaniards, *figuéra*; the Portuguese, *figueira*; the Russians, *finik*; the Poles, *figa*; the Turks, *ingar*; and the Arabs, *tin*.—Native of Asia, Barbary, the southern parts of Europe, and Louisiana.—The dried figs, sold by the grocers, are the fruit of this tree, cured by first dipping them in a scalding lye, made from the ashes of the tree which produces them, and afterwards exposing them to the heat of the sun. The fruit is accounted grateful to the stomach, moderately nourishing, and is more easily digested than any of the other sweet fruits. They are an useful ingredient in medicines intended for disorders of the breast, and in opening electuaries. Applied externally, either by themselves, or in conjunction with other ingredients of a similar nature, they greatly forward the suppuration or ripening of inflammatory tumors.——The first, second, third, ninth, and tenth varieties, will ripen their fruit on standards, where they are in a warm situation; but the others require the assistance of walls exposed to good aspects, or they will not bring their fruit to maturity in England. Fig-trees generally thrive in all soils, and in every situation; but they produce a greater quantity of fruit upon a strong loamy soil than on dry ground; for if the season prove dry in May and June, those trees which grow upon very warm dry ground are very subject to cast their fruit; therefore whenever this happens, such trees should be well watered, and mulched, which will prevent the fruit from dropping off; and the fruit upon these trees are better flavoured than any of those which grow upon cold moist land. Those fig-trees bear the greatest quantity of well-flavoured fruit, which grow upon a chalky land, with a foot or more of a gentle loamy soil on the top. They also love a free open air; for although they will shoot and thrive very well in close places, yet they seldom produce any fruit in such situations; and all those which are planted in small gardens in London, will be well furnished with leaves, but seldom bring any fruit to maturity. These trees are always planted as standards in all warm countries; but with us they are generally planted against walls, there being but few standard Fig-trees at present in the English gardens; however, as some sorts ripen their fruit well upon the standards, and the crop of figs is often greater upon them than upon those trees placed against walls, it is worthy of our care to plant them either in standards or espaliers: the latter would probably succeed best in England, if they were managed as in Germany, where they untie the Fig-trees from the espalier, and lay them down, covering them in winter with straw or litter to defend their shoots from the frost. This covering is gradually taken away in the spring, but not wholly removed till the danger of frost is over, by which management they generally obtain a very great crop of figs; whereas in England, where trees are sheltered by warm walls, in mild springs the young figs are pushed out early, and the cold that frequently returns in April and May causes the greater part of the fruit to drop off; so that our crop of figs is generally more uncertain than that of most other sorts of fruit; and it frequently happens, that trees which are planted against north and east aspected walls, produce a greater

quantity of fruit in England, than those which are planted against south and south-east aspects; which may happen, from the latter putting out their fruit so much earlier in the spring than the former; and if cold frosty nights follow their coming out, the most forward figs are generally so much injured as to drop off the trees soon after. In Italy, and other warm countries, this first crop of figs is little regarded, being few in number; for it is the second crop of figs produced from the shoots of the same year, and which rarely ripen in England, that form their principal crop; nor are there above three or four sorts which ever ripen their second crop, however favourable the weather may prove: therefore it is the first crop that must be attended to in England; so that when these trees are growing against walls with the most favourable aspects, it will be a good method to loosen them from the wall in autumn; and, after having divested the branches of all the latter fruit, to lay the branches down from the wall, fastening them together in small bundles, so that they may be tied to stakes, to keep them from lying upon the ground, the damp arising from which might cause them to grow mouldy in frosty weather; and they will also be secured from being broken by the wind. When they are thus managed in autumn, if the winter should prove very severe, the branches may be easily covered with peas-haulm, straw, or any other light covering, which will guard the tender fruit-bearing branches from the injuries of frost; and, when the weather is mild, the covering must be removed, otherwise the figs will come out too early; for the intention of this management is to keep them as backward as possible: then, in the spring, when the figs are beginning to push out, the trees may be fastened up to the wall again. The above plan has been very successful; and great crops have also been produced in some gardens, after very sharp winters, when they have in general failed in other places, by covering up the trees with reeds made into pannels, and fixed up against the walls. In pruning Fig-trees, the branches must never be shortened, because the fruit is all produced at the upper part of the shoots of the former year; if these be cut off, there can be no fruit expected; besides, the branches are very apt to die after the knife; so that when the branches are too close together, the best way is to cut out all the naked ones quite to the bottom, leaving those which are best furnished with lateral branches at a proper distance from each other, which should not be nearer than a foot; and when they are well furnished with lateral branches, if they be laid four or five inches farther asunder, it will be better. The best season for pruning Fig-trees is in autumn, because at that time the branches are not so full of sap, and will not bleed so much as when they are pruned in the spring: at this season the branches should be divested of all the autumnal figs, for the sooner they are removed, when the leaves begin to fall off, the better will the young shoots resist the cold of the winter. There are some seasons so cold and moist, that the young shoots of the Fig-trees will not harden, but are soft and full of juice; when this happens, there is little hope of a crop of figs in the succeeding year, for the first autumn frost will kill the upper part of these shoots for a considerable length downwards: whenever this happens, it is the best way to cut off all the decayed part of the shoots, which will prevent the infection from destroying all the lower part of the branches; for by this method a moderate crop of figs has sprung from the lower part of the shoots, where, if the shoots had received no injury, there would have been no fruit produced; because it is chiefly from the four or five uppermost joints that the shoots come out, and for this reason as many of the short lateral branches should be preserved as possible, those being the most productive of fruit; for where the long straight shoots are fastened up, there will be no fruit but at their extremities, so that all the lower part of the trees will be naked, if there be not a particular regard had to supply young shoots in every part of the trees. Those trees which are laid down from the espaliers, should not be fastened up again till the end of March, for the reasons before given, and those against walls may remain some time longer; and when the large shoots of these are nailed up, if the small lateral branches be thrust behind them to keep them close to the wall, it will secure the young figs from being injured by the morning frosts; and when this danger is over, they may be brought forward to their natural position again. During the summer season, these trees will require no other pruning, but to stop the shoots in the spring, where lateral branches are wanting; and as the branches are often blown down by wind, whenever that happens they should be immediately fastened up again, otherwise they will be in danger of breaking; for the leaves of these trees being very large and stiff, the wind has great power over them, so that when not well secured they are frequently torn down.—Those trees which are planted against espaliers, may be protected from the injury of frost in the spring, by placing reeds on each side the espalier, which may be taken down every day, and put up again at night; but this need not be practised in warm weather, but only during cold winds and frosty mornings; and although considerable trouble and expense attend this management, yet the plentiful crop of figs, which it seldom fails to obtain, will amply compensate for both: the best way of making this covering, is to fasten the reeds with rope-yarn, in such a manner, that they may be rolled up like a mat, that the whole may be expeditiously put up or taken down; and if these reeds be carefully rolled up, and placed under a dry shed, after the season for using them is over, they will last for several years.—Several persons have lately planted Fig-trees in standards, which have succeeded very well. This practice was revived by the observation that some old standard Fig-trees, which had been growing many years, had generally produced much more fruit than any of those trees which were growing against warm walls: indeed, standard Fig-trees are in much greater danger of having their branches killed by severe frost, but in mild winters they generally fare better than those against walls; so that where these standard-trees can be covered in very hard winters, abundance of fruit is sure to be produced. They may be covered by fastening as many of the branches together as can be conveniently brought into a bundle, and winding some hay-bands, straw, peas-haulm, or any such light covering as can be readily procured, which should be removed gradually in the spring, so as not to expose the shoots all at once to the open air; and if something of the same kind be laid round the stems, and upon the surface of the ground near the roots, it will still more effectually secure them from the danger of frost; but when this method is adopted, great care should be taken that no mice or rats harbour in this covering, for these vermin will eat off the bark from their shoots, and kill them. It has often been observed, that the trees placed against walls have suffered most by these mischievous animals, by having their largest branches deprived of all the bark near the ground, which absolutely killed the trees; and this has generally been remarked to happen in the winter season. The common blue and white Figs, which are the sorts that have been the most generally cultivated in England, are not so proper to plant for standards as some other sorts more recently introduced; for they are more tender, and are often killed to the root,

when some other kinds growing in the same situation have received very little injury from the frost; indeed the white sort is generally a bearer, and the fruit is very sweet; but to those palates which are accustomed to figs, that sort, owing to its want of flavour, is not much esteemed. The first and third kinds have succeeded best. Their branches are seldom hurt by frost in winter, and their fruit will always ripen well; for in favourable seasons, many of these sorts, which were growing against walls, have ripened their second crop of fruit tolerably well. Mr. Miller says, "I have planted many of these sorts of Fig-trees against north-east and north-west aspects: some of these which were first planted, have produced a good quantity of well-tasted fruit, but were ripe much later; which has encouraged me to plant many more of these trees to the same aspects, and also to increase my number of standard-trees." We are aware, that what has been here advanced, in relation to the pruning and dressing of Fig-trees, will be condemned by great numbers of people, who refuse to give themselves time to consider, and examine the reasons upon which this practice is founded, or to make a single experiment to ascertain the truth of it, because it is *vastly* different from the practice of most gardeners, who generally imagine that Fig-trees should never have much pruning, or at least that they ought always to be suffered to grow very freely to some distance from the wall. It cannot be denied, that great quantities of fruit have been obtained by this latter and more common method, but then it has only been after mild winters; for it is very certain, that in sharp frosts few of these projecting shoots escape great injuries, when left uncovered; whereas it rarely happens, that those shoots which are closely nailed to the wall in autumn, or laid down and covered, suffer the least damage; and the fruits are always produced a fortnight sooner upon these branches, than they are upon those which grow from the wall: but although the trees which are suffered to grow rude from the walls, may produce a good quantity of fruit for a year or two, yet afterwards the trees will only bear at the ends of the shoots, which will then be so far from the wall, as to receive little benefit from it; nor can the trees be reduced to any regularity, without cutting away the greatest number of their branches, by which a year or two will be lost before they will come to bear again. The season, as well as the method of pruning here laid down, is also widely different from the common practice and opinion of most gardeners, and will therefore of course be objected against. Yet, if any one will make the experiment, he will confirm the truth of what has been here advanced; for as one great injury to this tree proceeds from the too great effusion of sap at the wounded parts, the autumnal pruning prevents that evil; since it is well known, that during that season, all the parts of European trees which cast their leaves, are less replete with moisture than at any other time of the year; for by the long continuance of the summer's heat, the juices of the plants having been exhausted in the nourishment and augmentation of wood, leaves, fruits, and also great quantities being evaporated by perspiration, the root not being able to send up a supply equivalent to this great consumption, the branches must contain a much smaller quantity of sap than in the spring, when it has had several months' supply from the root, which, though small in proportion to the quantity supplied when the heat is greater, yet as there is little or no waste, either through perspiration or augmentation, there must be a greater quantity contained in the branches, which is very easily observed by breaking or cutting off a vigorous Fig-tree branch at both seasons, the sap being milky, may be readily discerned; when that cut in autumn shall be found to stop its bleeding in one day's time, or less, whereas that cut in the spring will often flow a week or more, and the wound be proportionably less disposed to heal.—Of late years some of these trees have been planted against fire-walls, and have succeeded very well, where they have been properly managed; but where they have been kept too close, and drawn by glasses, they have not produced much fruit: therefore, whenever this is practised, the heat should not be too great, nor the glasses or other coverings kept too close, but at all times, when the weather is favourable, a good share of free air should be admitted; and if the trees be young, and their roots are not extended beyond the reach of the covering, they must be frequently watered when they begin to shew fruit, otherwise it will drop off; but old trees, the roots of which are extended to a great distance, will only require to have their branches now and then sprinkled over with water. If the trees be properly managed, the first crop of fruit will be greater than upon those which are exposed to the open air, and will ripen six weeks or two months earlier. A plentiful second crop may also be obtained, which will ripen early in September, and sometimes in August, which is about the season of their ripening in the warmer parts of Europe; but the fires should not be used till the beginning of February; because, when they are forced too early, the weather is frequently too cold to admit a sufficient quantity of fresh air to set the fruit; but the covers should be put over the trees a month before, to prevent the shoots from being injured by the frost.——It may not be improper in this place to mention the great pains which the inhabitants of the Levant are at in the culture of their Figs, and without which, it is generally admitted by all travellers, who have noticed this subject, as well as by Pliny, and other old naturalists, that their fruit will fall off, and be good for nothing. Pliny (says Monsieur Tournefort in his travels) observed, that in Ceos, now called Zia, they used to dress the Fig-trees with great care; they still continue to do so. To understand aright this husbandry of Figs, called in Latin *caprificatio*, we are to observe, that in most of the islands of the Archipelago they have two sorts of Figs to manage; the first is called *ornos*, from the old Greek *erinos*, a Wild Fig-tree, or *caprificus* in Latin; the second is the domestic or Garden Fig-tree. The wild sort bears three kinds of fruit, *fornites*, *cratitires*, and *orni*, of absolute necessity towards ripening those of the Garden Fig. The fornites appear in August, and continue to November, without ripening: in these breed small worms, which turn to a sort of gnats, nowhere to be seen but about these trees. In October and November, these gnats make of themselves a puncture into the second fruit, which is called cratitires, and do not appear till the end of September; and the fornites gradually fall away after the gnats are gone: the cratitires, on the contrary, remain on the tree till May, and enclose the eggs deposited by the gnats, when they pierced them. In May, the third sort of fruit, called orni, begins to put forth from the wild Fig-trees. This is much larger than the other two, and when it grows to a certain size, and the bud begins to open, it is pricked in that part by the gnats of the cratitires, which are in a proper state to go from one fruit to another to discharge their eggs. It sometimes happens, that the gnats of the cratitires are slow to come forth in certain places, while the orni in those very places are disposed to receive them; in which case, the husbandman is obliged to look for the cratitires in another place, and fix them at the end of the branches of those Fig-trees, the orni of which are in a fit disposition to be pierced by the gnats; if they miss the opportunity, the orni falls, and the gnats of the cratitires fly away. None but those that are well acquainted with this sort

of culture, know the critical moment of doing this; and in order to know it, their eye is perpetually fixed on the bud of the fig; for that part not only indicates the time that the flies are to issue forth, but also when the fig may be successfully pierced: if the bud be too hard, and too compact, the gnat cannot lay its eggs, and the fig drops when the bud is too open. These three sorts of fruit are not good to eat; their office is to ripen the fruit of the Garden Fig-trees in the following manner. During the months of June and July, the peasants take the orni at a time that their gnats are ready to break out, and carry them to the Garden Fig-trees; if they omit the precise moment, the orni fall, and the fruit of the domestic or Garden Fig-tree not ripening, will, in a very little time, fall in like manner. The peasants are so well acquainted with these precious moments, that every morning, in making their inspection, they only transfer to their Garden Fig-trees such orni as are well conditioned, or they would run the risk of losing their crop. It is true, they have one remedy, and that is but an indifferent one; it is to strew the *ascolimbros*, a very common plant there, and in the fruit of which there is a sort of gnats proper for piercing; probably they are those of the orni, which are used to hover about and plunder the flowers of this plant. In short, the peasants so well order the orni, that their gnats cause the fruit of the Garden Fig-tree to ripen in the compass of forty days. These figs are very good fresh; when they would dry them, they lay them in the sun for some time, and then put them in an oven to keep them the rest of the year. Barley-bread and dried figs, are the principal support of the peasants and monks of the Archipelago; but their figs are very inferior to those dried in Provence, Italy, and Spain: the heat of the oven destroys all their delicacy and good taste; but then, on the other hand, this heat kills the eggs which the flies of the orni discharged therein, which eggs would infallibly produce small worms, that would prejudice these fruits. What an expense of time and pains is here for a fig, and that but an indifferent one at last! I could not, says Tournefort, sufficiently admire the patience of the Greeks, busied above two months in carrying these flies from one tree to another. I was soon told the reason; one of their Fig-trees usually produced between two and three hundred pounds of figs, and ours, in Provence, seldom above twenty-five. The way in which these flies accelerate the maturity of the fruit of the Garden Fig-tree, is probably by tearing the vessels, while depositing their eggs, and thus causing the nutritious juice to extravasate: perhaps too, besides their eggs, they leave in the fruit some sort of liquor, proper to cause a gentle fermentation, and thereby make the flesh of the fig tender and delicate. Jussieu doubts whether the succulency and turgescence of the esculent fig be owing to the defluxion of the nutritious juice, occasioned by the punctures of the insects, or to the impregnation of the seeds from the farina, conveyed by them. The sexual botanists have adopted the latter cause, and regard it as one of the main props of their system. Here, as in similar cases, two purposes are answered at once, the impregnation of the seed, and the ripening of the pulp. Our figs in Provence, says Jussieu, and even at Paris, ripen much sooner for having their eyes pricked with a straw dipped in olive oil. Plums and pears pricked by some insects, likewise ripen much the faster for it, and the flesh round such puncture is better tasted than the rest. It is not to be disputed but that considerable change happens to the contexture of fruits so pricked, just the same as to parts of animals pierced with any sharp instrument. It is scarcely possible well to understand the ancient authors, who have written upon *caprification*, or husbanding and dressing the wild Fig-tree, without being well apprised of the above detailed circumstances, the particulars whereof, says Tournefort, were confirmed to us, not only at Zia, Tinos, Mycone, and Scio, but in most of the other islands.——Fig-trees are propagated in England, either by the suckers which are sent out from their roots; or by layers, made by laying down their branches, which in one year will put out roots sufficient to be removed; or by planting cuttings, which, if properly managed, will take root: the first is a bad method, because all those trees which are raised from suckers are very subject to send out great quantities of suckers again from their roots, and the branches of the suckers are not so compact as those of the layers, but are fuller of sap, and in greater danger of being injured by the frost; those plants which are propagated by layers are the best, provided the layers be made from the branches of fruitful trees; for those which are made from the suckers or shoots produced from old stools, being very soft, and full of sap, are in danger of suffering by the frost, and these will shoot greatly into wood, but will not be very fruitful; for when trees have acquired a vicious habit while young, it is seldom that they are ever brought to be fruitful afterwards; therefore the shoots which are laid down, should be such as are woody, compact, and well-ripened, not young shoots, full of sap, whose vessels are large and open. The best time for laying down the branches is in autumn; and if the winter should prove very severe, if they be covered with some old tan, or any other mulch, to keep the frost from penetrating the ground, it will be of great service to them; by the autumn following, these will be sufficiently rooted by removing, when they should be cut off from the old plants, because the branches at that season, not being so full of sap as in the spring, will not bleed so much as when cut off at that season. If the place be ready to receive them, the layers should be transplanted in autumn where they are to remain; but if not then, the layers may remain till the spring, provided they are separated from the old plants in autumn. As they do not bear transplanting well when they are large, it is the better way to plant them first in places where they are to remain; and after they are planted, the surface of the ground about their roots should be covered with mulch to keep out the frost; and if the winter should prove very severe, it will be proper to cover the branches with reeds, pease-haulm, straw, or some other light covering; which will prevent their tender ends being killed by the frost, which frequently happens where that precaution is not taken. The other method of propagating these trees is by cuttings, which should be taken from the trees in autumn, for the reason before given: these must be chosen from such branches as are compact, whose joints are near each other; and they should have a part of the former year's wood at the bottom, with the top of each left entire, not shortened, as is usually practised with other cuttings; then they should be planted eight or nine inches deep, in a bed of loamy earth, in a warm situation, covering the surface of the ground three or four inches thick with old tanner's bark, to keep out the frost; and in severe frost, their tops should be covered with straw, pease-haulm, fern, or other light covering, to protect them from it. This covering should be removed in the spring; but the tan may remain, for that will prevent the drying winds of the spring, and the sun in summer, from penetrating the ground, and will be of great use to secure the cuttings from injury; these cuttings will be rooted sufficiently by the following autumn, when they should be transplanted, and treated in the same manner as the layers. If fruitful branches of these trees are cut off, and planted in pots or tubs filled with good earth, and if these be plunged into a good hot-bed of tanner's bark in the stove, they will put out fruit early in the spring, which will ripen in the middle of May.

2. Ficus Sycomorus; *Egyptian Fig-Tree*, or *Sycamore*. Leaves cordate, roundish, quite entire, tomentose underneath; fruits sessile. This is also called *Pharaoh's Fig-Tree:* the stem is often fifty feet thick, and spreads out its boughs very much, so that it is of great use in a scorching climate, to shade those who travel through the deserts; leaves like those of the Mulberry; the fruit is produced from the trunk and larger branches, and is shaped like the common fig; it is pierced by an insect called *cynips sycomori*, a little before it ripens, in two different ways; either the scales which cover the calix wither, and are bent back, as in the common fig, for the admission of the insect; or, which is more common in this species, a little below the scales on the side of the involucre the fruit is affected with a gangrene, which extends itself, and frequently occupies the space of a finger's breadth; it withers, the place affected becomes black, the fleshy substance in the middle is corroded for the breadth of a quill, and the male blossoms which are nearest appear naked, opening a way for the insect, which makes several furrows in the middle of the fruit, but never touches the stigmas, though it frequently eats the germina. The gangrenous part is at first covered with the blossoms, but the hole is by degrees enlarged, of various sizes, in different fruits, the margin and sides being always gangrenous, black, hard, and turned inwards; the fruit tastes pretty well; when quite ripe it is soft, watery, and somewhat sweet, with a very little portion of an aromatic flavour; though fleshy enough, yet little of it is good, the insects having eaten much of it. We call this the Sycamore-tree, and Mulberry Fig-tree: this, and not the Great Maple, is the true Sycamore.—Native of Egypt, the Levant, and Cochin-china. This, and all the rest of this genus, except the first species, are easily propagated by cuttings during the summer season. When the cuttings are taken from the plants, they should be laid in a dry shady place for two or three days, that the wounds may be healed over, otherwise they are apt to rot; for all these plants abound with a milky juice, which flows out whenever they are wounded; for which reason the cuttings should have their wounded part healed over and hardened before they are planted; after which they should be planted in pots filled with sandy light earth, and plunged into a moderate hot-bed, where they should be shaded from the sun, and in warm seasons should be gently watered two or three times a week, but must not have too large a share of moisture, for that would infallibly destroy them. When the cuttings have taken root sufficient to transplant, they should be each planted in a separate small pot, filled with light undunged earth, and plunged into the hot-bed again, being careful to shade them until they have taken fresh root; then they should have a large share of free air admitted to them at all times when the weather is favourable, to prevent their drawing up weak, and to give them strength before the cold comes on. In autumn the pots should be removed into the stove, and plunged into the tan-bed, where they should constantly remain, and must be treated in the same manner as other tender plants from the same countries; for although two or three of the sorts may be treated in a hardier manner, yet they will not thrive well under any other than the above-described management.

3. Ficus Nymphæifolia; *Waterlily-leaved Fig-Tree*. Leaves ovate-cordate, mucronate, quite entire, smooth, glaucous underneath. This rises with a strong, upright, woody stem, twenty feet high, sending out several side-branches, which have large, oval, thick, stiff leaves, as big as those of Yellow Waterlily, waved a little about the edge, blunt with a point, hanging down, as it were, peltate, smooth, whitish underneath, about fourteen inches long, and nearly a foot broad, having several transverse veins; the footstalks are a span long and more, compressed, smooth, and frequently turned next to the branches.—Native of the East Indies. For its propagation and culture, see the second species.

4. Ficus Religiosa; *Poplar-leaved Fig-Tree*. Leaves ovate-cordate, cuspidate, smooth; fruits sessile. This is a large tree, with a short trunk, and very long spreading boughs; leaves ever-green, of a light green, six or seven inches long, and three inches and a half broad towards the base, diminishing gradually to the top, where they run out into a narrow point, an inch and a half long; the fruit comes out on the branches, is small, and of no value. This tree is treated by the Hindoos with great veneration, their god Vishnu being born under it; but the Christians profanely call it the Devil's tree.—Native of the East Indies and Cochin-china. For its propagation, see the second species.

5. Ficus Benjamina; *Oval-leaved Fig-Tree*. Leaves elliptic, obtuse, smooth; fruits acute, sessile. This is a middle-sized tree; branches slender, flexuose, streaked, and wrinkled; fruits globular, scattered on the branchlets.—Native of the East Indies. See the second species.

6. Ficus Bengalensis; *Bengal Fig-Tree*. Leaves ovate-cordate, quite entire, smooth, blunt, coriaceous; stem arboreous, erect, a fathom in height; branches like the stem.—Native of the East Indies. For its propagation, see the second species.

7. Ficus Pedunculata; *Willow-leaved Fig-Tree*. Leaves ovate-oblong, cordate, quite entire, sharp, smooth; fruits globular; peduncles in pairs, elongated.—Native of South America. For its propagation, see the second species.

8. Ficus Lucida; *Shining-leaved Fig-Tree*. Leaves ovate-cordate, quite entire, smooth, blunt, three-nerved at the base; branches upright.—Native of the East Indies. See the second species.

9. Ficus Indica; *Indian Fig-Tree*. Leaves oblong, rounded at the base, smooth and even, quite entire, somewhat glaucous underneath, impressed with dots above; fruits almost globular. This vast tree is entirely smooth, the branches spreading very wide, bowed down, the lower ones rooting, ash-coloured; fruits aggregate here and there on the branchlets, peduncled, the size of a hazel-nut. The English call it Banyan-tree; and *arbor de rayz*, or the rooting-tree, is the Portuguese name; and it propagates itself, as Mr. Evelyn observes, by letting a kind of gummy string fall from its branches, which takes root, and thus spreads over a vast circumference. This, however, is the case with the third, fourth, fifth, sixth, and tenth species, and probably with some others. One of these trees growing near Mangee, twenty miles west of Patna, in Bengal, was 370 feet in diameter; the circumference of the shadow at noon was 1116 feet; and the circumference of the several stems, which were fifty or sixty in number, 921 feet. There is a vast tree of this kind near Fort St. David's in the East Indies, which is computed to cover nearly 1700 square yards, under the shade of which, it is said, ten thousand men might commodiously stand: another very celebrated Banyan-tree grows near Gombroon on the Persian gulf. The Gentoos are almost as sensibly hurt, if any one cuts up or lops off any of the branches, as if he had mutilated or destroyed a cow, which he holds in so much veneration. On this account Linneus named the fourth species of this genus *religiosa*, which is said to be sacred to the Hindoo idol *Vishnu*, who is believed to have been born under it. Both Strabo and Pliny mention this tree: the former says, that the branches grow horizontally about twelve cubits, then taking a direction to the earth, where they root themselves; and when they have attained maturity

continue to propagate in the same manner, till the whole becomes like a tent supported by many columns. Milton seems to have had the descriptions of these classical writers in his eye:

"Branching so broad and long, that in the ground
The bending twigs take root; and daughters grow
About the mother tree: a pillar'd shade,
High over-arch'd, with echoing walks between.
There oft the Indian herdsman, shunning heat,
Shelters in cool; and tends his pasturing herds
At loop-holes cut through thickest shade."

From the manner of its growth, Gerarde names it the arched Indian Fig-tree.—Native of the East Indies and Cochin-china. For its propagation and culture, see the second species.

10. Ficus Virens; *Round-fruited Fig-Tree.* Leaves oblong, acuminate, quite entire, smooth and even, narrowed and rounded at the base, eight or nine inches long, and two broad. This species rises to the height of thirty or forty feet, sending out many slender branches, which put out roots: the fruit is not larger than a hazel-nut, of a scarlet or carnation colour, the taste sweetish, and not unpleasant; and is much sought after by the wild pigeons.—Native of the West Indies. See the second species.

11. Ficus Venosa; *Waved-leaved Fig-Tree.* Leaves ovate, somewhat cordate, sharp, quite entire, smooth and even, impressed with dots on the upper surface; fruits the size of a pepper-corn.—Native of the East Indies. For its propagation, see the second species.

12. Ficus Costata; *Upright Heart-leaved Fig-Tree.* Leaves ovate-cordate, with a deep narrow sinus, quite entire, smooth, sharp, green on both sides.—Native of the East Indies. For its propagation, see the second species.

13. Ficus Racemosa; *Red-wooded Fig-Tree.* Leaves ovate, quite entire, sharp, impressed with dots; stem arboreous; branches round, smooth, ferruginous, upright; branchlets scattered, short; fruits in racemes, globular, almost the size of a plum.—Native of the East Indies. For its propagation and culture, see the second species.

14. Ficus Pertusa; *Laurel-leaved Fig-Tree.* Leaves ovate, smooth; calices bifid; berries globular, umbilicated with a hole. This is a small tree, the fruit of which is red, the size of currants, scattered in racemes, very abundant, pedicelled.—Native of South America. For its propagation and culture, see the second species.

15. Ficus Retusa; *Blunt-leaved Fig-Tree.* Leaves obovate-oblong, extremely obtuse; branches angular; fruits sessile, globose, smooth; when young, enveloped in a calix; the size of a currant when full grown.—Native of the East Indies. See the second species.

16. Ficus Pumila; *Dwarf Fig-Tree.* Leaves oblong-ovate, blunt, smooth, netted underneath; stem jointed, creeping; fruits peduncled; branches few, like the stem; the small branches at the leaves surrounded with an elevated streak; peduncles axillary, filiform, solitary; calix inferior, three-leaved; fruits ovate, smooth, the size of a plum.—Native of China and Japan. For its propagation and culture, see the second species.

17. Ficus Toxicaria; *Poisonous Fig-Tree.* Leaves cordate-ovate, somewhat toothletted, tomentose underneath. This is a middling-sized shrub, with round, smooth, ferruginous branches; fruits ovate, tomentose, the size of a plum, on thick tomentose peduncles.—This tree is said to be extremely poisonous; it grows near Padan, in Sumatra. See the second species.

18. Ficus Maculata: *Spotted Fig-Tree.* Leaves oblong, acuminate, serrate; stem and branches upright; fruit middle-sized, turbinate, brown, axillary, solitary.—Native of America. See the second species.

19. Ficus Trigona; *Triangled Fig-Tree.* Leaves elliptic; calices bifid; berries with a triangular navel. This at top is a leafy tree, with round, wrinkled, tomentose branches, and very short branchlets.—Native of Surinam. See the second species, for its propagation and culture.

20. Ficus Hispida. Leaves oblong, petioled, sharp; fruits strigose, hispid. The whole of this plant is clothed with very minute thinly scattered hairs; branches round, striated, ash-coloured, smooth; peduncle in the axil of the leaves, filiform, hispid, with short, rigid, yellowish, shining bristles.—Native of Java. See the second species.

21. Ficus Stipulata; *Trailing Fig-Tree.* Leaves obliquely cordate, obtuse, smooth; stem decumbent, scaly; stipules scattered, awl-shaped, spreading, rufescent.—Native of China and Japan. For its propagation and culture, see the second species.

22. Ficus Heterophylla; *Rough-leaved Fig-Tree.* Leaves oblong, undivided, three-lobed, and sinuate, scabrous; stem hispid; fruit ovate, peduncled, scabrous; branches, according to Thunberg, round, flexuose, elongated, little subdivided.—Native of the East Indies, near rivulets and watery places: where it is called *Nir Atti*, Water Fig; scarcely accessible on account of the prickly *rattans*. For its propagation and culture, see the second species.

23. Ficus Microcarpa; *Small-fruited Fig-Tree.* Leaves oblong, on short petioles, three-nerved, veined, very smooth; fruit globular, small, sessile.—Native of Java. See the second species.

24. Ficus Coriacea; *Leathery-leaved Dwarf Fig-Tree.* Leaves oblong, smooth, and even, attenuated at the base, cordate, leathery; veins immersed.—Native of the East Indies. For its propagation and culture, see the second species.

25. Ficus Scabra. Leaves cordate-ovate, oblique, entire, scabrous underneath; fruits turbinate, without calices.—Native of the isles of Tanna and Namoka, in the South Sea. For its propagation and culture, see the second species.

26. Ficus Aspera. Leaves half a foot long, obliquely cordate, sinuate-toothed, rough on both sides; fruits turbinate; the edge of the calix obscure, and growing to them. This is a tree four or five fathoms in height, with jointed branches; fruit fleshy, juicy, and sapid. Thunberg describes it as of a globular form, and about the size of a plum.—Native of the isle of Tanna; where it is also cultivated for the fruit, which is sweet and pleasant; the young leaves boiled are eaten as greens. For its propagation and culture, see the second species.

27. Ficus Tinctoria. Leaves obliquely ovate, obtuse; fruits turbinate, calicled at the base.—Native of the Society Isles. For its propagation and culture, see the second species.

28. Ficus Septica. Leaves oblique, oblong-ovate, acuminate; peduncles in pairs, calicled at the tip; fruits warted.—Native of the island of Tanna. The Otaheitans call it *matte*. Loureiro has given the same name to a Cochin-chinese fig, on account of its septic qualities, which the inhabitants of that country employ as an antidote against worms, and for eating off proud flesh.—For its propagation and culture, see the second species.

29. Ficus Granatum. Leaves ovate, quite entire; peduncles terminating in pairs, horizontally diverging; fruits calicled, globular. This is a tall shady tree, with a multangular torose trunk; all the branches ascending, long, roundish, somewhat jointed, brown ash-coloured, unequal; branchlets round, jointed, leafy only at the end.—Cultivated in the isle

of Tanna for its fruit, which is sweetish, but watery, and almost insipid, is larger than the common figs, and slightly downy. See the second species.

30. Ficus Obliqua. Leaves lanceolate, very smooth, cartilaginous at the edge; peduncles in pairs, very short; calices caducous, the length of the fruit.—Native of the islands of Namoka and Tanna.

31. Ficus Prolixa. Leaves lanceolate-oblong, acuminate, dotted underneath; peduncles in pairs, calicled at the tip.—Native of the Society Isles. See the second species.

32. Ficus Caliculata. Leaves ovate, quite entire, obtuse, opposite; fruit globular, calicled. This rises with many shrubby stalks to the height of twelve or fourteen feet, and divides into many smaller branches; leaves four inches long, and three broad, of a light green, upon short footstalks, jointed to a cup in which the fruit sits; which is the size of a nutmeg, and of a deep yellow, but not eatable.—Native of La Vera Cruz. See the second species.

33. Ficus Americana. Leaves ovate-oblong, veined, quite entire; fruits axillary, peduncled, clustered: the fruit is of a pale yellow colour, and spherical.—Native of Jamaica.

34. Ficus Erecta. Leaves oblong, acute, smooth, netted beneath; stem decumbent, with upright branches: fruits peduncled, scattered on the branchlets, erect, subglobular, the size of a hazel-nut. It differs from the sixteenth species, of which it was supposed to be only a variety, in having larger leaves, less netted, and thinner; and smaller, sweeter, and more eatable fruits.—Native of Japan.

35. Ficus Stipulata. Leaves obliquely cordate, obtuse, smooth; stem decumbent, scaly.—Native of Japan.

36. Ficus Auriculata. Leaves heart-shaped, acuminate; fruit eared, racemed, terminating. This is a large tree, with oblique branches; calices of the receptacle three-leaved, permanent. Besides the aperture at the top, common to the whole genus, there are four distant holes on the shoulder of the fruit, fenced round by prominent cartilages, resembling ears.—Native of Cochin-china, where the fruit, before it is ripe, cut in slices tastes like cucumber, and is eaten in salads. See the second species.

37. Ficus Politoria. Leaves oblong-ovate, quite entire, rugged; fruit roundish, in spikes; stem erect. This is a shrub six feet high, upright, and branched; fruit very small, saffron-coloured.—Native of Cochin-china, where the dried leaves are used in polishing small works in wood or ivory.

38. Ficus Simplicissima. Leaves palmate: stem quite simple; fruit compressed, spheroidal, saffron-coloured, small, sessile, axillary, solitary.—Native of Cochin-china.

39. Ficus Cannabina. Stem-leaves hastate, gashed; branch-leaves ovate-lanceolate, subserrate; stem suberect, six feet high, covered with a smooth bark-like hemp.—Native of Cochin-china. See the second species.

40. Ficus Populifolia. Leaves finely cordate, acute, smooth on both sides, veined, two inches long; fruits in pairs, pedicelled; branches round, smooth, with a wrinkled bark; fruit globular, smooth.—Native of the East Indies.

41. Ficus Mollis. Leaves oblong, quite entire, villose underneath; fruits axillary, sessile, tomentose; branches round, villose, tomentose towards the top.—Native of the East Indies.

42. Ficus Salicifolia. Leaves lanceolate, acuminate; fruits in pairs, axillary, peduncled. The whole of this plant is very smooth and even.—Native of the East Indies.

43. Ficus Sagittata. Leaves heart-shaped, oblong, acute, rugged on both sides; stem creeping; peticles scarcely two lines in length; stipules lanceolate at both ends.—Native of the East Indies.

44. Ficus Denticulata. Leaves oblong, undivided, three-lobed, and sinuate, toothletted, rugged; fruit peduncled, muricated, globular; branches angular at top, and hairy.—Native of the East Indies.

45. Ficus Truncata. Leaves oblong, undivided, and lobed, quite entire, rugged; fruits peduncled, oblong, truncated, rugged; branches angular, smooth, and even.—Native of the East Indies.

46. Ficus Serrata. Leaves oblong, undivided and palmate, repand-toothed, rugged; fruit peduncled, globular, very rugged.—Native of the Cape of Good Hope.

47. Ficus Palmata. Leaves cordate-ovate, and lobed, serrate; fruits pear-shaped, peduncled, smooth; branches round, smooth.—Native of the Cape of Good Hope.

48. Ficus Cordata. Leaves subcordate, ovate, acute, smooth, coriaceous; stem shrubby, erect. This is a middling-sized and entirely smooth shrub. fruits sessile towards the ends of the branches and branchlets, in the axils of the leaves approximating, globular, the size of peas.—Native of the Cape of Good Hope.

49. Ficus Falcata. Leaves oblong, sickle-shaped, smooth; stem filiform, rooting, brown.—Native of the East Indies.

50. Ficus Punctata. Leaves oblong, emarginate, smooth, dotted underneath; stem flexuose, rooting, climbing, scarcely the thickness of a goose-quill; fruits obovate, nearly the size of the common fig.—Native of the East Indies.

51. Ficus Nitida. Leaves elliptic, acute, smooth; fruits retuse, umbilicate, sessile; stem entirely smooth; branches striated and wrinkled, from erect spreading; fruits at the ends of the branchlets sessile, globular, retuse, the size of peas.—Native of the East Indies.

52. Ficus Reflexa. Leaves elliptic, obtuse, smooth; branches recurved, and wrinkled; fruits globular, sessile, scattered, and aggregate on the branches, smooth, the size of peas.—Native of the East Indies.

53. Ficus Drupacea. Leaves obovate, cusped, smooth; fruits ovate, wrinkled, sessile; branches round, grooved, smooth; fruits toward the ends of the branches, smooth, the size of plums.—Native of the East Indies.

54. Ficus Reticulata. Leaves elliptic, somewhat angular, cusped, smooth, netted underneath; fruits globular, solitary, peduncled, larger than peas; branches round, wrinkled, purple, smooth, upright.—Native of the East Indies.

55. Ficus Sinuata. Leaves elliptic, sinuate-toothed, cusped, smooth; fruits globular, aggregate, peduncled, scarcely the size of pepper; branches round, striated, ash-coloured, smooth, erect.—Native of the East Indies.

56. Ficus Capensis. Leaves ovate, acute, smooth, serrate; fruits peduncled, smooth. This is a vast lofty smooth tree, with spreading branches; fruits scattered, turbinate, the size of a hazel-nut.—Native of the Cape.

57. Ficus Glomerata. A large tree; the fruit clustered, top-shaped, the size of a pigeon's egg, and eaten by the natives.—Grows in Bengal.

58. Ficus Oppositifolia. A small tree, with hollow, jointed, hairy branches; leaves opposite, oblong, slightly serrated, two to six inches long; fruit the size of a large nutmeg, covered with down.—Native of the East Indies.

59. Ficus Comosa. A middling tree, with a large, spreading, shady top; fruit sessile, in pairs, roundish, the size of a gooseberry.—Native of the Circar mountains.

60. Ficus Finguere; or *Wild Fig Tree.*—This tree is found in Madagascar, and produces by incision a milky juice, which becomes a true elastic gum.

Field Basil. See *Thymus Acinos.*

Field Madder. See *Sherardia.*

Fig, see *Ficus*; and *Fig*, see *Cactus*.

Fig Marigold. See *Mesembryanthemum*.

Fig, Pharaoh's. See *Ficus Sycomorus*.

Figwort. See *Scrophularia*.

Filago; a genus of the class Syngenesia, order Polygamia-Necessaria.—Generic Character. *Calix:* common, of imbricate chaffs, containing in the disk several hermaphrodite florets; in the circumference, among the lower scales of the calix, solitary female florets. *Corolla:* hermaphrodite, funnel-form, with a four-cleft erect border; females, scarcely visible, filiform, very narrow, cloven at the mouth. *Stamina*, in the hermaphrodite: filamenta four, capillary, small, anther cylindric, four-toothed at the top. *Pistil:* in the hermaphrodite; germen scarcely any; style simple; stigma acute, bifid. In the females: germen ovate, largish, depressed; style filiform; stigma acute, bifid. *Pericarp:* none. *Seeds:* in the hermaphrodites none; in the females obovate, compressed, smooth, small; down none. *Receptacle:* disks naked, without chaffs, but at the sides there are calicine chaffs, separating the florets.——*Observe*, the above character is taken from Filago Pygmæa, or Acaulis, which Gærtner separates under the name of *Evax*. *Filago, Germanica, Arvensis, Montana*, and probably other species, agree with each other, and are distinguished from that by the following character. *Calix:* common, round, or five-cornered, imbricate; scales ovate-lanceolate, the outer acute, tomentose, the inner shining, coloured, acuminate. *Corolla:* compound; corollets hermaphrodite, tubular, few in the centre of the disk; females tubular, numerous in the remainder of the disk; and a few others, almost apetalous among the outer scales of the calix: proper in the hermaphrodites funnel-form, with a four-cleft spreading border; in the females of the disk funnel-form, with a slender tube swelling at the base, and a four-cleft erect border; in the other females hardly conspicuous, with a very slender tube, and a sharp cloven border. *Stamina:* in the hermaphrodites; filamenta four, very short; anther tubular. *Pistil:* in the hermaphrodites; germen small, abortive; style capillary, the length of the border; stigmas two, from upright spreading: females in the disk, have on oblong germen, a capillary style longer than the border, and two spreading stigmas: females within the calix have an oblong germen, a capillary style longer than the border, and two long spreading stigmas. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites barren, crowned with down: in the females of the disk oblong, crowned with a short simple down; in the females within the calix, oblong, naked. *Receptacle:* naked. Essential Character. *Calix:* imbricate; female florets among the scales of the calix. *Down:* none. *Receptacle:* naked.—The Cudweeds are herbs covered with a hoary or cottony down; the flowers are usually glomerate at the end of the stalk, and are sometimes surrounded by a leafy ring. They are of the same natural genus with Gnaphalium.——The species are,

1. Filago Acaulis; *Pigmy Cudweed.* Flowers stemless, sessile; floral-leaves larger. This is a very small plant, entirely covered with a white woolly nap, growing in a tuft: it has a little bristle-form stem, a line or two, sometimes half an inch, or at most an inch in height, erect, quite simple; leaves mostly close to the ground, longer than the stem and flowers, quite entire, linear; one or two flowers terminate the stem, or are sessile among the leaves; calix scarcely a line in length; the scales brown or reddish, brown about the edge, ash-coloured in the middle; the corollets are rose-coloured, and the central ones yellowish. Cavanilles, with a truly laudable zeal, has defended Linneus from the intemperate and ill-founded attack of Monsieur Lamarck concerning this plant, and has retorted it upon the assailant. He informs us, that he has found caulescent plants about Madrid, accompanied by innumerable others absolutely stemless, both flowering, fruiting, and perishing, without any change from one to the other.—Willdenow states this to be the only species of *Filago*, the rest being *Gnaphaliums*.—Native of the south of Europe, and the Levant: it is found in dried pools of standing water, is annual, and flowers at the end of summer. This plant, together with all of the same genus, except the last species, are considered as weeds, and never cultivated, except in botanic gardens. They may be propagated from seeds sown in the autumn or spring, where they are to remain, and require no culture, except thinning where they may be too close, and to be kept clean from weeds.

2. Filago Germanica; *Common Cudweed.* Panicle dichotomous; flowers rounded, axillary, hirsute; leaves sharp; root annual, spindle-shaped. Several stems rise immediately from the root, from six to twelve inches in height, the central one thickest and longest, clothed with numerous, linear-lanceolate, waved, sessile, downy leaves; at the summit a sessile flowering head, beneath which are two or more branches bearing flowers, and these again proliferous. The lower lateral branches overtopping the principal central head, gave rise to the old name of *herba impia*, (herb impious,) or *Wicked Cudweed.*—Native of most parts of Europe, in barren pastures, corn-fields, and by way-sides; flowering in July and August. It varies with a very simple erect stem, and axillary sessile flowers. This plant is astringent, and a powder or decoction of it has been sometimes given to cattle in the bloody flux; and has been successfully tried in similar complaints of the human body. English farmers formerly gave it to their cattle, to restore the faculty of chewing the cud, whence it acquired the name of *Cudweed.* Petiver calls it *Childing Cudweed;* and Hill, *Forked Cudweed.* Bruised, and applied to recent wounds, it stops the effusion of blood, and speedily heals them; and taken inwardly, either in powder or decoction, it not only stops violent purgings, but relieves the whites and other female complaints.

3. Filago Pyramidata; *Pyramidal-flowering Cudweed.* Stem dichotomous; one or two inches high; flowers pyramidal, five-cornered, axillary; female floscules serrate; branches radical, bifid at the top; leaves lanceolate, bluntish, pressed to the stem, quite entire; calicine scales three or four, terminated by a thread, and between them a female flower, besides six males or imperfect hermaphrodites in the centre. It is probably no more, says Krocker, than a variety of the foregoing species: it differs however from it, in having a more simple stem, with only one branch or two at the end, and more erect; it is also more white and tomentose: the flowers are only at the end in the uppermost fork; the leaves are more numerous, and pressed close to the stem. It is annual, like the foregoing, and flowers in August.—Native of the south of France, Spain, and Silesia.

4. Filago Montana; *Least Cudweed.* Stem subdichotomous, erect; two to six inches high; flowers conical, terminating, and axillary; root annual; leaves numerous, lanceolate, sessile, downy, pressed to the stem, three or four lines long; calix pyramidal, five-cornered, sessile, or on very short peduncles, of a whitish green colour, shining at the top: in the very centre are four complete florets, and about fifteen in the disk, and four or five in the circumference, within the scales of the common calix, with pistil only, all fertile; antheræ of the complete florets four, with two bristles at the base; border of the florets four-cleft: seeds of all the florets

in the centre, sprinkled with very short glandular hairs, and crowned with a capillary down; those of the florets in the circumference without down. The smallness of the heads or clusters, and the few flowers which compose them, readily distinguish this species from the second.—Native of most parts of Europe, in sandy pastures, especially in high grounds; also on walls, and other dry barren places. It flowers in July and August.

5. Filago Gallica; *Grass-leaved Cudweed.* Stem dichotomous, erect; flowers subulate, axillary; leaves filiform; root annual, often very long. The whole plant downy, but the down shorter than in the second and fourth species, and of a silvery white; leaves about an inch long, half stem-clasping, awl-shaped, subtomentose, yet smooth, and not hirsute.—Native of France, Switzerland, Germany, and England, in gravelly and sandy soils, flowering in July and August. With us it was first observed near Castle-Heveningham in Essex, and since on heaths in Derbyshire.

6. Filago Arvensis; *Corn Cudweed.* Stem panicled; flowers conical, lateral; root annual. The whole plant very woolly, insomuch that the heads of the flowers are in a manner buried: stem erect, a foot high or more, branched only at the top; leaves linear-lanceolate, two lines broad, five to seven long, and quite entire.—The flowers are female in the circumference, androgynous in the centre, very small, and whitish.—Native of Sweden, Germany, France, Switzerland, and Carniola, in sandy soils, flowering in July and August.

7. Filago Leontopodium; *Lion's-foot Cudweed.* Stem very simple; head of flowers terminating, radiated with very hirsute bractes. This plant is about six inches high, hoary all over, and terminated by an elegant lanuginous star, formed of oblong spreading leaflets of unequal lengths. In the centre of this is a head of flowers, which are hermaphrodite; the corolla yellow, and five-cleft; the antheræ acuminate; the style whitish, the germen streaked, smooth, dilated at the end, and crowned with little bristles, which, when viewed with a magnifier, appear feathered; the stigma longer than the antheræ. Round this principal head, on radiating very lanuginous bractes, sit other small heads, in number as far as seven, in which some of the flowers are female, small, four-cleft, with a long style, and a bifid stigma; others are incomplete, yellow, and destitute of genuine stamina, style, and germen. The middle head, therefore, is that of a Gnaphalium, and the side ones are those of a Filago. Perennial: flowering in June and July.—Native of the mountains of Germany, Dauphiny, Switzerland, the Valais, Austria, Carinthia, and Carniola.—There is a variety which differs from the other, 1. in having a slender root, and short leaves; whereas that has a large root, and oblong leaves: 2. in having flowers of a very dark brown violet-colour; whereas in the other they are pale yellow.—This is a native of Italy, as on Monte Baldo near Verona, and of Germany.

Filbert. See *Corylus.*

Filix, or *Fern.* The plants that pass under this general denomination, constitute the first order of the class Cryptogamia, in the system of Linneus, called *Cryptogamia Filices.* The fructification in this natural order differs essentially from all others, at least in its situation; being generally disposed, either in spots or lines on the under surface of the fronds or leaves. There being no certain distinctions in the fructifications sufficient to establish the genera, and the parts being too small to be observed without the assistance of powerful magnifiers, the genera are chiefly distinguished by the dispositions of the seeds under their covers. The general structure of the fructification on this order is the following.—The *calix* is a scale springing out of the leaf, opening on one side. Under this scale, commonly supported by little footstalks, but sometimes sessile, are globules for the most part encompassed by an elastic ring; these burst with violence, and scatter a powder, which is supposed to be the seed. These globules or seed-vessels are covered by a very fine, thin, semitransparent skin, which bursts open before the seeds are ripe: the ring or cord endeavours to become straight, and by its elasticity tears open the capsule, which then forms two hemispherical cups like those of Anagallis. This curious mechanism may be observed by the assistance of a good single microscope, with a reflecting speculum, during the months of September and October, in *Pteris Aquilina*, or common Brakes, and *Asplenium Scolopendrium*, or Hart's-tongue. The powder which is dispersed in this operation is so minute, as hardly to be visible to the naked eye. That it is the seed, has been proved by actually raising plants from that of the Hart's-tongue by Morison; and lately in the most satisfactory manner by Mr. John Lindsay, surgeon in Jamaica, from *Polypodium Lycopodioides.* Hedwig thinks that he has detected male flowers or antheræ, either sessile, or else on a very short filamentum, scattered over the back of the frond, of an ovate or subglobular form. From this singularity of the fructification being on the back or lower side of the leaf, was named the order in which they ranged the Ferns *Epiphyllospermæ* and *Dorsiferæ.* Since the late discoveries of Hedwig and others, Equisetum, Salvinia, Marsilea, Pilularia, Isoetes, which stood among the Ferns, together with Lycopodium and Porella, which were placed in the order of Musci by Linneus, have been united to form a new order, entitled *Miscellaneæ*, which now stands first of the class Cryptogamia in Linneus's *Genera Plantarum*, as published by Schreber.—The uses of the Ferns are little known. Few of them are esculent. They have a heavy disagreeable smell. In large doses they destroy worms, and some of them are purgative. The ashes produced by a slow incineration of the green plants, contain a considerable portion of the vegetable alkali, and are generally sold under the name of ash-balls, to make lye for washing linen. Common Brakes cut down, when fully grown and dried, make a very good litter; and this, with some others, forms a thatch more durable than straw. South America and the West Indies furnish abundance of species, many of which grow to a great size, and others are very ornamental plants in our hot-houses. For particulars concerning the genera and species of this order, see *Acrostichum*, *Adiantum*, *Asplenium*, *Blechnum*, *Cænopteris*, *Hemionitis*, *Lonchitis*, *Marattia*, *Meniscium*, *Onoclea*, *Ophioglossum*, *Osmunda*, *Polypodium*, *Pteris*, *Trichomanes.*

Finochio. See *Anethum.*

Fir Tree. See *Pinus.*

Fissidens; a genus comprehending several species of Moss, belonging to Linneus's genera of Mnium, Bryum, and Hypnum.

Fitt-weed. See *Eryngium.*

Flacourtia; a genus of the class Dicecia, order Polyandria.—Generic Character. *Male. Calix:* perianth one-leafed, five-parted; parts roundish, obtuse, almost equal from spreading erect. *Corolla:* none. *Stamina:* filamenta numerous, (fifty to a hundred,) longer than the calix, and fastened to its thickened bottom, spreading, capillary; antheræ roundish. *Pistil:* the rudiment of a germen and stigma at most. *Female. Calix:* perianth five-leaved; leaflets roundish, erect, lying over each other at the edge, blunt. *Corolla:* none. *Pistil:* germen superior, ovate, large; style none; stigma flat, stellate, with rays from five to nine. *Pericarp:* berry globular, fleshy, umbilicate with the stigma, many-celled. *Seeds:* in pairs, obovate, compressed, obscurely

grooved. ESSENTIAL CHARACTER. *Male. Calix:* five-parted. *Corolla:* none. *Stamina:* very numerous. *Female. Calix:* many-leaved. *Corolla:* none. *Germen:* superior. *Styles* five to nine. *Berry* many-celled.——The only known species is,

1. Flacourtia Ramontchi. This is a small tree, or rather shrub, very bushy, thorny, and growing to the height of eight or ten feet: stem erect, branching, round, leprous, ash-coloured; branches with their subdivisions alternate, patulous, round, thorny, dotted with tubercles, bay-coloured; suckers at first without thorns, but some acquiring them, scarcely pubescent, purplish; leaves alternate, petioled, spreading, ovate or oval, sharp, crenulate, serrate, almost entire at the base, smooth and shining, of a firm texture, and resembling those of the plum; racemes terminating, erect, peduncled; flowers two to seven, pedicelled. The fruit is the size and shape of a small plum, green when young, of a beautiful red when ripe, and finally of a dark violet colour; the skin is very thin, and the flesh transparent red, of the same consistence with our common plums: in the middle are a dozen or fourteen small kernels, the size of those in the apple, and nearly of the same shape; they are bitterish, like our apricot kernels, and covered with a tender shell. The natives eat the fruit, which is sweet, but leaves a slight sharpness in the mouth. An island on the coast of Madagascar is covered with these trees; and because they resemble the European plum-tree, the French sailors have named that island, *Isle aux Prunes*, or *Plum-tree Island.*

Flag, Common. See *Iris.*

Flag, Corn. See *Gladiolus.*

Flag, Sweet. See *Acorus.*

Flagellaria; a genus of the class Hexandria, order Trigynia.—GENERIC CHARACTER. *Calix:* perianth six-leaved, equal; leaflets ovate, permanent, the outer ones sharper. *Corolla:* none. *Stamina:* filamenta six, filiform, almost the length of the calix; antheræ oblong. *Pistil:* germen ovate, very small; style length of the stamina, trifid; stigmas three, simple, flattish, permanent. *Pericarp:* drupe roundish, one-celled, crowned with the flower. *Seed:* a round stone or nucleus. ESSENTIAL CHARACTER. *Calix:* six-parted. *Corolla:* none. *Berry:* one-seeded, (two cells of the nucleus small and abortive.)—The plants of this genus are propagated by sowing the seeds in small pots of light earth, and plunging them in a bark-bed: when they are fit to transplant, place them singly in small pots, shading them till they have stricken root, and gently supplying them with water.——The species are,

1. Flagellaria Indica. Stem round, climbing; leaves ovate, terminated by a tendril. Loureiro describes it as twenty feet high; the flowers white, in a loose terminating raceme; calix six-parted; stamina eight, short; fruit a smooth red berry, juicy, and enclosing one seed. The leaves, he says, are astringent, and esteemed vulnerary.—Native of the East Indies, Cochin-china, and of Guinea.

2. Flagellaria Repens. Stem angular, creeping; leaves jointed in pairs; flowers terminating, with a long bundled spadix, and a linear common spathe. The stem is twelve feet high, creeping upon trees by lateral fibres, but preserving its origioal root.—Native of Cochin-china.

Flax. See *Linum.*

Flax, Toad. See *Antirrhinum Linaria.*

Fleabane. See *Conyza.*

Fleagrass. See *Carex.*

Fleawort. See *Plantago.*

Flix-weed. See *Sisymbrium Sophia.*

Flos Adonis. See *Adonis.*

Flower de Luce. See *Iris.*

Flower Fence. See *Adenanthera.*

Flowering Fern. See *Osmunda Regalis.*

Flowering Rush. See *Butomus.*

Fluellin. See *Antirrhinum* and *Veronica.*

Fly Honeysuckle. See *Halleria* and *Lonicera.*

Fly Orchis. See *Ophrys.*

Fœniculum. See *Anethum.*

Fontanesia; a genus of the class Diandria, order Monogynia.—GENERIC CHARACTER. *Calix:* four-parted, inferior, very small, permanent, blunt at the ends. *Corolla:* two-petalled; petals two-parted; parts ovate, obtuse, concave. *Stamina:* filamenta two, long, filiform, inserted into the claws of the corolla; antheræ oblong, two-grooved. *Pistil:* germen ovate; style compressed, shorter than the stamina: stigmas two, inflex-hooked. *Pericarp:* capsule not opening, subovate, emarginate, compressed, membranaceous, in the centre two-celled, (very rarely three-celled,) three-winged. *Seeds:* solitary, oblong-columnar. ESSENTIAL CHARACTER. *Calix:* four-parted, inferior; petals two, two-parted; capsule membranaceous, not opening, two-celled; cells one-seeded. ——The only known species is,

1. Fontanesia Phillyrioides. Stem frutescent, erect, twelve feet high; branches opposite, erect, the younger ones quadrangular; leaves evergreen, opposite, veined underneath, the lower ones ovate; petioles short, knee-jointed; flowers axillary, yellow. The corolla may be considered as one-petalled and four-parted, with two of the parts more deeply cut, for the filamenta are inserted into the corolla. It is allied therefore to Fraxinus and Chionanthus; but it differs from the first in having a two-celled fruit, and from the second in the fruit being a capsule, and not a drupe.—Native of Syria, between Laodicea and Mount Cassius.

Fontinalis; a genus of the class Cryptogamia, order Musci, or Mosses.—GENERIC CHARACTER. *Capsule:* oblong, with the mouth ciliate; opening with an acuminate lid; covered with a sessile, smooth, conical *veil;* and included in a pitcher-shaped, imbricate *perichætium.*—Linneus mentions only four species, which are all natives of England, and may be found in Mr. Hudson's *Flora Anglica.* The three first are water-mosses, and the last grows on trees. Dr. Withering has enumerated two more species; and several others have been discovered by Swartz in the West Indies, and one in Cochin-china by Loureiro.

Fool's Parsley. See *Æthusa.*

Forcing. See *Stoves.*

Forskahlea; a genus of the class Octandria, order Tetragynia; or of the class Decandria, order Pentagynia.—GENERIC CHARACTER. *Calix:* perianth four or five leaved, erect; leaflets linear-lanceolate, parallel, acute, permanent. *Corolla:* petals eight or ten, rude, spatulate, concave, erect, withering, shorter than the calix: the claws the length of the border. *Stamina:* filamenta eight or ten, filiform, one within each petal, elastic, the length of the calix; antheræ twin, roundish. *Pistil:* germen four or five, distant, oblong, woolly; styles bristle-shaped; stigmas simple. *Pericarp:* none; (according to Gærtner, capsules five, woolly, ovate, acuminate at both ends, compressed, one-celled, not opening.) *Seeds:* four or five, oblong, compressed, attenuated to both ends, interwoven with wool. *Observe.* The number varies in the parts of fructification, and is extricated with difficulty, on account of the wool in which they are involved. Gærtner says, the number of capsules varies from three to five. ESSENTIAL CHARACTER. *Calix:* four or five leaved, longer than the corolla; petals eight or ten, spatulate. *Pericarp:* none. *Seeds:* five, connected by wool.——The species are,

1. Forskahlea Tenacissima; *Clammy Forskahlea.* Hairy-hispid: leaves elliptic, awnless; calicine segments oblong-lanceolate, sharp; root annual; stem nearly two feet high, panicled, round, hispid, red, with alternate branches; petioles round, shorter than the leaves; flowers axillary, in pairs, sessile, rough, hairy. The bristles of the stem and leaves are finely hooked, by which they stick to whatever comes in their way. It flowers in July and August.—Native of Egypt.

2. Forskahlea Candida; *Rough Forskahlea.* Scabrous: leaves elliptic, waved, awnless; calicine segments ovate, obtuse; stem shrubbyish, smooth, resembling that of the foregoing, whitish, and woody at the base; flowers axillary, sessile, smaller than in the first species; petals white. Perennial: flowering in June and July.—Native of the Cape of Good Hope.

3. Forskahlea Angustifolia; *Narrow-leaved Forskahlea.* Strigose: leaves lanceolate, the teeth thorny-bristle-shaped; calicine segments lanceolate-subulate. Annual, adhering like the others; stem red; pistils three.—It flowers in July and August.

Forstera; a genus of the class Gynandria, order Diandria. —Generic Character. *Calix:* perianth double; outer inferior, three-leaved, lateral; leaflets oblong, sharp; inner superior, six-cleft; leaflets erect, oblong, concave. *Corolla:* one-petalled, tubulous-bell-shaped; tube length of the calix; border six-parted; divisions oblong, obtuse, patulous, reflex at the tip, equal; nectary two small scales, obovate, petal-form, fixed to the style on both sides under the stigma. *Stamina:* filamenta two, very short, each fixed to the style between the stigma and a scale of the nectary under the stigma. *Pistil:* germen inferior, oval; style cylindric, erect, the length of the tube of the corolla; stigmas two, broad, spreading, somewhat bearded. *Pericarp:* capsule oval, one-celled. *Seeds:* numerous, shaped like saw-dust, fixed to a columnar receptacle. Essential Character. *Perianth:* double; outer inferior, three-leaved; inner superior, six-cleft. *Corolla:* tubular.——The species is,

1. Forstera Sedifolia. Stem herbaceous, ascending, a hand in height, somewhat branched; leaves imbricate, sessile, obovate, sharpish, quite entire, smooth, pressed to the stem, from spreading reflex at the tip, thickish, shining, with a broad keel; peduncles solitary, one-flowered, terminating, erect, red, long; flowers white, except at the throat and inside of the calix, where they are red.—Native of New Zealand, where it is found on the tops of the highest mountains.

Fothergilla; (so called, in memory of John Fothergill, M.D. an eminent physician, and patron of botany, who cultivated a variety of the most curious plants in his garden, near London:) a genus of the class Polyandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, close, truncate, short, permanent. *Corolla:* none. *Stamina:* filamenta very many, filiform, thicker at top, long; antheræ minute, erect, quadrangular. *Pistil:* germen ovate, bifid; styles two, subulate, terminating, the length of the stamina. *Pericarp:* capsule hardened, two-lobed, two-celled; lobes two-valved. *Seeds:* solitary, bony. Essential Character. *Calix:* ament ovate; scales one-flowered. *Corolla:* calix-form, one-petalled, five-cleft.——The only known species belonging to this genus is,

1. Fothergilla Alnifolia. This tree has the appearance and leaves of Alder: leaves alternate, petioled, wedge-shaped, entire, serrate at the tip; serratures very large and few, the upper surface green, the lower hoary, the younger ones white, with nap underneath; flowers in a close spike at the end of the stem, like an oblong head, and white; capsules large, ovate, very hirsute, sharp, two-celled; the valves opening into four points until the seeds are ripe. The flowers come out in the beginning of spring, at the ends of the branches, in the form of white oblong spikes or catkins, of no great beauty.—Native of North America. There is a variety called the narrow-leaved Fothergilla, which Jacquin describes as a branching shrub, with ferruginous round branches; leaves oblong, obscurely crenate at top, on short petioles, alternate, smooth; spike at the end of the branchlets, sessile, ovate, close; flowers sweet-smelling, honied, sessile; capsule two-celled; seeds solitary.—Native of Carolina.

Foxglove. See *Digitalis.*

Fox-grape. See *Vitus Vulpina.*

Foxtail-grass. See *Alopecurus.*

Fragaria; a genus of the class Icosandria, order Polygynia.—Generic Character. *Calix:* perianth one-leafed, flat, ten-cleft; divisions alternately exterior, and narrower. *Corolla:* petals five, roundish, spreading, inserted into the calix. *Stamina:* filamenta twenty, subulate, shorter than the corolla, inserted into the calix; antheræ lunular. *Pistil:* germina numerous, very small, collected into a head; styles simple, inserted at the side of the germina; stigmas simple. *Pericarp:* none; common receptacle of the seeds (vulgarly called a berry) ovate, pulpy, soft, large, coloured, truncate at the base, and deciduous. *Seeds:* numerous, very small, acuminate, scattered over the surface of the receptacle; (according to Gærtner, a little compressed, smooth, glittering.) Essential Character. *Calix:* ten-cleft. *Petals:* five. *Receptacle* of the seeds ovate, and like a berry.—— The species are,

1. Fragaria Vesca; *Esculent* or *Wood Strawberry.* Creeping by runners. This species is sufficiently distinguished by the long slender runners which it throws out from the root, and by means of which it increases abundantly, by its ternate leaves, and its remarkably fleshy receptacle, commonly called a berry, but having the outer surface studded with the seeds. From the first and last of these characters, it obtained the English name of *Strawberry;* for it is a plant whose running stems are strewed (anciently *strawed*) over the ground, and the fruit of which is usually termed a berry. Monsieur Duhamel observes, that in our European Strawberries there are generally four stamina to each petal, but in the American five or six: so that when the flowers of the latter have the regular number of petals, they have from twenty-five to thirty stamina; but when they have seven petals, the number of stamina is from thirty-five to forty-two. In the European Strawberries, when any supernumerary petals are placed in a row before the regular ones, each diminishes the number of stamina by one or two; but when they are placed behind the regular petals, the number of stamina is not diminished. The common Wood Strawberry of Europe has the leaflets oval-lanceolate, acutely serrate; the petioles woolly, the runners slender, smooth, often tinged with purple; peduncles with two or more flowers. The fruit is small, and usually red; in England it seldom has much flavour, because the plants are generally too much shaded in woods and hedges. The *mountainous* Strawberries of warmer and drier countries, though they usually grow among bushes, yet enjoying more sun and a drier soil, are much higher flavoured, and larger, than ours. The subordinate varieties of this are, 1. The White Wood Strawberry, which ripens rather later in the season, and is by many persons preferred to it for its quick flavour; but as it seldom produces such large crops of fruit as the red sort, it is not very generally cultivated. 2. The Alpine Strawberry is a larger plant than that which grows

in our woods, the stem higher, the leaves broader, the fruit larger, red, and usually much pointed, sometimes white. It is well-flavoured, and the plants being great bearers from June till the autumn frosts put a stop to them, the Alpine Strawberry is therefore very valuable. The reason of its long continuance in fruit is, that the runners which it throws out during the summer, shoot up into flower and fruit the same year, more freely than the others. Mr. Miller, who considers it as a variety of the Scarlet Strawberry, says, that the Dutch gardeners call it *Everlasting Strawberry*. It has been cultivated ever since the time of Richard the Second. 3. The Rough-fruited or Prickly Strawberry, is only a mere accidental variety. The flower is greenish, the fruit harsh, rough, and prickly, of a greenish colour, with some show of redness. John Tradescant the elder, first took notice of it in a woman's garden in Plymouth: her daughter had gathered it in the country, and set the root there. Merret afterwards observed it in Hyde Park and Hampstead-wood.—The *Hautboy Strawberry* has been long cultivated in the English gardens, and differs much from the others in leaves, flower, and fruit. There is an improved variety of it, commonly called the *globe* hautboy, the fruit of which is larger, and of a globular form; which, when neglected, will degenerate into the common hautboy; but where the soil is good, and the culture well managed, the plants will produce plenty of large and well-flavoured fruit. Mr. Miller, we know not upon what authority, asserts that the hautboy came originally from America; it is certainly very liable to degenerate, and to produce dry effete fruit. This degeneracy, according to Monsieur Duhamel, is owing to there being two sorts of plants, one bearing male, the other female, or rather imperfect hermaphrodite flowers; for they have thick short filamenta, with very small effete antheræ. The former of these being reputed useless, are carefully destroyed, and hence not only the seeds become abortive, but the receptacle, which we commonly call the fruit, small and juiceless. This may be remedied, either by planting a few of the male plants, or of the Scarlet or Pine Strawberry, among the hautboys. M. du Chesne, who has written a treatise in French on the subject of Strawberries, having sown the seeds of hautboys, had about an equal number of male and female plants. Parkinson's Bohemian Strawberry seems to be the hautboy; but he says nothing about the high musky flavour peculiar to it: and Ray says, it differs in nothing from the Wood Strawberry, but in being nearly twice its size in all the parts; and that the fruit is not so pleasant, but sweeter. Parkinson, however, gives a very different account; he says, "that it is the goodliest and greatest, both for leaf, next to the Virginian, and for beauty far surpassing all, for some of the berries have been measured to be near five inches about." The *Chili Strawberry* has hairy oval leaves, of a much thicker substance than any sort yet known, standing upon very strong hairy footstalks; the runners from the plants are very large, hairy, and extend to a great length, putting out plants at several distances. The peduncles are very strong; the leaves of the calix long and hairy. The flowers are large, and often deformed, and so is the fruit, which is very large; and, when cultivated in very strong land, the plants produce plenty of fruit, which is firm, and well-flavoured; but as it is not productive, it has been generally neglected. Frezier says, that the fruit usually attains the size of a walnut, but is sometimes as large as an egg; that it is of a paler red than the European Strawberry, and not so quick in its flavour. The *Virginia* or *Scarlet Strawberry* is the sort which is first ripe, which, if the fruit were not thought by good judges to be preferable to all others, would probably recommend it. The leaves are of a dark green, and of a more even surface than the others; the flowering-stems are shorter; and the fruit is frequently concealed among the leaves. It was brought from Virginia, where it grows naturally in the woods. The *Pine Strawberry* has lately been introduced into the English gardens. The leaves have a great resemblance to those of the Scarlet Strawberry, but are larger, of a thicker substance, and the indentures of their edges are blunter; the runners are much larger, and hairy; the peduncles are stronger; the flowers much larger; and the fruit approaches in size, shape, and colour, to the Chili Strawberry. As this produces a great quantity of fruit, when the plants are kept clear from runners, and the fruit is very large, it is worthy of cultivation. Duhamel says, it is raised from the seed of the Chili Strawberry. The flower is very large, and the fruit has something of the smell and taste of the pine-apple. It varies in the form, some being ovoid, others oblate-spheroid, others again irregular: they are much smaller than the Chili Strawberry. They are smooth and shining; the shaded side yellowish-white, with a tincture of red, and the seeds red; the side towards the sun pale red, composed of a mixture of reddish-brown and yellow; the seeds red-brown. The flesh is less firm than that of the Chili Strawberry, but it is juicy, and has a pleasant perfumed taste. The *Carolina Strawberry* greatly resembles the preceding, but is much smaller and less hairy; the flower-stems are shorter; the flower-buds more lengthened out, and less swollen; the divisions of the calix larger, and the little ones seldom divided; the petals rather smaller, and seldom more than five in number; the fruit smaller, more regular in the form, of a higher colour, and the perfume not so pleasant. The Pine varies but little when raised from the seed, whereas this varies much in the flower, fruit, &c.—Strawberries, either eaten alone, or with sugar, or with milk, are usually esteemed a most delicious fruit: they are grateful, cooling, subacid, juicy, and have a delightful smell. Taken even in large quantities, they seldom disagree with the stomach. They promote perspiration, impart a violet scent to the urine, and dissolve the tartarous incrustations upon the teeth. Persons afflicted with the gout or stone, have found great relief by using them profusely. Linnæus informs us, that by eating plentifully of them every day, he kept himself almost free from the gout. Hoffman affirms, that he has known consumptive people cured by them. The bark of the root, like that of the Tormentil, and the rest of its congeners, is astringent. The leaves, says Meyrick, are cooling and diuretic: an infusion of them is good in the strangury; and, when made strong, in the jaundice: when dried and reduced to powder, they are astringent, and useful in fluxes of the bowels; and a strong decoction of them sweetened with honey, is a good gargle for sore throats. It would be unpardonable not to inform our fair readers, that they have likewise the credit of being a cosmetic, or beautifier of the skin.—*Propagation and Culture.* Strawberries in general love a gentle hazelly loam, in which they will thrive, and bear greater plenty of fruit than in a light rich soil. The ground should also be moist; for if it be very dry, all the watering which is given to the plants in warm dry seasons, will not be sufficient to procure plenty of fruit; nor should the ground be much dunged, for that will cause the plants to run into suckers, and grow luxuriant, and render them less fruitful. The best time to remove these plants is in October, that they may get new roots before the hard frost sets in, which loosens the ground; so that if the roots of the plants be not well established in the ground, the first thaw will often turn them out of it; therefore the sooner they are planted, when the autumnal rains begin, the less danger will there be of

their miscarrying; and sometimes those which are well rooted will produce a few fruit the first year. There are some who transplant them in the spring; but where that is done they must be well supplied with water in dry weather. The ground in which they are planted should be thoroughly cleansed from the roots of Couch and other weeds, for as the Strawberry plants are to remain three years before they are taken up, if any of the roots of those bad weeds are left in the ground, they will have time to multiply so greatly as to fill the ground, and overbear the Strawberry plants. The ground should also be well trenched, and made level; then the usual method is to lay it out into beds of four feet broad, with a path of two feet or two feet and a half wide between each, which are necessary for conveniently gathering the fruit, for weeding and dressing the beds, and for watering the plants. After the beds are marked out, there should be four lines drawn in each, at a foot distance, which will leave six inches' space on each side, between the outside rows and the paths; then the plants should be planted at about a foot distance from each other in the rows, in a quincunx order, being careful to close the ground to the roots of the plants when they are planted; and if rain do not fall soon after, the plants should be well watered, to settle the earth to their roots. The distance here mentioned must be understood for the Wood Strawberries only; for as the other sorts grow much larger, their distances must be proportioned to their several growths; hence the scarlets and hautboys should have but three rows of plants in each bed, which should be at fifteen inches' distance, and the plants in the rows should be allowed the same space from each other; and the Chili, and other large Strawberries, must have only two rows of plants in each bed, which should also be two feet apart in the rows; for as these grow very strong, if they have not room to spread, they will not be very fruitful. In choosing proper plants the great art entirely consists; for if they be promiscuously taken, the greater part will prove barren, or, as it is generally termed, blind, producing plenty of flowers, but no fruit. These flowers, when examined, will be found to want the female organs of generation, most of them abounding with stamina, but there are few if any styles; so that it frequently happens among these barren plants, that some of them have a part of an imperfect fruit formed, which will occasionally ripen. This barrenness is not peculiar to Strawberries, but is common to all those plants which have creeping roots or stalks; and the more they increase from either, the sooner they become barren: and this in some degree runs through the vegetable kingdom; for trees and shrubs which are propagated by cuttings, taken from plants also raised from cuttings, are generally barren of seeds in two generations. In fruit-trees, it often happens that those sorts which have been long propagated by grafts and buds, have no kernels. But, to return to the choice of Strawberry plants; they ought never to be taken from old neglected beds, where the plants have been suffered to spread or run into a multitude of suckers, nor from any plants which are not very fruitful; and those offsets which stand nearest to the old plants should always be selected in preference, before those which are produced from the trailing stalks at a further distance. The Wood Strawberry is best, when the plants are taken fresh from the woods, provided they be taken from fruitful plants; because they are not so liable to ramble and spread, as those which have been long cultivated in gardens. When these plants have taken new root, the next care is, if the winter prove severe, to lay some old tanners' bark over the surface of the bed, between the plants, to keep out the frost; this care is absolutely necessary to the Chili Strawberry, which is frequently killed in hard winters, where it is exposed without any covering; therefore where tanners' bark cannot easily be procured, saw-dust or sea-coal ashes may be used; or in want of these, if decayed leaves of trees, or the branches of evergreen trees with their leaves upon them, are laid over the beds, to prevent the frost from penetrating deep into the ground, it will secure the plants from injury. In the succeeding summer the plants should be constantly kept clean from weeds, and all the runners should be pulled off as fast as they are produced; if this be constantly practised, the plants will become very strong by the following autumn; whereas when this is neglected, as it frequently is, and all the runners are permitted to stand during the summer season, and then pulled off in the autumn, the plants will not be half so strong as those where that care has been taken, and there will not be near the same quantity of fruit upon them the following spring, nor will the fruit be near so large and fair; but where proper care is taken of the plants the first summer, there is generally a plentiful crop of fruit in the second spring.—As this fruit is very common, and there are but few persons who cultivate it with proper care, we shall still further dilate upon this subject, and give ample directions for cultivating them with success. The old plants of Strawberries are those which produce the fruit, for the suckers seldom produce any till they have grown a full year; hence it appears how necessary it is to divest the old plants of them, for whenever they are suffered to remain, they rob the fruitful plants of their nourishment in proportion to their number, for each of these suckers sends out a quantity of roots, which interfere, and are so closely matted together as to draw away the greatest part of the nourishment from the old roots, whereby they are greatly weakened; at the same time, these suckers render each other weak, and consequently barren. Where the old plants have been constantly kept clean from suckers, they have remained very fruitful for four or five years; but it is the best way to have a succession of beds, that after three years' standing they may be taken up, because by that time they will have exhausted the ground: and it invariably follows, that Strawberries planted on fresh land are the most fruitful. The next thing to be observed is, to remove the strings or runners from the plants in autumn, and to clear the beds from decayed leaves and weeds, which should be buried in the dug-up paths, laying some earth over the surface of the beds between the plants, which will strengthen and prepare them for the following spring; and if after this there be some old tanners' bark laid over the surface of the ground between the plants, it will be of great service to them. In the spring, after the danger of hard frost is over, the ground between the plants in the beds should be forked with a narrow three-pronged fork, to loosen it, and break the clods, and in this operation the tan which was laid over the surface of the ground in autumn will be buried, which will be a good dressing to the Strawberries, especially in strong land: then about the end of March, or the beginning of April, if the surface of the beds be covered with moss, it will moisten the ground, and prevent the drying winds from penetrating, thereby securing a good crop of fruit; the moss will preserve the fruit clean, that when heavy rains fall after the fruit is full grown, there will be no dirt washed over them, which frequently happens, so that the fruit must be washed before it is fit for the table, which greatly diminishes its flavour. The soil in which the Chili Strawberry is found to succeed best, is a very strong brick earth, nearly approaching to clay; in this kind of soil they have produced tolerably good crops of extremely well-flavoured fruit; and if some care be taken to pull off the runners, there is

little doubt that they would prove as productive as the hautboy: this is not advanced upon theory, but has experimental proof for its foundation.—*Forcing.* Some persons are so fond of Strawberries, as to be at any expense to obtain them early in the year; and when their great medical virtues are considered, it will not be deemed an useless or trifling addition to the present article, to detail the practice of those who have best succeeded in the early raising, forcing, or management of these fruits. Where there are any hot walls erected in gardens for the producing early fruit, it is very common to see Strawberries planted in the borders, that the fire which is applied for ripening the fruit against the walls, may also serve the purpose of bringing forward the Strawberries: but where this is the practice, the Strawberry plants should be annually renewed, taking up the plants as soon as the fruit is over; then all the earth of the border should be taken out at least two feet deep, and fresh earth brought in, which will be equally good for the wall trees; but, as was before observed, that the old plants only are those which produce the fruit, there should be a sufficient number of plants brought up in pots to supply the borders annually, and the same must be done if they are to be raised in a common hot-bed, or in stoves. We shall therefore begin with instructions for raising and preparing plants for those purposes. The sorts most proper for forcing early are, the Scarlet, the Alpine, and the Wood Strawberries, for the Hautboy grows too large a plant for this purpose. In the choice of plants, there should be an especial care taken to have them from the most fruitful plants, and those which grow immediately to the old plants: they should be taken off in autumn, and each planted in a separate small pot filled with loamy soil, and placed in a shady situation till they have taken root, after which they may be removed to an open situation, where they may remain till the middle or end of November, when the pots should be plunged in the ground up to their rims, to prevent the frost from penetrating through the side of the pots; if these be placed near a wall, pale, or hedge, exposed to an east aspect, or north-east, they will succeed better than in a warm situation, because they will not be forced too forward: the only care they require is, to secure them from being turned out of the pots after frost. The spring following, the plants will be so far advanced as to have filled the pots with their roots by the end of April, when they should be turned out of the pots, and their roots pared; then planted into penny pots filled with the like loamy soil, and plunged into the ground in a shady situation, where they should remain the following summer, during which time they must be duly kept clean from weeds, and all the runners must be taken off as fast as they are produced; likewise if there should be any flowers come out, they should be pinched off, and not suffered to bear fruit, which would weaken the plants, for there cannot be too much care taken to have them as strong as possible, that they may produce plenty of fruit, without which they are not worth the trouble of forcing. About the middle of October, or earlier if the autumn proves cold, the pots should be removed into a warmer situation, to prepare them for forcing; for they should not be suddenly removed from a very cold situation immediately into the stove or hot-bed, but with a gradual preparation. Where they are designed for the borders near a hot-wall, they may then be turned out of the pots, and planted into the borders, that they may have time to get fresh rooting before the fires are made to heat the walls: when these are planted, they may be placed very close to each other; for as they are designed to remain there no longer than till they have ripened their fruit, they will not require much room, as their roots will find sufficient nourishment below, and also from the earth which is filled into the spaces between the balls of earth about their roots; and it is of consequence to get as much fruit as possible in a small space, where there is an expense to force them early. If the fires be lighted about Christmas, the Strawberries in these borders will be ripe by the end of March; or, if the season should prove very cold, it may be the middle of April before they will be fit for the table. In the management of the plants, there must be care taken to supply them with water when they begin to show their flowers, otherwise they will fall off without producing any fruit, and in mild weather there should be fresh air admitted to them every day; but as fruit-trees against the wall must be so treated, the same treatment will agree with the Strawberries.—If the Strawberries are to be forced in a stove, where there are pine-apples, and no room to plunge them in the tan-bed, then the plants should be transplanted into larger pots in September, that they may be well rooted before they are removed into the stove, which should not be till December; but if in the beginning of November they be placed under a frame where they may be screened from the frost, it will prepare the plants better for forcing; and those who are desirous to have them very early, make a hot-bed under frames, upon which they place their plants the latter end of October, which will bring them forward to flower, and then they remove the plants into the stove; when these plants are removed into the stove, they should be placed as near to the glasses as possible, that they may enjoy the full sun and air, for when they are placed backward, the plants will draw up weak, and the flowers will drop without producing fruit. As the earth in the pots will dry pretty fast when they stand upon the pavement of the hot-house, or on shelves, the plants must be duly watered, but with discretion: they will produce ripe fruit in February, which is as early as they are likely to be required, except it be for medical purposes. When the fruit is all gathered from the plants, they should be turned out of the stove; nor should those plants which are in the borders near the hot walls be left there after their fruit is gathered, but immediately taken up, that they may deprive the fruit-trees of as little nourishment as possible.——Where there is no conveniency of stoves or hot-walls for this purpose, the fruit may be ripened upon common hot-beds; and though they may not be quite so early as with the other advantages, yet great crops of them have ripened in April upon common hot-beds under frames: the plants were prepared in pots after the manner before directed, and were placed in a warm situation in the beginning of October; the hot-bed was made about Christmas in the same manner as for Cucumbers, but not so strong; and as soon as the first violent steam of the dung is over, some old rotten dung laid over the hot-bed to keep down the heat, or, where it can be easily procured, cow-dung is preferable. The plants should then be turned out of the pots, and placed upon the bed as closely together as possible, filling up the interstices between the plants with earth, and afterwards admitting fresh air every day. If the heat of the bed be too great, the plants should be raised up, to prevent their roots from being scorched; if the bed be too cold, the sides of it should be lined with some hot dung. The first bed will bring the plants to flower by the end of February, or the beginning of March, by which time the heat of the bed will be spent; therefore another hot-bed should be prepared to receive the plants, which need not be so strong as the first; but upon the hot dung should be laid some cow-dung, about two inches thick, which should be equally spread and smoothed; this will prevent the heat of the bed from injuring the roots of the plants, and

upon this should be laid two inches of a loamy soil: when the whole bas laid two whole days to warm, the plants should be taken out of the first hot-bed, and carefully turned out of the pots, preserving all the earth to their roots, and placed close together upon this new hot-bed, filling up the vacuities between the balls with loamy earth: the roots of the plant will soon strike out into this fresh earth, which will strengthen their flowers, and cause their fruit to set in plenty; and if proper care be taken to admit fresh air to the plants, and supply them properly with water, they will have plenty of ripe fruit in April, full two months before their natural season.—The Alpine Strawberry will supply the table the whole summer, especially if the plants be watered in dry seasons, the neglect of which frequently causes the blossoms to fall off without producing fruit. Thus may a succession of this delicious and salubrious fruit be obtained from March and April, and even earlier, by means of a hot-house forcing frame, hot walls, or hot-beds, and in the open air from June to October and November, when the weather is mild; for not only the Alpine, but the White Wood Strawberry, will continue bearing in tolerable abundance till the autumn frosts come on with some degree of severity, especially if the situation be warm, and the soil in which they grow not too light. There are some persons so curious as to raise the plants from seeds, by which they have greatly improved some of the sorts: and Mr. Miller thinks, that if the practice were more common, it would be found of singular service, where the fairest of the fruit of each kind are chosen. To obtain the seeds, the ripe fruit must be bruised in a vessel of water, and the pulp carefully washed away, leaving the seeds clean. They should then be gradually dried; when they may be sown in the spring on a border of rich light earth, keeping them watered and free from weeds during the summer.

2. Fragaria Monophylla; *Simple-leaved Strawberry.* Leaves simple. The scape or flowering-stem of this is longer than it usually is in the common Wood Strawberry; the petals are smaller, and the calices gashed. This, however, is frequently the case with the common wild sort in woods, and the others are very inconsiderable differences, especially in a genus so liable to variation as this. Other petty distinctions, such as that the leaves are smaller in winter, and their ribs less branched, the runners more slender and productive, the fruit more oblong or pyramidal, will not induce us to separate this from the foregoing species. Even the remarkable difference of simplicity in the leaves, cannot make us regard it as any thing more than a singular variety; for plants raised from the runners will sometimes have ternate leaves, and so also will seedling plants. It agrees with its parent, the common Wood Strawberry, in the time of flowering and fruiting; nor do the form, size, or flavour of the fruit, differ more from that than might be expected to result from cultivation. For its propagation and culture, see the first species.

3. Fragaria Sterilis; *Barren Strawberry.* Stem decumbent; flowering-branches lax. The name of *sterilis*, or barren, is not given to this species because it does not produce perfect seed, for it certainly does, but because the receptacle is not fleshy and eatable. To distinguish this from the esculent Strawberry, with all its varieties, it is sufficient to observe, that though the branches be trailing, yet they never creep or throw out roots; that the leaves are ovate or obovate, bluntly serrate, silky, and silvery, white underneath, with very hairy petioles; that the flower-stems are small, weak, and hairy, sustaining one, or at most two flowers, with smaller and whiter petals than the foregoing. The whole plant is smaller, weaker, and more hairy; the petioles and leaflets extremely hairy; the latter on the flowering plants very small, about half an inch in length, on the young plants twice as long; stem covered with brown scales; peduncles from an inch to an inch and a half long, terminated by one flower, and having a single leaf in the middle it, from the axil of which springs another flower; peduncles and calices tinged with red; corollas three, eighth of an inch in diameter; petals roundish, frequently emarginate. This species is very distinct from the other, and, according to the observation of Curtis, Leer, and others, its fructification has a greater affinity with *Potentilla*, between which genus and *Fragaria*, this seems to be a link. The flowers appear earlier than in the other, namely, in March, and it is common in woods and hedges, and on some heaths, in Switzerland and Germany, as well as in Great Britain; found also in Japan.

Frankenia; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, subcylindric, ten-cornered, permanent; mouth five-toothed, sharp, patulous. *Corolla:* petals five; claws the length of the calix; border flat, with roundish spreading laminas; nectary with a channelled acuminate claw inserted into the claw of each petal. *Stamina:* filamenta six, length of the calix; antheræ roundish, twin. *Pistil:* germen oblong, superior; style simple, length of the stamina; stigmas three, oblong, erect, obtuse. *Pericarp:* capsule oval, one-celled, three-valved. *Seeds:* very many, ovate, very small. *Observe.* Stamina five to ten; fruit three-celled. Essential Character. *Calix:* five-cleft, funnel-form. *Petals:* five. *Stigmas:* three. *Capsule:* one-celled, three-valved.——The species are,

1. Frankenia Lævis; *Smooth Frankenia*, or *Sea Heath.* Leaves linear, crowded, ciliate at the base; root perennial; stem and leaves thinly sprinkled with white globular particles; flowers at the ramifications of the stem, and in the middle of a bundle of leaves, solitary, sessile; calix with five, six, or seven ribs, and as many teeth, but rarely more than five; corolla purple; petals wedge-shaped, a little scolloped at the end; nectary a yellow scale; filamenta flat on one side, convex on the other; style deeply trifid. The flowers are elegant in form and colour, like those of a little red pink or campion. The stamina and pistil much resemble the Lychnis, to which the plant is nearly allied, though so different in habit.—In the salt marshes near Leghorn, this plant is often found. It has been found in England, at Burseldon-ferry, in Hampshire; on the coasts of Essex, Sussex, and Kent, in abundance, particularly in the islands of Shepey and Thanet; near Thurrington in Essex; between Maldon and Goldhanger; in Selsey island, Sussex; and near Portsmouth. It also occurs at Lovingland, just over the water at Yarmouth, at Tid Goat near Wisbeach; and near Lynn in Norfolk. It flowers in July and August.

2. Frankenia Hirsuta. Stems hirsute; flowers in terminating bundles; leaves like those of Thyme, ciliate, especially at the base; flowers violet-coloured.—Native of the south of France, Apulia, Crete, Siberia, and the Cape of Good Hope. This appears to be but a variety of the former.

3. Frankenia Pulverulenta; *Dusty Frankenia*, or *Sea Heath.* Leaves obovate, retuse, mealy underneath; stems lying flat, slender, branching, with the knots about a finger's breadth from each other; leaves four at a joint, with very short hairs underneath; flowers in the axils of the leaves, sessile; calix tough, rigid, with five angles; teeth upright. Annual. Gerarde and Ray name it *Valentia Knot-grass.* It flowers in July, and is a native of the south of France, Italy, and Spain. It has also been found on the coasts between Bognor and Brighthelmstone.

Fraxinus; a genus of the class Polygamia, order Dicœcia; or class Dicœcia, order Diandria.—Generic Character. *Hermaphrodite. Calix:* none, or a perianth one-leafed, four-parted, upright, sharp, small. *Corolla:* none, or petals four, linear, long, sharp, upright. *Stamina:* filamenta two, upright, much shorter than the corolla: antheræ upright, oblong, four-furrowed. *Pistil:* germen ovate, compressed; style cylindric, upright; stigma thickish, bifid. *Pericarp:* none, except the crust of the seed, (capsule two-celled, leafy, and flatted at top, according to Gærtner.) *Seed:* lanceolate, flatted, and membranaceous, one-celled. *Female*, the same as the male, except that it has no stamina. *Observe.* The first species has neither calix nor corolla. The female has frequently hermaphrodite flowers, and the hermaphrodite has females interspersed. The third species has a calix and corolla, and is always hermaphrodite. Essential Character. *Hermaphrodite. Calix:* none, or four-parted. *Corolla:* none, or four-petalled. *Stamina:* two. *Pistil:* one. *Seed* (or *Capsule:*) one, lanceolate. *Female. Pistil:* one, lanceolate. ——The species are,

1. Fraxinus Excelsior; *Common Ash Tree.* Leaflets lanceolate, serrate, sessile; flowers without petals. The leaves have generally five pairs of leaflets, (four to six,) and one odd one, of a dark green. The flowers are produced in loose spikes from the side of the branches, and are succeeded by flat seeds, which ripen in autumn. The lateral buds produce the flowers, and the terminating one the leaves. Bractes linear, one on the outside at the base of each pedicle: filamenta broad and flat, not so long as the antheræ, which are of a blackish purple colour. There are not only hermaphrodite and female flowers, but also male ones, so that this species should seem referable to the order Dicœcia. Care should be taken in observing the flowers; for in those which are hermaphrodite, the germen which lies between the two stamina does not grow till some days after they appear, so that they seem at first to be male flowers. What Linneus calls a seed, others call a capsule; the seed being covered with a leathery kind of crust, which does not split or open. Its usual time of flowering is in April, before the leaves, sometimes so late as May, from lateral buds, below the leaf-buds, and are greenish, and inconspicuous. Both are sometimes much injured by spring frosts. If a wood of these trees be rightly managed, it will turn greatly to the advantage of its owner; for by the underwood, which will be fit to cut every seven or eight years for hoops, or every fourteen years for hop-poles, &c. there will be a continual income, more than sufficient to pay the rent of the ground, and all other charges, and still there will be a stock preserved for timber, which, in a few years, will be worth forty or fifty shillings the tree. The Ash is, however, a very improper tree for hedge-rows, and the borders of arable land; the drip of it is very unfavourable to all other vegetable productions; it exhausts the soil very much, and the root spreads widely near the surface. Nor, though it be a handsome tree, ought it on any account to be planted for protection or ornament, because the leaves come out late, and fall early. The fertile trees also generally exhaust themselves so much in bearing keys or fruit, that their foliage is scanty, and their appearance unsightly. The trees, however, which bear female flowers only, have a full and verdant foliage, and make a handsome figure, though late in the season. It is well calculated for standards and clumps in parks and plantations, and for groves and woods. It will grow in very barren soil, and in the bleakest and most exposed situations. It is hardy enough to endure the sea winds well, and may therefore be planted on the coast, where few trees will prosper. If planted by ditch sides, or in low boggy meadows, the roots act as underdrains, and render the ground about them firm and hard; the timber, however, is in this case but of little value. It was natural that our remote ancestors, when the island was overrun with wood, should value trees rather for their fruit than their timber: it is no wonder then, that by the laws of Howel Dda, the price of an Oak or a Beech should be 120 pence, while the Ash, because it furnished no food for swine, was valued only at four pence. The *Edda* of Woden, however, holds the Ash in the highest veneration; and man is described as being formed from it. It is probably owing to the remains of Gothic veneration for this tree, that the country people in the south-east part of the kingdom split young Ashes, and pass their distempered children through the chasm, in hopes of a cure. They have also a superstitious custom of boring a hole in an Ash, and fastening in a shrew-mouse; a few strokes with a branch of this tree is then accounted a sovereign remedy against cramps and lameness in cattle, which are ignorantly supposed to proceed from this harmless animal. In many parts of the Highlands of Scotland, at the birth of a child, the nurse or midwife puts one end of a green stick of this tree into the fire, and while it is burning receives into a spoon the sap or juice which oozes out at the other end, and administers this as the first spoonful of liquor to the newborn babe. It is not common to see the Ash of a very great size, although instances of large trees are not wanting. Dr. Plot mentions one of eight feet in diameter, valued at thirty pounds. Mr. Marsham informs us of another in Benel church-yard, near Dumbarton, in Scotland, which, in the year 1768, measured sixteen feet nine inches in circumference, at five feet from the ground. Mr. Evelyn says, that some trees sold in Essex, were one hundred and thirty-two feet in length. Mr. Arthur Young, in his Irish Tour, mentions some of seventy and eighty feet in height, which were only of thirty-five years' growth. The trunk of one on the bank of the Avonmore, was above fourteen feet round, and carried nearly the same dimensions for eighteen feet. An Ash at Dunganstown was twelve feet round, and quite clear of branches for thirty feet, where it measured ten feet round, and the arms extended in beautiful forms twenty-eight yards. At Tiny Park was another, the circumference of which, in the smallest part, somewhat exceeded nineteen feet, or six feet four inches in diameter. At Luttrel's-town, the seat of the Earl of Carhampton, are several Ash-trees, from eleven to thirteen feet six inches round, one of which was sold for thirteen pounds. At Leixlip Castle, is a row of eighteen Ash-trees, on a very bleak exposure, measuring from nine to twelve feet round, with fair stems of considerable height, and fine branching heads. At Donirey, near Clare Castle, in the county of Galway, is an old Ash, that at four feet from the ground measures forty-two feet in circumference, and at six feet high, thirty-three feet: the trunk has long been hollow, so that a little school has been kept in it, although the few branches that still remain are very fresh and vigorous. Near Kennity Church in the King's County, is an Ash, the trunk of which is twenty-one feet ten inches round, and it is seventeen feet high before the branches, which are enormously large, break out. When a funeral of the lower class passes by, they lay the corpse down for a few minutes, say a prayer, and then throw a stone, to increase the heap, which has long been accumulating round the root. Finally, in the church-yard of Lochabar in Scotland, Dr. Walker measured the trunk of a dead Ash, which, at five feet from the surface of the ground, was fifty-eight feet in circumference.—The timber of the Ash is next in value to the Oak, and in some places equal to it. It is hard and

tough, and of excellent use to the coach-maker, wheelwright, and cartwright, for ploughs, axle-trees, fellies, harrows, and many other implements of husbandry; for ladders, oars, blocks for pullies, &c. It is excellent for tenons and mortises, and is in great request among coopers, turners, and thatchers; no wood equals it for palisade hedges, hop-yards, poles, and spars, handles and stocks for tools, spade-trees, &c. When it happens to be curiously veined, the cabinet-makers use it, and call it green ebony. From a remark in Harrison's Description of England, prefixed to Hollingshead, it is plain that the Ash was then esteemed the properest tree for hop-poles. Poles are accounted to be their greatest charge. The Ash makes very sweet fuel, with little smoke, but is apt to crack and fly in burning. Ash pollards are of great service where fuel is scarce; a few of them will produce many loads of lop. The loppings make the most agreeable of all fires, and will burn well either green or dry. It should nevertheless be borne in mind, that if the branches be suffered to grow too large, the lopping will proportionably injure the tree. The Ash has no equal for drying herrings. The ashes of the wood afford very good Potash; and the bark is good for the tanning of nets, and of calf-skins; a slight infusion of it appears of a pale yellowish colour, when viewed against the light, but when looked down upon, or placed between the eye and an opaque object, it is blue. This blueness is destroyed by the addition of an acid; and alkalies recover it again. It will give a good, though not a beautiful, green to cloths which have been blued. In the north of Lancashire, they lop the Ash to feed the cattle in autumn, when the grass is upon the decline, the cattle peeling off the bark. In Queen Elizabeth's time, the inhabitants of Colton and Hawkshead fells, remonstrated against the number of forges in the country, because they consumed all the loppings and croppings, which were the sole winter food for their cattle. In forests, the keepers browse the deer on summer evenings with the spray of Ash, that they may not stray too far from their walk. The leaves have been gathered to mix with tea; and poor people in some places have made a considerable advantage by collecting them for this purpose. Withering prescribes an infusion of the leaves made pretty strong, and taken to the quantity of an ounce and a half, as a good purge, and says that a decoction of two drachms of the bark, or six drachms of the leaves, has been used to cure agues. Vander Mye informs us, that the distilled water of the bark has been given in pestilential diseases with success. A decoction of the bark is very serviceable in the jaundice, dropsy, and other complaints of the liver and other viscera. It has likewise the credit of being singularly useful in the gravel and stone, and not without some degree of probability. A strong lye made from the ashes of the wood is an excellent lotion for scabby heads. If cows eat of the leaves or shoots, the butter made from their milk will be rank; which is always to be remarked in the butter made about Guildford and Godalming, and in some other parts of Surry, where there are Ash-trees growing about all their pastures; whereas in good dairy countries they never suffer an Ash-tree to grow. The truth of this is, however, disputed, and certain it is, that there is no taste in Ash-leaves to countenance the assertion; and it is said, on the contrary, that this is the next tree after the Elm, which the Romans recommended for fodder. Cream is apt to turn bitter at the fall of the leaf, and the reason is generally thought to be, that the cattle then pick up the decayed leaves, particularly the Ash; but the case is the same in the great low pastures, which are open and without trees, as in upland inclosures, which abound in them. The only way to avoid the ill taste in butter at that season, is to churn oftener, and to use the butter whilst it is new. The Germans and Dutch call the Ash *esche* or *asche*; the Danes and Swedes, *aske*; the French, *le frêne*; the Italians, *frassino*; the Spaniards, *fresno*; the Portuguese, *freixo*; in Russia, *jas*, *jasen*, *jassen*, which name prevails in the dialects of the Sclavonian; the English is from the Saxon *æsc*. Ray says, it derives its name from the colour of the bark. We must be careful, however, not to confound, as some have done, this tree with the Mountain Ash, which is totally different from it. This has the epithet *excelsior*, from the loftiness of the trunk; that of *mountain*, from the loftiness of the situation which it delights in.—The varieties of this species are: 1. That with simple leaves, which, however, sometimes has them lobed and even ternate. 2. With pendulous branches, called the Weeping Ash. An uncommonly fine tree of this sort has been growing nearly forty years at Gamlingay in Cambridgeshire; and it is not uncommon in trees of considerable age, especially when growing by the water-side, to see the branches hang down. This variety is now become common in the nurseries, but they are engrafted, and carry too much the appearance of art; imitations are seldom successful, and none of the weeping Ash-trees will ever vie with the Babylonian Willow. 3. With variegated leaves, both yellow and white, or gold-striped and silver-striped, as the nursery-men call them. Micheli mentions some other varieties, but none of sufficient consequence to be enumerated here.—It is pleasant to observe, that amidst the deplorable destruction of valuable timber, the planting of this so extremely useful tree has lately not been neglected: twenty acres have been planted by William Wollaston, Esqr. at Great Finborough, Suffolk; thirty-five by Thomas White, Esqr. at Butsfield, Lanchester, Durham; sixteen acres by Mr. David Kay, at Frindsbury, Kent; 63,000 trees have been planted by Edward Loveden, Esqr. at Buscot, near Farringdon, Berks; 6000 by John Sneyd, Esqr. at Belmont, Staffordshire, between 1784 and 1786; 2000 by Dr. Richard Watson, bishop of Landaff, near Ambleside in Westmorland, in 1788; 42,000 by George Ross, Esqr. Cromarty; and 57,500 by the Earl of Fife, in the county of Murray. The facility with which the Ash is propagated, and adapts itself to any soil or situation, even the worst, the quickness of its growth, and the general demand for timber in every part of the country, for a variety of rural and economical purposes, recommend this tree very much to the planter. As a further encouragement, Mr. Boutcher has given an instance of the great profit of an Ash plantation, in a small experiment, which he thus relates:—On half a rood of heavy meadow, chiefly barren red clay and moss, he planted Ash-trees six years old, and eight feet high, in rows four feet asunder, and two feet distance in the row; after four years he cut them down, within five or six inches of the ground; having more than he wanted, in seven years he sold half for pollards and hoops, for 40s. In six years he cut them again, and sold them for 50s; and at the end of six years more, at the same price. There remained then twenty trees intended to stand for timber, but he was obliged to sell them at twenty-three years' growth for 7s. a tree. Thus would an acre of indifferent ground, properly situated for sale, yield in twenty-three years £115. 10s. without any other expense than digging the ground, for the first five or six years, and cutting the coppice. Care should be taken to cut them slanting with a sharp instrument, leaving all the wounds smooth and clean. Observe, no price is mentioned for the first cutting, which he used himself; and that he found he should have had at least one-third more for the price of the last cutting; he also found that he had planted too thick, and that he should have had more wood if the rows had been

six feet asunder, and the sets three feet distant in the rows.—*Propagation and Culture.* The common Ash propagates itself plentifully by the seeds which scatter in the autumn, so that when they happen to fall in places where cattle do not come, there will be plenty of the plants come up in the spring. But where any person desires to raise a quantity of the trees, the seeds should be sown as soon as they are ripe, and then the plants will come up in the following spring: but if the seeds be not sown till spring, the plants will not appear till the year after; therefore the ground should be kept clean all the summer where they are sown, and not disturbed, lest the seeds should be turned out of the ground, or too deeply buried to grow; for many are too impatient to wait a year for the growth of seeds; so they dig up the ground, and thereby destroy the seeds. When the plants come up, they must be kept clean from weeds during the summer, and if they make good progress in the seed-bed, they will be fit to transplant by the autumn; on this account therefore there should be some ground prepared to receive them, and as soon as their leaves begin to fall they may be transplanted. In taking them up, they should be tenderly treated, in order not to break or tear off their roots: they should be taken up with a spade, and not drawn up, according to the general practice; for as many of the plants which rise from seeds outstrip the others in their growth, so it is frequently practised to draw up the larger plants, and leave the smaller to grow a year longer before they are transplanted; and to avoid injuring those that are left, the others are drawn out by hand, whereby many of their roots are torn or broken off; therefore it is much the better way to take all up, little or big, together, and transplant them out, placing the larger ones in rows together, and the smaller by themselves: the rows should be three feet asunder, and the plants a foot and a half distance in the rows; in this nursery they may remain two years, by which time they will be strong enough to plant where they are to remain, for the younger they are planted out, the larger they will grow, so that where they are designed to grow large, they should be planted out very young; and the ground where the plants are raised should not be better than that where they are designed to grow, for when they are raised in good land, and afterwards transplanted into worse, they very rarely thrive, so that it is much the best method to make the nursery upon a part of the same land where the trees are designed to be planted, and then a sufficient number of trees may be left standing upon the ground, and these will outstrip those which are removed, and will grow to a larger size. Those who live in the neighbourhood of Ash-trees may supply themselves with plenty of self-sown plants, provided cattle be not suffered to graze upon the land, for they will eat off the young plants, and not suffer them to grow; but where the seeds fall in hedges, or where they are protected by bushes, the plants will come up and thrive. To the above short and imperfect directions of Mr. Miller, it cannot be unacceptable to add the following from Evelyn, Dr. Hunter, and Mr. Boutcher: If you would have a considerable wood of Ash at once, prepare your ground as you would for corn, and sow good store of keys, some crab-kernels, &c. with oats: take off your crop of corn in its season, and the year following the ground will be covered with young Ashes, which will either be fit to stand, or, as Mr. Evelyn preferred, to be transplanted for divers years after; and you will find these far better than any you can gather out of the woods, especially suckers which are worth nothing. The sooner they are removed the better: and Ashes of two years thus taken out of the nursery, will often outstrip those taken out of the hedge: you may keep the keys in sand for a winter before you sow them, in a covered airy place. Gather the seeds or keys from healthy young thriving trees, in October or November; having prepared the beds, lower them about an inch, by raking some of the earth into the alleys; sow the seed moderately thick, and then throw the earth back again lightly with a spade, or sift it over them an inch thick, and rake it level. In spring, with a very small light iron rake, the teeth about an inch asunder, remove the moss, pull up the weeds, and sift a little earth over them again. The second spring, in the first open weather in February, rake off the earth as before very gently, sift fresh over them half an inch thick, and in March and April the young plants will appear in abundance: in October, sift some coal ashes half an inch thick over them. Next spring prepare some beds six feet wide, with a path of two feet between each; plant all of a size in each bed at one foot square, first shortening the tap-roots, and also the side ones. They must then be planted out into your nursery, in three rows three feet asunder, and each planted at one foot distance, where they are to remain till they are finally planted out. Mr. Boutcher recommends the seeds being spread in an airy loft, and turned till dry, which will be in three or four weeks, and then mixed with sand, to be sown the beginning of April, on fresh mellow soil, on beds three and a half feet broad, with alleys eighteen inches, and covered three quarters of an inch deep. The seeds will not appear till the succeeding spring; during this time the beds must be kept clean, and in February they must be raked over; if a little rich mould be thrown upon them, it will much promote the growth of the seedlings. In the following February or March remove them, and plant them in drills eighteen or tweety inches asunder, and eight or nine inches in the drill. In October remove them again, planting them in lines three and a half feet asunder, and fifteen or sixteen inches in the line, where they may remain for three years. The trees will now be seven or eight feet high, of a proper size for extensive plantations; where large ones are wanted, remove them every fourth year. Stocks for budding should be planted out in the nursery, a foot asunder, and two feet distant in the rows; when they are one year old, and about the thickness of a bean straw, they will be of a proper size for working: a little after Midsummer is the time for the operation, and care must be taken not to bind the eye too tight; they need not be unloosed before the end of September. In March the head of the stock should be taken off a little above the eye, and by the end of the summer following, if the land be good, they will have made strong shoots: the variegated sorts can be increased only in this manner.

2. Fraxinus Rotundifolia; *Manna Ash Tree.* Leaflets roundish, acutish, doubly serrate, subsessile; flowers with petals. The shoots of the Manna Ash are much shorter, and the joints closer together, than those of the common Ash; the leaflets are shorter, with deeper serratures on their edges, and of a lighter green; the flowers come out from the sides of the branches, are of a purple colour, and appear in the spring before the leaves come out. This tree is of humble growth, seldom rising higher than fifteen or sixteen feet in England. The lower parts of the mountains in Calabria abound with the Manna Ash, which grows spontaneously and without any culture, except that the woodmen cut down all the strong stems that grow above the thickness of a man's leg. Towards the end of July, the gatherers of manna make an horizontal gash, inclining upward, in the bole of the tree as the liquor never oozes out the first day, another cut is given on the second, and then the woodman fixes the stalk of a Maple leaf in the upper wound, and the end of the leaf in the lower one, so as to form a cup to receive the gum as

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 574.

FRAGARIA — *The Chili Strawberry.*

P. 561.

FRITILLARIA — *The Yellow Crown Imperial*

it distils from each gash; the season continues about a month, and the men have only about three carlines, or thirteen pence halfpenny, for every rotolo, which is equal to thirty-three ounces and a third, and is sold for twenty-four carlines and three quarters, or somewhat more than ten shillings; if it be in tubular pieces, the price rises one-third, these pieces are called *manna in cannoli;* and these regular tubes are produced by applying to the incision thin straw, or small bits of shrubs, upon which the manna runs as it oozes out.—Manna is one of the mildest and safest purgatives known, excellently adapted for young children, and weak constitutions; it sheathes sharp acrimonious humours, and is good in disorders of the breast attended with fever and inflammation, as well as in the pleurisy, hooping-cough, gravel, and bilious complaints. It is apt to gripe the patient during the operation, but that inconvenience is easily removed, by adding a small quantity of some warm carminative substance to the dose.—These trees succeed best when planted in an eastern exposure, in order to warm the juices in the morning, and to inspissate those which the heat has sweated out in the evening. This, and the remaining plants of the genus, are commonly propagated in the nurseries by budding or ingrafting upon the common Ash, but are not so valuable as those which are raised from seeds, because the stock grows much faster than the grafts; so that the lower part of the trunk, so far as the stock rises, will often be twice the size of the upper; and if the trees stand much exposed to the wind, the grafts are frequently broken off from the stock after they are grown to a large size.

3. Fraxinus Ornus; *Flowering Ash Tree.* Leaflets ovate-oblong, serrate, petioled; flowers with petals. Miller makes two species out of this. The first is a low tree, about the same height as the preceding; the leaves are much smaller and narrower than those of the common Ash, but are serrate, and of the same dark colour; the flowers have petals. The second, has only or chiefly male flowers; the leaves have but three or four pairs of leaflets, which are short, broad, smooth, of a lucid green, and irregularly serrate; the midrib is jointed, and swells where the leaflets come out; the flowers grow in loose panicles at the ends of the branches, are of a white herbaceous colour, and appear in May.—This species is generally planted for ornament, the flowers making a fine appearance when they are in beauty, for almost every branch is terminated by a large loose panicle, so that when the trees are large, and covered with flowers, they are distinguishable at a great distance.

4. Fraxinus Americana; *American Ash Tree.* Leaflets quite entire; petioles cylindric; the fruits or keys are the same as in the common Ash, but smaller and narrow.—It was first raised from seeds imported from New England.

French Honeysuckle. See *Hedysarum Coronarium.*

French Marigold. See *Tagetes.*

Freshwater Soldier. See *Stratiotes.*

Friar's Cowl. See *Arum Arisarium.*

Fringe Tree. See *Chionanthus.*

Fritillaria; a genus of the class Hexandria, order Monogynia.—GENERIC CHARACTER. *Calix:* none. *Corolla:* six-petalled, bell-shaped, spreading at the base; petals oblong, parallel; nectary an excavation or pit in the base of each petal. *Stamina:* filamenta subulate, approximating to the style, the length of the corolla; antheræ quadrangular, oblong, erect. *Pistil:* germen oblong, three-cornered, obtuse; style simple, longer than the stamina; stigma triple, spreading, blunt. *Pericarp:* capsule oblong, obtuse, three-lobed, three-celled, three-valved. *Seeds:* very many, flat, semiorbicular on the outside, in a double row. ESSENTIAL CHARACTER. *Corolla:* six-petalled, bell-shaped, with a nectareous cavity above the claws; stamina the length of the corolla.——The species are,

1. Fritillaria Imperialis; *Imperial Fritillary,* or *Crown Imperial.* Flowers in a raceme with a coma over them, but naked below; leaves quite entire. It has a large round scaly root of a yellow colour, and a strong odour of a fox; the stalk rises to the height of four feet or upwards, it is strong, succulent, and garnished two-thirds of the length on every side with long narrow leaves ending in points, which are smooth and entire; the upper part of the stalk is naked a foot in length, then the flowers come out all round the stalk upon short footstalks, which turn downward, each sustaining one large flower: above these rises a spreading tuft of green leaves, which are erect, and called the coma. This plant flowers in the beginning of April, and the seeds ripen in July. The principal varieties are: 1. the common crown imperial, of a dirty red colour; 2. yellow crown imperial, of a bright yellow; 3. bright red crown imperial, called *fusai;* 4. the pale yellow crown imperial; 5. the yellow striped crown imperial; 6. the large flowering crown imperial; 7. the broad-leaved late red crown imperial; 8. the double and triple-crowned imperial crown; 9. the double red crown imperial; 10. the double yellow crown imperial; 11. the silver-striped-leaved crown imperial; 12. the yellow striped-leaved crown imperial. The variety with yellow flowers, that with large flowers, and those with double flowers, are the most valuable: but that which has two or three whorls of flowers above each other makes the finest appearance; though it seldom produces its flowers in that form until the second or third year after its removal, the stalks will be taller, and frequently have three tiers of flowers one above another, which is called the triple crown: the stalks of this sort frequently run flat and broad, when they produce a greater number of flowers than usual; but this is only a luxuriancy of nature, not constant, though many of the writers have mentioned it as a particular variety.—As this is one of the earliest tall flowers of the spring, it makes a fine appearance in the middle of large borders, at a season when such flowers are much wanted to decorate the pleasure-garden; but the rank fox-like odour which they emit is too strong for most people, and greatly decreases them in value. The beauty, however, of the plant, and the splendour of the magnificent pendulous flowers, will ever ensure it a place in large gardens and plantations. The singular nectary cannot fail to arrest the attention of a curious observer; it is a white glandular cavity at the base of each petal, and has a drop of limpid nectareous juice standing in it when the flower is in vigour. Another of the wonders of nature may be observed in the peduncles, which bend down while the plant is in flower, but become upright as the seeds ripen. This circumstance, however, is by no means peculiar to this plant, but common to it with many others. The Crown Imperial has the same name in all the European languages: the Germans call it *kaiserkrone;* the Danes, *keiserkrone;* the Swedes, *keisarkrona;* the French, *la couronne imperial,* or *la fritillaire imperial;* the Italians, *la corona imperiales;* and the Spaniards, *la corona imperial.*—*Propagation* and *Culture.* This species may be propagated by seeds, or offsets from the root; the first is too tedious a process for most English florists, because the plants so raised are six or seven years before they flower; but the Dutch and Flemish gardeners, who have more patience, frequently raise them from seeds, and so obtain some new varieties, which amply repay them for their labour. The method of propagating these flowers from seeds being nearly the same as for the Tulip, the reader is requested

to turn to the article *Tulipa*, where there are full directions for performing it. The common method of propagating them here, is by offsets sent out from the old roots, which will flower strong the second year after they are taken from the roots; but in order to have plenty of these, the roots should not be transplanted oftener than every third year, by which time each root will have put out several offsets, some of which will be large enough to flower the following year, so may be planted in the borders of the flower-garden, where they are to remain, and the smaller roots may be placed in a nursery bed, to grow a year or two, according to their size; therefore they should be sorted, and the smallest roots planted in a bed together, which should remain there two years, and the larger by themselves to stand one year, by which time they will have acquired strength enough to flower, so that they may then be removed into the pleasure-garden. The time for taking up these roots, is in the beginning of July, when their stalks will be decayed, and they may be kept out of the ground two months; but they should be laid singly in a dry shady room, but not in heaps or in a moist place, which will cause them to moulder and rot. The offsets should be first planted, for as they are small, they will be apt to shrink when kept long out of the ground. As the roots of these plants are large, they must not be planted too near other flowers; and when they are planted in beds by themselves, they should not be nearer than a foot and a half in the rows, and two feet row from row; they should be planted six inches deep at least, especially the strong roots; they delight in a light soil, not too wet, nor loaded with dung, for if any dung be laid upon the borders where they are planted, it should be buried pretty deep, so as to be two or three inches below the roots.

2. Fritillaria Persica; *Persian Fritillary*, or *Persian Lily*. Raceme almost naked; leaves oblique. It has a large round root; stem three feet high, the lower part closely garnished on every side with leaves, which are three inches long, and half an inch broad, of a gray colour, and twisted obliquely; flowers in a loose spike at the top, forming a pyramid; they are shorter than the other sorts, spread wider at the brim, and are not bent down; they are of a dark purple colour, and appear in May, but seldom ripen their seeds in England. Bauhin says, the root is about the size of an orange, of a taste extremely bitter, but without any remarkable smell. There is a variety called the Small Persian Lily, which Mr. Miller describes as a distinct species, has a much shorter stem and smaller leaves; the stem branches out at the top into several small peduncles, each sustaining one dark-coloured flower.—The plants of this, and the second, third, fourth, and fifth species, are propagated either by seeds or offsets from the old roots. By the first method new varieties will be obtained, together with a stock of roots, which will accumulate more in three years, than those obtained by the latter method would in twenty or thirty years; we shall therefore first treat of their propagation by seed: Having saved some good seed from the fairest flowers, procure some shallow pans or boxes, which must have some holes in their bottoms to let out the moisture; fill these with light fresh earth, laying a few potsherds over the holes, to prevent the earth from stopping them; then, having laid the earth very level in the boxes, &c. sow the seeds pretty thick upon it, and cover them with fine sifted earth about a quarter of an inch thick: the time for this is the beginning of August, for if the seed be kept much longer out of the ground, it will not grow; then place the boxes or pans where they may have the morning sun until eleven o'clock, observing, if the season prove dry, to water them gently, and to pull up all the weeds as soon as they appear, for if they be suffered to remain until they have taken deep root in the earth, they would draw up the seeds also out of the ground whenever they are pulled up. Towards the latter end of September you should remove the boxes, &c. into a warmer situation, placing them close to a hedge or wall exposed to the south; if they are sown in pots, these should be plunged into the ground, but they are best in tubs; these should be covered in severe frost. In this situation they may remain until the middle of March, by which time the plants will come up an inch high; you must therefore remove the boxes as the weather becomes hot, into a more shady situation, for while the plants are young, they are liable to suffer by being too much exposed to the sun, and in this shady situation they may remain during the heat of summer, observing to keep them clear from weeds, and to refresh them now and then with a little moisture, but be careful not to give them much water after their leaves are decayed, which rots their roots. About the beginning of August, if the roots be very thick in the boxes, you should prepare a bed of good light fresh earth, which must be levelled very even, upon which you should spread the earth in the boxes in which the small roots are contained, equally covering it about one-fourth of an inch thick with the same fresh earth; this bed should be situated in a warm position, but not too close to hedges, walls, or pales, which would cause their leaves to be long and slender, and make the roots weaker than if placed in a more open exposure. In this bed they may remain until they flower, which is generally the third year from sowing, at which time you should put down a mark to the roots of all such as produce fair flowers, that at the time of taking them out of the ground, which ought to be soon after their green leaves are decayed, they may be placed in a bed amongst the old roots of this flower, which for their beauty are preserved in the best gardens: but the other less valuable flowers may be planted in the borders of the parterre-garden for their variety, where, being intermixed with other flowers of different seasons, they will make a good appearance. The fine sorts of these flowers should remain undisturbed three years, by which time they will have produced many offsets, and should be taken up when their leaves are decayed, and planted into a fresh bed, taking such of their offsets as are large enough to produce flowers, to plant in the flower-garden; but the smaller roots may be planted into a nursery bed until they have obtained strength enough to flower; but you must never suffer these roots to lie out of the ground when you remove them, but plant them again immediately, otherwse they will perish. During these three years which the roots are to remain in the beds, the surface of the earth should be stirred every autumn with a trowel, observing not to go so deep as to bruise the root, and at the same time lay a thin cover of very rotten dung or tanners' bark upon the surface of the beds, which being washed into the ground, will cause the flowers to be larger, as also the roots to make a greater increase: observe also to keep them constantly clear from weeds, and those roots which you preserve with care, should not be suffered to seed. When a stock of good flowers are obtained, they may be preserved and increased in the same manner as other bulbous-rooted flowers, which is by offsets sent out from their roots, which should be taken off every other year from the finest sorts; but the ordinary flowers may remain three years undisturbed, in which time they will have multiplied so much, as that each root will have formed a cluster, so that if they be left longer together, the roots will be small, and the flowers very weak; therefore, if these are taken up every other year, the roots will be the stronger. These roots may

be treated in the same manner as Tulips, and other bulbous-rooted flowers, with this difference only, that the roots will not bear to be kept out of the ground so long; therefore, if there should be a necessity for keeping them out of the ground any time, it will be best to put the roots into sand to prevent their shrinking. As these flowers come out early in the spring, they make a handsome appearance in the borders of the pleasure-garden, where they are planted in small clumps; for when they stand singly in the borders, they make but a poor figure.

3. Fritillaria Pyrenaica; *Black Fritillary.* Lowest leaves opposite, some of the flowers having a leaf interposed between. The leaves of this species are broader, and of a deeper green, than the common Fritillary; the lower ones opposite, but those above alternate; the stem is a foot and a half high, terminated by two flowers of an obscure yellow colour, and spreading more at the brim than those of the common Fritillary, but turned downwards in the same manner.—It flowers three weeks after the common sort, and is a native of France and Russia. For its propagation and culture, see the preceding species.

4. Fritillaria Meleagris; *Common Fritillary*, or *Chequered Lilly.* All the leaves alternate; stem one-flowered; root a solid bulb or tuber, about the size of a hazel-nut, white, or yellowish-white, roundish, compressed, divisible into several, enclosed by the withered wrinkled bulb of the preceding year, as in a case; stem from six to twelve, fifteen, and even eighteen inches in height; flower usually single, sometimes two, or even three, on the top of the stem, large, pendulous, at first somewhat pyramidal, but afterwards bell-shaped; petals chequered with purple and white, or purple and greenish yellow; in our wild ones the colour is a dull red chequered with a deeper, but without mixture of either green or yellow. It flowers in April and May, and, if the season be mild, at the beginning of the former month, or even the end of March. Many varieties have been sent from Spain, Portugal, and Italy, and many others have been raised from seed by the florists, which differ in the size and colour of their flowers; these amount to a considerable number in the catalogues of the Dutch florists; but as new varieties may be continually produced, and these flowers are no longer in such esteem as they formerly were, it would be useless to enumerate them. Gerarde calls it the *Turkey-hen*, or *Guinea-hen flower*, and *Chequered Daffodil.* The curious and indefatigable Parisian herbalist, John Robin, sent him many plants for his garden, where they prospered, as he informs us, and were then greatly esteemed for ornamenting the English flower-gardens, and the bosoms of the ladies. The Germans call this flower *kiebitzey;* the Dutch, *kievitsbloem*; the Danes, *vibeæg;* the Swedes, *vipaägg;* the French, *la fritillaire, meleagre*, or *panachee, le damier;* the Italians, *fritillaria, giglio variegato, meleagride, fritillaria scaccheggiata;* and the Spaniards, *la fritillaria, el meleagro.* For its propagation and culture, see the preceding species.

5. Fritillaria Cantoniensis. Leaves three-nerved, the upper ones opposite; flowers in pairs, axillary; stem annual, quite simple, hard, slender, round, upright, a foot and a half high; flowers pendulous, the whole dusky purple, and without smell.—Native of Canton in China.

Frog-bit. See *Hydrocharis.*

Fuchsia; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, funnel-form, coloured, superior, deciduous; tube ovate at the base, contracted above it, then gradually widening, patulous, angular; border short, four-parted; parts ovate, acuminate, spreading. *Corolla:* petals four, ovate, acuminate, sessile, spreading, the same length with the parts of the calix. *Stamina:* filamenta four (or eight) filiform, erect, inserted into the tube of the calix below the middle, and a little longer than the tube; antheræ twin. *Pistil:* germen inferior, ovate, below the insertion of the calix constricted; style simple, the length of the stamina; stigma obtuse. *Pericarp:* berry ovate, four-grooved, four-celled. *Seeds:* many, ovate, fixed in a double row to a columnar receptacle in the middle of the berry. Essential Character. *Calix:* one-leafed, coloured, bearing the corolla, very large. *Petals:* four, small. *Berry:* inferior, four-celled, with many seeds.——The species are,

1. Fuchsia Triphylla; *Three-leaved Fuchsia.* Peduncles one-flowered; leaves by threes, lanceolate, entire, pale green, a little firm or coriaceous, sessile. Root woody, branched, reddish; stem herbaceous, upright, quite simple, reddish-green, leafy, two feet high at most; flowers large, very fine, of a very bright scarlet, having eight stamina, not projecting beyond the flower; and the berry is a little larger than an olive, fleshy, soft, reddish-black, somewhat pubescent, of a very pleasant taste; the seeds are small and brown.—Found at St. Domingo, and at Carthagena in New Spain. It is propagated by seeds, which must be sown in pots filled with rich light earth, and plunged into a hot-bed of tanners' bark, where they are to be treated like other seeds from warm countries. In a month or six weeks the plants will begin to appear, when they should be carefully cleared from weeds, and frequently refreshed with water to promote their growth; and when they are about two inches high, they should be taken out of the pot, and separated carefully; then plant each into a small pot filled with light rich earth, and plunge them again into a hot-bed of tanners' bark, being careful to screen them from the sun until they have taken new root; after which they must have fresh air admitted to them every day, in proportion to the warmth of the season, and should be frequently watered. As the season advances and becomes warm, the glasses of the hot-bed should be raised higher, to admit a greater share of air to the plants, which will prevent them from being drawn up weak; and when they are grown so tall as to reach the glasses, they should be removed into the bark-stove, and plunged into the tan-bed. They are too tender to thrive in the open air of this country, even in the hottest part of the year; they should always, therefore, remain in the stove, observing to admit a large share of fresh air in summer, but to exclude the external air in winter; with this management, they will produce their flowers, and make a beautiful appearance in the stove among other tender exotic plants.

2. Fuchsia Coccinea; *Scarlet-flowered Fuchsia.* Leaves opposite, ovate, toothletted; petals obovate, obtuse. This is a shrub, growing to the height of six or seven feet. The leaves are commonly opposite, on short petioles, of a fine green, having the veins tinged with red, with a fine down on them; peduncles axillary, one-flowered, longer than the leaves; flowers pendulous, bright scarlet, with a four-parted calix, four petals, and eight stamina. This is a plant of peculiar beauty, producing its rich pendant blossoms through most part of the summer; the petals in the centre of the flower are particularly deserving of notice; they somewhat resemble a small roll of the richest purple-coloured riband.—It flowers from May to July, and is a native of Chili. It may be propagated in the same way as the first species. Though it will not succeed well in the winter, nor be easily propagated unless in a stove, yet it will flower very well during the summer months in a good green-house or hot-bed frame. It is easily increased by layers and cuttings, as well as seeds. For further particulars, see the first species.

3. Fuchsia Multiflora. Peduncles many-flowered.—Found in South America by Mutis. For its propagation and culture, see the first species.

4. Fuchsia Excorticata. Peduncles axillary, one-flowered; leaves ovate, alternate. This is a very smooth tree. Leaves on long petioles, hoary underneath, very finely serrate; flowers pendulous, very large.—Native of New Zealand. For its propagation and culture, see the first species.

5. Fuchsia Involucrata. Flowers involucred.—Native of Jamaica. For its propagation, &c. see the first species.

6. Fuchsia Rosea. Flower-stalks axillary, single-flowered; leaves fasciculate, unequal and alternate, lanceolate, entire; flowers drooping, with rose-coloured petals and calix.—Found in precipices at Valparaiso, in Chili.

Fucus; a genus of the class Cryptogamia, order Algæ.—Generic Character. *Male Vesicles:* smooth, hollow, with villose hairs within, interwoven. *Female Vesicles;* smooth, filled with jelly, sprinkled with immersed grains, prominent at the tip. *Seed:* produced in clustered tubercles, which burst at their summits. This genus comprehends most of those plants which are commonly called *Sea-Weeds.* Fifty-eight species are enumerated in the *Systema Vegetabilium,* and sixty-eight British species in Dr. Withering's *Botanical Arrangements.* Turton gives a catalogue of 149 species. They may be all used to manure land; or they may be burned to make kelp, which is an impure fossil alkali. Many of them form very beautiful specimens for the *Herbarium,* and are often seen disposed on paper, so as to form a sort of picture. Some of the species are eaten, either fresh out of the sea, or boiled tender, with butter, pepper, and vinegar. If the *Fucus Saccharinus* be washed in spring water, and then hung up in a warm place, a substance like sugar exudes from it. The *Fucus Palmatus* is called by the Irish *dullesh;* by the Scotch, *dills;* and in Northumberland, *dulls* or *dulse.* Being soaked in fresh water, it is eaten either boiled or dried, and in the latter state has something of a violet flavour. It is sold dried in the streets of Dublin, being said to sweeten the breath, and to kill worms. The poor in the north of Ireland eat it boiled. For the fructification, and mode of propagation, of these and other marine plants, the reader is referred to Reaumur, in *Act. Gall.* 1711; Gmelin, *Hist. Fucorum;* and Gærtner, *De Fructibus et Seminibus.*

Fuirena; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* ament oblong, cylindric, imbricate; scales channelled, wedge-shaped, three-keeled, awned at the tip; awn cylindric, straight, shorter than the glume; flowers between the scales, solitary, very small, sitting on a tubercle; glume, besides the amentaceous scales, none. *Corolla:* glume three-valved; valves petal-shaped, obcordate, somewhat membranaceous, flat, quite entire, ending in an awn that is bent in. *Stamina:* filamenta three, linear, inserted into the receptacle between the corolline valves; antheræ linear, erect. *Pistil:* germen large, three-cornered; style filiform; stigmas two, revolute. *Pericarp:* none, except the withered corolla, enclosing the seed. *Seed:* three-cornered, naked, without any villose hairs. Essential Character. Ament imbricate, with awned scales. *Calix:* none. *Corolla:* with three petal-shaped obcordate glumes, ending in a tendril. The only known species is,

1. Fuirena Paniculata. This is a lofty grass. Leaves on the stem, with loose, pitcher-shaped, hairy sheaths; panicles terminating and axillary, composed of cylindric scabrous spikelets; these are oblong, about three lines in length, conglomerate, blackish, imbricate with obovate, concave, rigid scales, having three keels uniting at top into an awn.—Native of Surinam and Jamaica.

Fumaria; a genus of the class Diadelphia, order Hexandria.—Generic Character. *Calix:* perianth two-leaved; leaflets opposite, equal, lateral, erect, acute, small, deciduous. *Corolla:* oblong, tubular, ringent; palate prominent, closing the throat; upper lip flat, obtuse, emarginate, reflex. *The Banner:* nectary, the base of the upper lip prominent backward, obtuse; lower lip entirely similar to the upper, keeled towards the base. *The Keel:* nectary, the keeled base, but in this less prominent; throat four-cornered, obtuse, perpendicularly bifid. *The Wings. Stamina:* filamenta two, equal, broad, one within each lip enclosed, acuminate; antheræ three at the end of each filamenta. *Pistil:* germen oblong, compressed, acuminate; style short; stigma orbiculate, erect, compressed. *Pericarp:* silicle one-celled. *Seeds:* roundish. *Observe.* The stamina are almost the only part of the fructification observed to be constant in this genus. Essential Character. *Calix:* two-leaved. *Corolla:* ringent; filamenta two, membranaceous, with three antheræ on each.——The species are,

* *Corollas with two Spurs.*

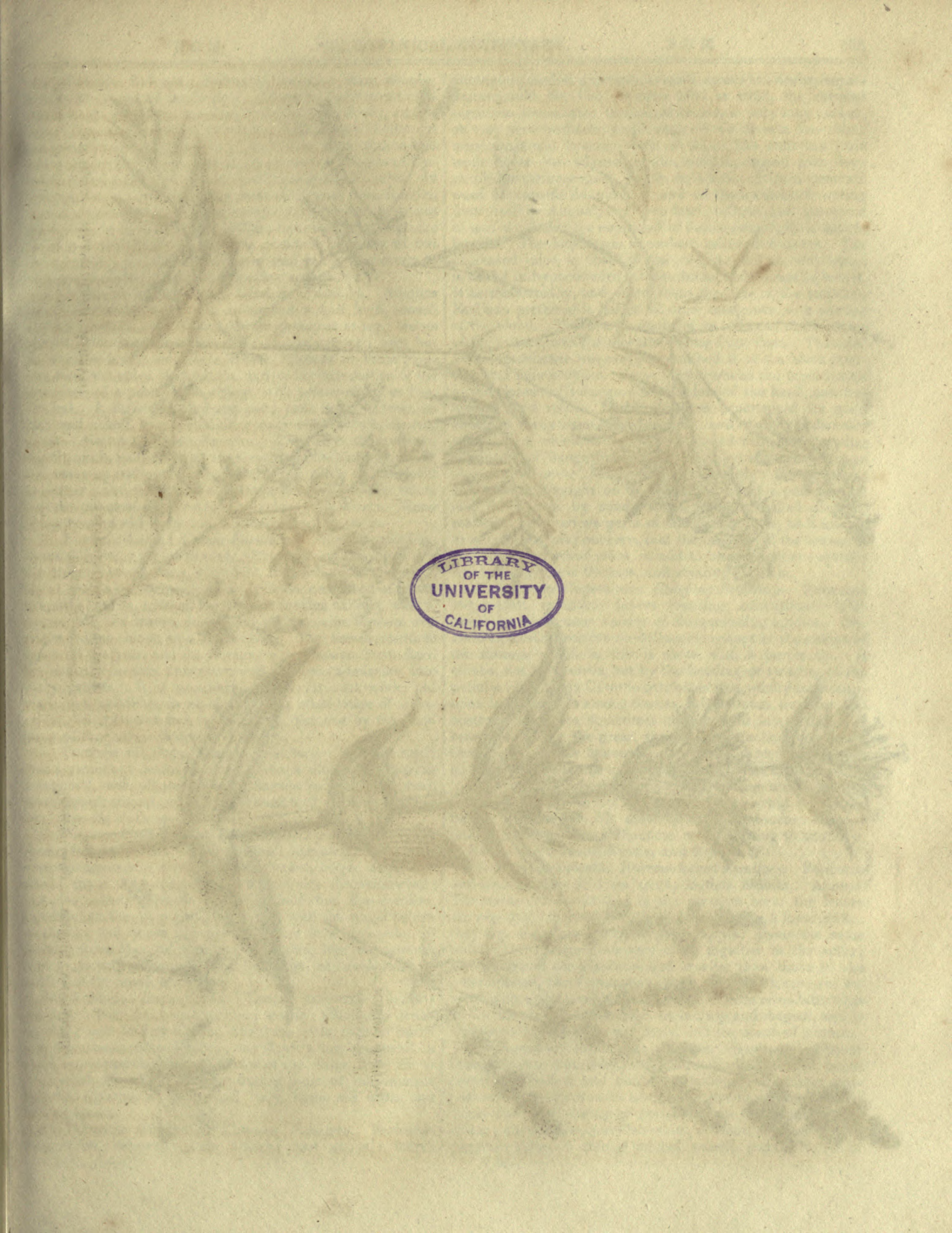
1. Fumaria Cucullaria; *Naked-stalked Fumitory.* Scape naked. Root scaly, the size of a large hazel-nut; flower-stalk eight or nine inches high; root-leaves in pairs, triternate, gashed, smooth, and slender, with red petioles; raceme terminating, simple, the flowers four or five, pendulous; pedicels one-flowered, with a pair of bractes to each, opposite, ovate, red, small; calix ovate, pressed close, small, white; corolla white; border yellow, two-lipped; lips equal, concave, reflex, ovate, entire; throat closed, yellow, the sides widened at the edge, and moistened with nectareous juice. Perennial. It flowers in June and July, and is a native of Virginia and Canada.—It is propagated by offsets from the roots, and loves a shady situation and a light soil. The best time to transplant it is in autumn, when the leaves are decayed, for it shoots pretty early in the spring, so that it would not be safe to remove them at that season.

2. Fumaria Spectabilis. Flowers two-lobed behind; stem leafy, erect. This is a fine plant, with very large handsome flowers. The branches proceed from the axils of the leaves, and are but few. The raceme has no bractes. The corolla is the size of the last joint of the thumb, divided at the back of it into two equal rounded lobes.—Native of Siberia.

3. Fumaria Fungosa; *Spongy-flowered Fumitory.* Flowers bigibbous at the base; siliques linear, ancipital, covered by an inflated fungous corolla; leaves climbing. Annual: flowering from June to September.—Native of North America.

** *Corollas with one Spur.*

4. Fumaria Nobilis; *Great-flowered Fumitory.* Stems simple; bractes shorter than the flower, undivided; root-leaves seven to nine, a span in length, bipinnate; scapes one or two, oblique, five-cornered; raceme very blunt; the flowers directed one way; bractes ovate-lanceolate, entire. Flowers double the size of the fifth species, white, with a yellow border, smelling like Cowslips.—It flowers in May, and is a native of Siberia. Both this and the next species are propagated by offsets, as other bulbous-rooted flowers; they are very pretty ornaments to borders in a small garden. They are extremely hardy, but do not increase very fast, seldom producing seeds with us; and their bulbs do not multiply very much, especially if they are often transplanted. They love a light sandy soil, and should be suffered to remain three years undisturbed, in which time they will produce several offsets. The best season for transplanting them is from May till August, when the leaves begin to die off.


LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Published by Henry Fisher Caxton London. 1823.

5. Fumaria Bulbosa; *Bulbous Fumitory.* Stem simple; bractes the length of the flowers. There are three varieties of this species, which are specifically united by a fleshy, simple root. Linnæus informs us, that they are all natives of different provinces of Sweden: the first, in Scania, both with a red and a white flower; the second, in most of the woods of Upland; and the third, on the coast of Roslag and Finland. As this species is found in most parts of Europe, from Sweden to Italy, Linnæus remarks, as a singularity, that it does not grow wild in England. Mr. Miller, however, says, that the Solid-rooted Bulbous Fumitory is common in many of our old gardens; but that the hollow-rooted one is now rarely to be found in them. See the preceding species.

6. Fumaria Sempervirens; *Glaucous Fumitory.* Siliques linear, panicled; stem erect, a foot and a half high, round, and very smooth, sending out several branches at top; leaves smooth, branching, pale, divided like the common sort, but the leaflets larger, and more obtuse; flowers in loose panicles from the sides of the stem, and at the extremities of the branches, of a pale purple colour, with yellow chaps or lips. Annual. It flowers during summer; pods taper, narrow, an inch and a half long, containing many small, black, shining seeds. Native of North America.—This, with the seventh, eighth, ninth, tenth, twelfth, thirteenth, and fourteenth species, will come up without any trouble, if the seeds be permitted to scatter; and require no other care but to thin them where they are too close, and to keep them clean from weeds. These thrive best on old walls and buildings, and on rocks.

7. Fumaria Lutea; *Yellow Fumitory.* Siliques cylindric; stems diffused; angles obtuse. The root strikes deep into the ground; stems many, succulent, diffused, about six inches high; leaves on long branching petioles, composed of many irregular leaflets, trifid at the top; peduncles axillary, naked, longer than the leaves, supporting eight or nine flowers, of a bright yellow colour, in a loose spike. The leaves continue green all the year, and the flowers in succession, from April to October; so that this plant well deserves admission into every garden. It is peculiarly proper for rock-work, old walls, and buildings, in which the seeds often lodge of themselves, being thrown to a considerable distance by the elasticity of the pods.—Native of Barbary.

8. Fumaria Sibirica; *Siberian Fumitory.* Siliques oval; stems patulous; leaflets oblong; leaves alternate, superdecompound, with oblong leaflets; flowers yellow; pods oval, compressed, smooth, elastic. Annual, and a native of Siberia. See the sixth species.

9. Fumaria Capnoides; *White-flowered Fumitory.* Siliques linear, four-cornered; stems diffused, acute-angled; leaves superdecompound; the terminating leaflets larger, and semitrifid; the middle segment lobed; petioles three-cornered; racemes naked; pedicels shorter by half than the corollas, blackish at the tip; corollas whitish, with the wings yellow at the tip, and drawn to a point. There is a succession of flowers from May till October; and this, like the seventh species, is proper for walls, old buildings, and rock-work.—Native of the south of Europe.

10. Fumaria Enneaphylla. Leaves triternate; leaflets cordate. This has weak trailing stems, which are much divided; and leaflets divided into three parts, each of which has three heart-shaped lobes; the flowers are produced in small loose panicles from the sides of the stalks; they are of a greenish white, and appear during most of the summer months.—Native of Spain and Italy, upon old walls and rocky places.

11. Fumaria Officinalis; *Common Fumitory.* Pericarps one-seeded, racemed; stem diffuse; root annual; leaves alternate, petioled, glaucous, smooth, somewhat fleshy, superdecompound, the last divisions bifid or trifid, the extreme segments lanceolate; flowers alternate, in very long spikes, on very short pedicels, under each of which is a lanceolate membranaceous bracte, purple at top. The calix has little teeth about the edges; corolla reddish, tipped with deep purple, sometimes pale purple or white. It is a common weed in corn-fields, gardens, and on ditch-banks, flowering from April to August, and even later.—Cows and sheep eat it, and the latter are supposed to derive considerable benefit from it. The leaves are succulent, saline, and bitter. The expressed juice, in doses of two or three ounces, with whey, is useful in hypochondriacal, scorbutic, and cachectic habits. It corrects acidity, and strengthens the tone of the stomach. Hoffman preferred it before all other medicines, as a purifier of the blood. There is no doubt of its utility in obstructions of the viscera, and the diseases arising from them. The celebrated Boerhaave frequently prescribed it in the black jaundice and bilious colics. Some people smoke the dried leaves in the manner of tobacco, for disorders of the head, and frequently find relief. Dr. Cullen has experienced its good effects in many cutaneous disorders: and there is a disorder of the skin, which, though not attended with any alarming symptoms of danger to the life of the patient, is thought to place the empire of beauty in great jeopardy; the complaint is frequently brought on by neglecting to use a parasol, and may be known by sandy spots, vulgarly called *freckles*, scattered over various parts of the face. Now, be it known to all whom it may concern, that the infusion of the leaves of the above-described plant, is said to be an excellent specific for removing these freckles, and clearing the skin.

12. Fumaria Capreolata; *Ramping Fumitory.* Pericarps one-seeded, racemed; leaves climbing, subcirrhose. This seems to be a mere variety of the preceding species. Mr. Hudson could perceive no difference, except in the colour of the flowers, which in this is white, with a purple tip. It climbs, not by tendrils, but by the bending or twisting of the petioles; but Louis Gerarde attributes this wholly to its situation in hedges, or among bushes. Dr. Stokes, however, has observed the stem sometimes trailing, and interweaving its branches among the grass, very much branched, sometimes three feet long; the blossoms pale red. The stems are longer and weaker; the leaves more distant, and not so finely divided; the extreme divisions broader and blunter than the foregoing; the spikes of flowers are on longer peduncles, but with fewer flowers on a spike. It must, however, in candour be confessed, that all these differences may be owing to situation —Native of Provence, Silesia, and Britain.

13. Fumaria Spicata; *Narrow-leaved Fumitory.* Pericarps one-seeded, spiked; stem erect; leaflets filiform. Annual. The stalks more erect than in the common sort; the leaves are very finely divided, and the flowers grow in a loose spike; they are of a deep red colour, and appear about the same time. The flowers grow very close together in the spike; and the leaves are glaucous, and smaller than those in the other species, like Camomile. Both stem and leaves are covered with a glaucous bloom. There is little or no bitterness in the leaves.—It flowers with us in July and August, and is a native of Spain, Portugal, Italy, and the south of France.

14. Fumaria Claviculata; *Climbing Fumitory.* Siliques linear; leaves tendril-bearing. Root annual; stems three-cornered, slender, and unable to support themselves, purplish at the base; flowers few, (about five in number, seldom more than two coming to perfection,) in short terminating spikes; corolla pale, greenish-white, or straw-coloured; seeds generally three, in oblong pointed smooth pods.—Native of

Denmark and Britain, in woods and moist hedges, boggy and rocky places in a sandy soil, on the banks of lakes and rivers, and on the thatch of cottages. It is found on Blackheath, and about Charlton and Greenwich; at Snaresbrook near Woodford, in Essex; on the banks of the Trent near Ouseley, in Staffordshire; in the hedges between Bala in Merionethshire and Pimble-meer; above great Malvern tower; about Birmingham; on the rocks of Stonehall near Rawdon, seven miles from Leeds; at Thorpe near Norwich; at Kendal in Westmoreland; near Whitwick in Leicestershire; and in the quarries at Innerkeith in Scotland. It flowers from the end of May to the end of July.

15. Fumaria Vesicaria; *Bladdered Fumitory*. Siliques globular, acute, inflated; leaves cirrhose; pericarp double, composed of the third or outer involucre, arising from the germen itself, and of the capsule within the involucre; involucre large, somewhat leathery, inflated, globular, acuminate at the end, two-valved; the valves cohering with the capsules by means of a thready cellular substance; capsule placed in the axis of the involucre, oblong, acuminate to both ends, a little flatted, membranaceous in the middle, very thin, diaphanous, but at each side thickened, suberous, opaque, one-celled, valveless, bursting irregularly by the involucre when it opens; seeds numerous, rounded, kidney-form, towards the navel slightly flatted, dark-coloured, very smooth, and shining, fixed to the thickened edges of the capsule. The flowers are in loose panicles, from the sides of the stalks, of a whitish yellow colour. It flowers in July. Native of the Cape of Good Hope.—This is propagated by seeds, which should be sown upon a moderate hot-bed in the spring; and when the plants are fit to remove, they must be each planted in a small pot filled with light earth, and plunged again into the hot-bed, where they must be shaded from the sun till they have taken new root; after which, they should have a large share of air admitted to them at all times in mild weather, to prevent their drawing up weak; and, as soon as the season is favourable, they should be inured to bear the open air, to which they may be removed in the beginning of June. At that time they may be taken out of the pots, preserving all the earth to their roots, and planting them in a warm border, where their stalks should be supported with sticks, to prevent their trailing on the ground; and in July the plants will flower, and continue a succession of flowers till the frost destroys the plants. The seeds ripen in autumn.

Fumitory. See *Fumaria*.

Fumitory, Bulbous. See *Adoxa*.

Funaria; a genus of Moss, the same with the *Koelreutera* of Hedwig; founded by him on the *Mnium Hygrometricum* of Linneus and others. It has an angular veil, a double fringe with oblique or twisted teeth, and a very slightly prominent lid.

Fungi or *Fungus*, (from σπογγος, on account of its spongy nature,) Mushrooms: Cryptogamia Fungi, the last order in the last class in the Linnean System, and kept together as one class under every arrangement. Hitherto we know so little about the fructification of Funguses, that we are obliged to take the characters from the general external form. It is evident that they are vegetables, and produce seed, by which they have been propagated; and they seem to belong to the class Monœcia. Hedwig has made some important discoveries respecting the fructification of Funguses, by the use of powerful magnifiers. He thinks he has discovered stamina in the threads, which appear on the edge of the capor pileus, on the membrane or valve, or on the stem itself. The seeds are a dark powder in the gills of the Agarics; in the Boletti they are within the membranes that line the tubes; in Peziza Cyathoides they appear to be enclosed in a sort of pod. The black powder in the Lycoperdon and Mucor was mistaken for animalcules by Baron Munckhausen, and thus the Fungi were on the verge of migrating into the class of the Zoophytes. Mr. Ellis, however, has shewn satisfactorily that the motion of the globules which caused the Baron's mistake, was occasioned by a number of very minute animalcules feeding upon them, and these, being much smaller than the globules, are difficult to detect. Many of the Fungus tribe are much esteemed in foreign countries, as a luxurious food, on account of their high flavour. In England, we generally confine ourselves to the Agaricus Campestris, which is exclusively the mushroom, the morell, and the truffle, and for which we refer our readers to the articles *Agaricus*, *Phallus*, and *Lycoperdon*. In Russia, we are informed, that they are eaten almost indiscriminately, and salted down for winter use. That many have imbibed disease, and some even lost their lives, from eating voraciously or incautiously of Funguses, is certain: it is doubtful, however, whether many of them be really poisonous in the strict use of the word; but the difficulty lies in the discrimination. A great variety of insects feed on the different species, particularly the larvæ or maggots of many of the fly genus. Some Funguses have been found of considerable use in stopping hæmorrhages; and the acrimonious qualities of others will, probably, at some future period, be turned to good account. For farther particulars of this tribe, see *Agaricus*, *Boletus*, *Clathrus*, *Clavaria*, *Helvella*, *Hydnum*, *Lycoperdon*, *Mucor*, *Peziza*, *Phallus*, and *Sphæria*.

Fusanus; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite*. *Calix:* perianth one-leafed, turbinate, half five-cleft, (according to Berg, four-cleft,) clefts ovate-acute, from flat spreading, with the tips gibbose-uncinate, somewhat concave. *Corolla:* none. *Stamina:* filamenta four, linear, grooved in the middle, a little longer than the germen, inserted into the calix near it, and occupying the sinus of it; antheræ roundish, compressed, four-lobed, erect. *Pistil:* germen large, turbinate, almost inferior, wide at top, from flat somewhat concave, striated, quadrangular, with four hollowed sinuses, on each side of the germen, solitary; style thick, very short, subquadrangular; stigmas four, obtuse, cruciform, small. *Pericarp:* a drupe. *Male*. *Calix*, &c. as in the hermaphrodite, but the fruit abortive. Essential Character. *Hermaphrodite*. *Calix:* five-cleft. *Corolla:* none. *Stamina:* four. *Germen:* inferior. *Stigmas:* four. *Male*. *Calix*, &c. like the hermaphrodite. *Fruit:* abortive.——The only species hitherto discovered is,

1. Fusanus Compressus; *Flat-stalked Fusanus*. This is a tree, with compressed and ancipital branches; leaves opposite, obovate, blunt with a point, flat, quite entire, smooth, on short petioles; racemes from the axils of the branches, erect, compressed, scarcely longer than the leaves. The number of parts in the flower, four or five. The fruitful tree has a three-leaved involucre at the base of the germen, with five glands. According to Jussieu, it is a glaucous shrub, with opposite branches.—Native of the Cape. It is propagated by cuttings, planted early in the summer, in a good loamy earth, in pots, set in a glass-case or hot-bed, shaded and watered gently till they have struck root.

Furze. See *Ulex*.

Fustick-wood. See *Morus Tinctoria*.

GÆRTNERA; (so called, in memory of Joseph Gærtner, M.D. F.R.S. author of a most excellent work on the fruits and seeds of plants,) a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, permanent; divisions oblong, obtuse, spreading, nearly equal. *Corolla:* petals five, roundish, large, flat, spreading, torn and ciliate on the edge, nearly equal, with very short claws. *Stamina:* filamenta ten, filiform, very slightly coalescent at the base; nine slender, somewhat erect, shorter than the corolla; the tenth thicker, the length of the petal, bent in at top. Antheræ parallelopiped; nine equal, small; the tenth on the longer filamentum a little larger. *Pistil:* germen superior, three-toothed, small; style filiform, lateral, bent in, the length of the greater stamina, permanent; stigma sharp. *Pericarp:* capsule woody, having four wings, one-celled; wings lanceolate, widening towards the tip, obtuse; one very large, upright; two smaller, patulous; the fourth very small, ascending. *Seed:* single, roundish. Essential Character. *Calix:* five-parted, the leaflets having on the outside a single marginal gland. *Corolla:* five-petalled, somewhat unequal, toothletted, furnished with very short claws. *Seed-vessel:* nearly globose, with four wings.——The only known species is,

1. Gærtnera Racentosa. Four of the petals are white, and the fifth yellow; the seed-vessel is nearly globular, or inversely parabolical, leathery, thin, of a yellowish bay colour, marked on the side with the rudiment of the style; on the top it has a small triangular crest, and on the edge it has three very long leathery wings of an ovate-lanceolate shape, the middle one larger than the others; seed kidney-form, globular, wrinkled, gibbous, ferruginous-reddish. It is a large climbing woody shrub, flowering in the wet and cold season. It is cultivated all over the coast of Coromandel, on account of the beauty and fragrance of its flowers.—Native of the East Indies, in the Circar mountains.

Gahnia; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* glume one-valved, ovate-lanceolate, convolute, two or five-flowered; (according to Linneus, two-valved, one-flowered; valves lanceolate, channelled, acuminate, the outer larger, broader.) *Corolla:* glume two-valved, shorter than the calix; valves ovate-lanceolate, acuminate, concave, the outer a little longer; nectary two-valved, hyaline, involving the filamenta; outer valve larger, ovate-concave, three-toothed at the tip, half the length of the corolline glume; inner ovate, entire, very small. *Stamina:* filamenta six, capillary, short, after flowering elongated; antheræ linear, acuminate. *Pistil:* germen oblong; style filiform, erect, longer than the calix, bifid; stigmas in each division of the calix two, capillary, curved back. *Pericarp:* none. *Seed:* according to Forster, single, oblong; according to Linneus, subangular, smooth, surrounded by the elongated filamenta, so as to be double the length of the corolline glume, permanent. *Observe.* Forster asserts, that the flowers are panicled; calicine glumes in the lowest panicles frequently none; stamina in the flowers seven and eight, but the uppermost flowers are always six-stamined. Essential Character. *Glume:* two-valved, irregular. *Nectary:* two-valved, involving the filamenta. *Stigma:* dichotomous. ——The species are,

1. Gahnia Procera. Panicles spiked, several elongated; florets six-stamined; culm half a fathom in height, round, smooth, upright, reclining at top, the thickness of a pigeon's quill; leaves sword-shaped, longer than the culm, narrow, bristle-shaped at the tip, reclining, concave at the base, sheathing, rough at the edge with rows of minute spinules, alternate; flowers purple, in involucres half an inch in length; seeds brown; number of the stamina in the lower flowers seven or eight, but the upper ones have always six; the lower panicles are often destitute of involucres, and therefore bear naked flowers.—Native of New Zealand.

2. Gahnia Schœnoides. Culms flexuose; panicles compound, spiked, rigid, subsolitary.—Native of Otaheite.

Galanga, Galangale. See *Kæmpferia.*

Galanthus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* spathe oblong, obtuse, compressed, gaping on the flat side, withering. *Corolla:* petals three, oblong, obtuse, concave, lax, patulous, equal; nectary cylindric, three-leaved, half the length of the petals; leaflets petal-shaped, parallel, emarginate, obtuse. *Stamina:* filamenta capillary, very short; antheræ oblong, acuminate, ending in a bristle, convergent. *Pistil:* germen globular, inferior; style filiform, longer than the stamina; stigma simple. *Pericarp:* capsule oval-globular, obtusely three-sided, three-celled, three-valved. *Seeds:* several, globular. Essential Character. *Petals:* three, concave. *Nectary:* of three small emarginate petals. *Stigmas:* simple. ——The only known species is,

1. Galanthus Nivalis; *Snowdrop.* The bulb of the Snowdrop is coated and truncate; leaves yellowish at the base, callous at the tips; scape half a foot or a span in height, ancipital, striated, involved at the base in a pair of leaves; sheath whitish, truncate, involving the leaves and scape. The peduncle usually comes out from the left cell of the spathe, is weak, and wrinkled below the germen; flowers solitary, pendulous; petals milk-white. There are two varieties, one with semi-double, and the other with double flowers.—Native of Austria, Switzerland, Silesia, and England, where it is found in meadows; common in orchards, where it is probably a relick of cultivation: it is seen at the foot of Malvern hills, where no traces of buildings or gardens are to be found; also near Cirencester; but it is very doubtful whether this, and several other bulbous plants, were originally indigenous. It flowers usually in February; and hence is in some places called the *Fair Maids of February.* These flowers are highly valued for their early appearance in the spring, for they usually flower when the ground is covered with snow: the single sort comes out first, and though the flowers are but small, yet when they are in bunches they make a very pretty appearance: therefore these roots should not be planted single, as is sometimes practised by way of edgings to borders, for when so disposed, they produce very little effect. When twenty roots or more grow in a close bunch, the flowers have a fine appearance. As they thrive well under trees or hedges, they are very proper to plant on the sides of the wood-walks, and in wilderness quarters, where, if they be suffered to remain undisturbed, the roots will multiply exceedingly. The roots may be taken up when the leaves decay, and kept out of the ground till the end of August; but they must not be removed oftener than every third year.

Galardia; a genus of the class Syngenesia, order Polygamia-Frustranea.—Generic Character. *Calix:* common, of two rows of scales; scales linear, flat, acute, about twelve in each row; the outer longer, reflex, the inner erect. *Corolla:* compound radiate; corollets hermaphrodite, numerous in the convex disk: females about twelve, much longer, spreading in the ray. Proper in the hermaphrodites, tubular funnel-form, with a five-toothed border; in the females ligulate, wider outwards, half three-cleft. *Stamina:* to the hermaphrodites, filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* to the hermaphrodites, germen turbinate-angular; style filiform, the length of the corollet; stigmas two, spreading. Females, germen very

small; style none; stigma none. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites, solitary, angular, crowned with the five-leaved calicle; leaflets lanceolate, erect, awned: in the females, none. *Receptacle:* convex, (Jussieu says, flat,) chaffy; chaffs bristle-shaped. ESSENTIAL CHARACTER. *Receptacle:* chaffy. *Seed:* crowned with the five-leaved calicle. *Calix:* of two rows of scales, almost equal. ——The only known species is,

1. Galardia Alternifolia. Stem from a foot to eighteen inches high, straight, branched, slightly hispid, tinged with purple; root-leaves oblong, spatulate, with large notches, a little rough to the touch, spread on the ground; stem-leaves alternate, embracing, oblong, having a few blunt indentures along the edge, bright green, and slightly villose, the upper ones are almost entire; peduncles simple, naked, long, terminating, bearing one handsome flower, purple and yellow, two inches in diameter. This fine plant has been cultivated for some years in the royal gardens at Paris: the seeds were brought from Louisiana. It is an annual, flowering in July and August, and continuing to the end of October.

Galax; a genus of the class Pentandria, order Monogynia. —GENERIC CHARACTER. *Calix:* perianth ten-leaved; outer leaflets alternate, shorter, lanceolate, reflex; inner longer, lanceolate, acute, upright. *Corolla:* one-petalled, salver-shaped; tube cylindric, length of the calix; border flat, five-cleft; segments obtuse. *Stamina:* filamenta short, antheræ roundish, converging with the throat of the corolla. *Pistil:* germen ovate, villose; style filiform, semibifid, length of the stamina; stigmas roundish. *Pericarp:* capsule ovate, one-celled, two-valved, coloured, elastic. *Seeds:* two, large, convex, ovate, callous, as it were single, two-lobed. ESSENTIAL CHARACTER. *Calix:* ten-leaved. *Corolla:* salver-shaped. *Capsule:* one-celled, two-valved, elastic.——The only known species of this genus is,

1. Galax Aphylla. This plant is a native of Virginia, as yet very rare, and little known in Europe; leaves all radical; stem naked, simple, probably woody; flowers in a loose terminating spike.

Galaxia; a genus of the class Monadelphia, order Triandria.—GENERIC CHARACTER. *Calix:* spathe one-valved, membranaceous, converging. *Corolla:* one-petalled, superior; tube filiform, long, erect, a little widened at top; border six-parted; parts obovate, obtuse, spreading, the three outer ones having a nectareous pit. *Stamina:* filamenta three, united in a cylinder, antheræ ovate. *Pistil:* germen inferior, obtusely triangular, smooth; style filiform, a little longer than the stamina; stigmas three, filiform, many-parted, spreading. *Pericarp:* capsule oblong-subcylindric, three-grooved, three-celled, three-valved. *Seeds:* very many, globular, very small. ESSENTIAL CHARACTER. Spathe one-valved. *Corolla:* one-petalled, six-cleft; tube capillary. *Stigma:* many-parted.——The species are,

1. Galaxia Ovata. Leaves ovate; root filiform, fixed to an ovate, netted, comose bulb, there are usually several of these conglomerate; stem none: root-leaves heaped, sheathing, ovate, obtuse, slightly veined longitudinally, flat, smooth, the edge somewhat cartilaginous; the calix is a very thin sheath; the corolla is variegated with yellow, purple, and violet; the capsule is smooth. It flowers from June to September.—Native of the Cape of Good Hope.

2. Galaxia Graminea. Leaves linear-filiform; root as in the preceding species; flowers radical, among the sheathing leaves, in bundles, sessile, with a long capillary tube, the length of the leaves; corolla yellow, varying with a yellow tube, and a violet-coloured border.—Native of the Cape.

Galega; a genus of the class Diadelphia, order Decandria. —GENERIC CHARACTER. *Calix:* perianth one-leafed, tubular, short, half five-cleft; teeth subulate, nearly equal. *Corolla:* papilionaceous; banner large, ovate, reflex at the end and on the sides; wings oblong, having an appendage, and being almost the length of the banner; keel oblong, compressed, straight towards the end, gibbous below, sharp above. *Stamina:* filamenta diadelphous, (simple and nine-cleft;) antheræ oblong. *Pistil:* germen slender, oblong; style slender, shorter than the germen, ascending; stigma a very small dot at the end. *Pericarp:* legume very long, compressed, acuminate, scored with oblong streaks between the seeds. *Seeds:* several, oblong, kidney-shaped. ESSENTIAL CHARACTER. *Calix:* with subulate teeth, nearly equal; legume with oblique streaks between the seeds.—— The species are,

1. Galega Officinalis; *Officinal Galega,* or *Goat's Rue* Legumes stiff, upright; leaflets lanceolate, streaked, naked; root perennial, composed of many strong fibres, which are frequently jointed; stems channelled, hollow, from two to three, and even to five feet high; leaves unequally pinnate, composed of five to seven or more pairs of smooth entire leaflets; flowers terminating, in loose spikes, they are of a pale blue colour, appear in June, and are succeeded by taper pods about an inch and half in length, and ripening towards the end of August. There is a variety with white, and another with variegated flowers.—Goat's Rue is esteemed as a cordial, sudorific, and alexipharmic. Mr. Boyle celebrated its virtues in pestilential and malignant diseases. The leaves, gathered just as the plant is going into flower, and dried, with the addition of boiling water, make an infusion, which being drank plentifully, excites sweating, and is good in fevers. Gerarde calls it *Italian Fitch,* and *Goat's Rue.* Native of Spain, Italy, Hungary, and Africa.—This plant is propagated by seeds, sown either in spring or autumn in an open situation. When the plants come up, keep them clean from weeds, till they are strong enough to remove, then take them carefully up, and plant them in a spot well dug and cleared, in rows a foot and a half distant, one foot asunder in the rows, watering them till they have taken new root. Hoe the ground frequently between the plants, and dig it in the spring between the rows. If the stalks be cut down every year before the seeds are formed, the roots will continue the longer, especially on a light dry soil: or if the seeds be permitted to scatter, the plants will come up without any further care.

2. Galega Cinerea. Legumes stiff, spreading; racemes opposite to the leaves; pedicels solitary; leaflets villose underneath; stipules lanceolate. This is a small herbaceous plant, somewhat of an ash colour, seldom growing above eleven or twelve inches in height.—It is common among the bushes in all the savannas about Kingston in Jamaica.

3. Galega Littoralis. Legumes in racemes, the whole villose-tomentose; leaves unequally pinnate, the midrib villose, grooved, two or three inches long; leaflets about six pairs, oblong, attenuated at the base, blunt, quite entire; flowers flesh-coloured, inodorous.—Native of Carthagena, in America, and found every where between the tropics.

4. Galega Virginiana. Legumes back-sickled, compressed, villose-spiked; calices woolly; leaflets oval-oblong, acuminate; root perennial; stem annual, three feet high; leaflets generally seven or nine. The whole plant is covered with a silvery down; flowers red, in spikes at the ends of the branches. Native of North America.—Though this plant is tolerably hardy, it is nevertheless difficult to preserve it in gardens, for the seeds rarely ripen in England, and the plants are often destroyed in winter by the frost. The only method, says Mr. Miller, by which I have been able to keep

these plants, has been by potting them, and placing the pots under a common frame in winter, where they enjoyed the free air in mild weather, but were protected from frost; they have been kept in this way for three years, but never ripened seed in our climate.

5. Galega Villosa. Legumes back-sickled, villose, pendulous, racemed, lateral; leaflets smooth lanceolate, thirteen to seventeen, blunt, with a point, streaked at an acute angle, the lower ones shorter and obovate; stem round.—Native of the East Indies. This, with the following species from the East and West Indies, may be propagated by seeds sown on a hot-bed in the spring: when the plants are strong enough, transplant each of them into a separate small pot, and plunge them into a hot-bed of tanners' bark, shading them until they have taken new root; then treat them as other tender plants, preserving them through the winter in the bark-stove. If they are brought forward early in the spring, and the summer proves warm, the seeds may ripen in England: they will flower in July, and ripen their seeds in September.

6. Galega Spinosa. Legumes solitary, back-sickled, compressed; stipules spinescent; leaflets wedge-shaped, hoary; stem diffused; peduncles axillary, solitary, short, one-flowered; flowers upright, small.—Found in Coromandel, by Kœnig.

7. Galega Maxima. Legumes stiff, ascending, smooth; stipules lanceolate; leaflets oblong, smooth, streaked. This is the largest plant of the genus. Stem angular, smooth, changing situation variously between the joints; calices smooth.—Native of Ceylon.

8. Galega Grandiflora; *Rose-coloured Galega.* Legumes spreading; stipules ovate-lanceolate; leaflets oblong, almost naked, awned; stem shrubby, round, branched, having very minute hairs scattered over it; leaves unequally pinnate; peduncles terminating, erect, elongated; flowers at the top, opposite, approximating, nodding; bractes ovate-oblong, acute, purplish, deciduous; calix tomentose, silky; corolla purple; banner smooth above.—Native of the Cape.

9. Galega Palleus; *Pale-coloured Galega.* Legumes stiff, spreading, ciliate; stipules awl-shaped; leaflets nine to eleven in number, oblong, sharp, pubescent underneath. It flowers in July.—Native of the Cape of Good Hope.

10. Galega Piscatoria; *Woolly Galega.* Legumes stiff, ascending, subvillose; stipules awl-shaped; leaflets eleven to thirteen in number, oblong, blunt, somewhat hairy underneath; peduncles ancipital. It flowers in June and July.—Native of India, and the South Sea islands.

11. Galega Purpurea; *Purple Galega.* Legumes stiff, ascending, smooth, racemed, terminating; stipules awl-shaped; leaflets oblong, smooth. The stem is less angular and straighter than that of the seventh species, and reddish; the flowers narrower than the leaves; bractes ovate; flowers with capillary peduncles. Mr. Miller says, that this plant was annual here; that it had an herbaceous stalk two feet high; that the leaves had eight or nine pairs of leaflets; that the peduncles came out opposite to these; and that the flowers were small, purple, in a loose spike, and succeeded by slender erect pods. It flowered in July and August. The seeds were received from Ceylon, and many other parts of the East Indies.

12. Galega Caribbæa. Legumes stiff, smooth, pendulous, racemed; leaflets smooth, mucronate; stem shrubby. This is an upright, branched, slender shrub, two feet high; stipules bristle-shaped, entire; racemes axillary, loose, simple, stiffly spreading, solitary, longer than the leaves, six-flowered, or thereabouts; flowers inodorous, red and white variegated; seeds black, shining. -Native of the Caribbee islands.

13. Galega Cœrulea. Racemes terminating, many-flowered, contracted; leaflets eight to ten pairs, elliptic, blunt; stem scabrous; branches ferruginous, tubercled with black dots, on the top of the stem, tomentose; stipules awl-shaped; racemes upright; flowers numerous, heaped, blue.—Found in South America, by Mutis.

14. Galega Tinctoria. Spikes lateral, peduncled; legumes stiff, pendulous. This is a very handsome plant; the stems naked, flexuose, smooth, angular; leaflets eleven, emarginate, oblong, blunt, smooth above, silky underneath, hairy, streaked, the lower ones shorter; peduncles from each axil naked, spiked at the end, the length of the leaves, smooth; calices subvillose. It is from this plant that the inhabitants of Ceylon prepare their indigo, which yields a dye of a pale blue colour.—Native of Ceylon.

15. Galega Senticosa. Legumes in pairs, lateral, smooth; leaflets emarginate, silky underneath; stem shrubby. This is a woody shrub, with a roundish stem and a brown bark; leaflets usually nine, obovate, streaked.—Native of Ceylon.

16. Galega Pulchella. Legumes straight, villose, pendulous, racemed; stipules awl-shaped; standard above, and leaves underneath, villose; root annual, or biennial; stem reddish-brown, somewhat villose, at a small distance from the root, producing branches which subdivide into others; branchlets streaked, somewhat angular, villose, and sometimes so copious that they seem to weigh down the whole plant.—Native of the Cape of Good Hope.

17. Galega Frutescens. Leaflets ovate; flowers panicled, axillary; stem shrubby.—Discovered at Campeachy.

18. Galega Tomentosa. Legumes stiff, ascending, villose, racemed, opposite to the leaves; pedicels in threes; leaflets silky underneath; stipules awl-shaped; stem villose-tomentose, angular; flowers remote, on villose pedicels.—Native place uncertain.

19. Galega Toxicaria; *Poisoning Galega.* Spikes terminating, peduncled; legumes cylindric, pedicelled, spreading; stem and leaflets hoary-tomentose. This is a spreading shrubby plant, rising generally to the height of five or six feet: the leaves and branches, well pounded, and thrown into a river or pond, very soon affects the water, and intoxicates the fish, so as to make them float on the water as if dead; most of the larger fish recover after a short time, but the greater part of the small fry perish on these occasions.—It is a native of South America, from whence it has been introduced into Jamaica, and cultivated there on account of its intoxicating qualities.

Galenia; a genus of the class Octandria, order Digynia.—Generic Character. *Calix:* perianth very small, four-cleft, concave; divisions oblong. *Corolla:* none. *Stamina:* filamenta eight, capillary, scarcely the length of the calix; antheræ twin. *Pistil:* germen roundish; styles two, simple, reflex; stigmas simple. *Pericarp:* capsule roundish, two-celled. *Seeds:* two, oblong, angular. Essential Character. *Calix:* four-cleft. *Corolla:* none. *Capsule:* roundish, two-seeded.——The species are,

1. Galenia Africana; *Upright* or *Shrubby Galenia.* Erect, shrubby: leaves linear, fleshy; stem four or five feet high, sending out many weak branches; flowers in loose panicles from the sides and at the ends of the branches, very small, greenish-white, and making little appearance.—It flowers from June to August, and is a native of the Cape of Good Hope. Neither this nor the next species can endure the rigours of an English winter in the open air, but must be placed in the green-house, or under a frame, with other hardy exotic plants, where they may have a large share of air in mild weather, for they only require to be protected from the

frost. In the summer they may be exposed in the open air, with other plants of the same country, and in dry weather they must be frequently watered. They may be both propagated by cuttings, which, when planted during any of the summer months, and frequently watered, will take root in five or six weeks, and may then be treated in the same way as the old plants.

2. Galenia Procumbens; *Trailing Galenia.* Leaves ovate, channelled, with spreading recurved points.—Grows at the Cape of Good Hope.

Galeopsis; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, five-toothed, ending in awns the length of the tube, permanent. *Corolla:* monopetalous, ringent; tube short; border gaping; throat a little wider than the tube; at the length of the calix, above the base of the upper lip, putting out on each side an acuminate toothlet, concave underneath; upper lip roundish, concave, serrate at the tip; lower trifid, the lateral divisions roundish, the middle one larger, emarginate, notched. *Stamina:* filamenta four, subulate, concealed beneath the upper lip, two of them shorter; antheræ roundish, bifid. *Pistil:* germen quadrifid; style filiform, length and situation of the stamina; stigma bifid, acute. *Pericarp:* none; calix stiff, straight, containing the seeds in the bottom. *Seeds:* four, three-sided, truncate. *Observe.* The first species has the upper lip of the corolla scarcely notched; it is reflex a little at the tip. Essential Character. *Corolla:* upper lip notched a little, vaulted; lower has two teeth above.—All the species, except the fourth, are annual, and must be propagated from seeds; but being common weeds, are seldom cultivated in gardens: they are not, however, very injurious weeds, nor very difficult of extirpation.——The species are,

1. Galeopsis Ladanum; *Red Deadnettle,* or *Nettle-hemp, Narrow-leaved All Heal,* or *Ironwort.* Internodes of the stem equal; whorls remote; calices not pungent; leaves petioled, of a pale green colour, linear-lanceolate, almost naked; root annual; stem upright, a foot high, purplish, somewhat hairy, or nearly smooth, brachiate, the knots scarcely swoln; corolla reddish purple, and somewhat villose; upper lip toothed, lower lip bent back, irregularly notched, with two oval yellow spots within, but underneath and on the outside many small white globules. It is common in cornfields in a calcareous soil, flowering from June to August.

2. Galeopsis Villosa; *Hairy Deadnettle,* or *Nettle-hemp; Yellow Ironwort.* Internodes equal; whorls remote; leaves lanceolate-serrate, villose; root annual, branched; stem thicker, higher, and more branched, than the foregoing, purplish, obscurely quadrangular, grooved, and villose.—Native of Germany, Switzerland, and England, as in sandy cornfields of Cambridgeshire, Nottinghamshire, Yorkshire, and Lancashire; and about Bangor in Wales: flowering in July and August.

3. Galeopsis Tetrahit; *Common* or *Hemp-leaved Deadnettle.* Internodes thickened at top; upper whorls almost contiguous; calices somewhat pungent; root annual; stem upright, covered with stiff hairs, swoln under the joints; flowers sessile, seventeen or eighteen in a whorl, each whorl supported by a pair of leaves, and subulate, thorny bractes; corolla twice as long as the calix, either purple or white, with a spot on the lower lip, variegated with purple and yellow: every part of this plant is rough with very sharp prickles, and has a strong smell when bruised. In Yorkshire it is called *dea-nettle,* which is probably a corruption of *dead-nettle.*—There is a variety, the flower of which is large and elegant, about twice the size of the above; the corolla is four times as long as the calix, straw-coloured, and the lower lip spotted with purple. Haller, Miller, Pollich, and Krocker, make it a separate species; but the structure of the whole plant is the same, only the parts are much larger and softer. There are several other varieties, but none worth enumerating.—Native of Germany, Switzerland, and Sweden: it is found in the northern counties of Great Britain; also at the bottom of Bibton lane, near Woodford. It grows in corn-fields, and on the borders of them, on waste grounds, in coppice-woods, &c. flowering in July and August.

4. Galeopsis Galeobdolon; *Yellow Deadnettle,* or *Nettle-hemp.* Six flowers in a whorl; involucre of four leaves; (flowers six to twelve, with an involucre of as many leaves as flowers.) There has been a great diversity of opinion respecting this species; some have asserted it to be of another genus: we shall however leave it where Linneus has placed it. Root perennial; stems several, somewhat hirsute, furrowed, those producing flowers are nearly upright, from a foot to two feet in height, the barren stems, after flowering time is past, extend to a great length and creep. It flowers in May and June, and is found with variegated leaves.—It is a native of Sweden, Germany, Switzerland, Austria, Carniola, Italy, and England, where it is frequent, as in Charlton, Hampstead, and some other woods near London: in Kent, Essex, Cambridgeshire, Suffolk, Norfolk, Worcestershire, Staffordshire, and Warwickshire.—This plant is perennial, and may be propagated plentifully by the runners which it throws out too abundantly. When the foliage is variegated, it makes a beautiful appearance in a garden. This being a wood plant, it should not be much exposed to the sun.

Galium; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth very small, four-toothed, superior; in some species none. *Corolla:* one-petalled, wheel-shaped, four-parted, sharp, without any tube. *Stamina:* filamenta four, subulate, shorter than the corolla; antheræ simple. *Pistil:* germen twin, inferior; style filiform, half two-cleft, length of the stamina; stigmas globular. *Pericarp:* berries two, dry, globular, united. *Seeds:* solitary, kidney-form, large. *Observe.* Some species have two styles. Essential Character. *Corolla:* one-petalled, flat. *Seeds:* two, roundish.—Most of the plants of this genus being destitute of beauty, and being subject to spread, and overrun whatever plants grow near them, are seldom cultivated, except in botanic gardens; the perennials may be easily propagated by parting their roots either in spring or autumn; and they will grow in almost any soil and situation. If the annuals be permitted to scatter their seeds, they will maintain themselves in a garden without any culture, except that of preventing other weeds from overgrowing them.——The species are,

* *With a smooth Fruit.*

1. Galium Rubioides; *Madder-leaved Ladies' Bedstraw.* Leaves in fours, lanceolate-ovate, equal, scabrous underneath; stem erect, purplish-brown; the panicle of flowers is short and conglomerate; corolla white; seeds very smooth and glossy. Perennial.—It flowers in July, and is a native of the Palatinate, Silesia, and Idria.

2. Galium Palustre; *White Ladies' Bedstraw.* Leaves in fours, obovate, unequal; stem flaccid, branched from the joints, a foot long, the corners set with sharp hooked prickles pointing downwards; root slender, creeping, perennial; flowers numerous, white, on lateral and terminating peduncles, which are usually trifid, and subdivided.—It flowers in July, and is common on the banks of rivers, ditches, and moist meadows.

3. Galium Trifidum. Leaves in fours, linear; stem pro-

cumbent, scabrous; corollas trifid: root annual, very small and slender; peduncles usually in threes, very slender, the length of the leaves, one-flowered; the flowers very small, white, and three-parted; stamina three; fruit very small, smooth and even. It flowers in July.—Native of Denmark, Silesia, and Canada.

4. Galium Montanum; *Mountain Ladies' Bedstraw.* Leaves in fours, or thereabouts, linear, smooth, and even; stem weak, scabrous; flowers in trifid corymbs, white, purplish on the outside before they expand; antheræ brown. The flower is among the largest of this genus; peduncles branched, many-flowered, ending in a kind of convex umbel; the peduncle swells under the seeds.—Native of Germany and Switzerland.

5. Galium Procumbens; *Trailing Ladies' Bedstraw.* Leaves on the flowering-stem in sixes, lanceolate, and slightly hairy; the rest generally in fours, obovate; stem prostrate, smooth. Perennial. The stems and branches are matted together, and spreading on the ground; flowering-stem from two to six inches high, twisted, appearing cylindrical to the naked eye, but, when magnified, to have four rounded corners.—It flowers from June to August; and is found in Dudley wood, in marshes, and on heaths and mountains.

6. Galium Lucidum. Leaves four to six, rigid, subulate, bowed upwards; flowers panicled, terminating, larger than the fruit, which is wrinkled; stem very much branched next to the root: flowering-stems upright, simple, sharply quadrangular, herbaceous, green; flowers in a terminating panicle; corolla white, larger than the fruit, which is oblong-ovate, bowed in, black, and wrinkled.—Native of dry places in the county of Nice, and probably of Dauphiny.

7. Galium Tinctorium; *Dyeing Ladies' Bedstraw.* Leaves on the stem in sixes, and linear, on the branches in fours; stem flaccid; one or two flowers on a peduncle. This species abounds in the woods of Canada; the roots are employed by the Indians in dyeing the quills of porcupines red. The French women in Canada sometimes dye their clothes with these roots, which are but small; the colour produced from which, is unchangeable by either air, water, or sun.

8. Galium Uliginosum; *Marsh Ladies' Bedstraw.* Leaves in sixes, lanceolate, serrate-prickly backwards, mucronate, stiff; corollas larger than the fruit; root perennial, creeping, slender; stems from procumbent erect, often putting out roots at the base, from a finger's length, to a foot or eighteen inches; the corners rough, with very minute prickles; two or more branches springing from each joint; flowers in panicles at the ends of the stem and branches, in trifid divisions; peduncles very short; at the base of these a pair of leaflets or bractes; corolla white, larger than the fruit. It flowers in July and August, and is a native of Sweden, France, Germany, Switzerland, and Great Britain, where it is found on wet heaths, in bogs, low meadows, by river sides, and in other watery places.

9. Galium Spurium; *Corn Ladies' Bedstraw.* Leaves in sixes, lanceolate, keeled, scabrous, prickly backwards; joints simple; stem quadrangular, prostrate, hardly branched, prickly downwards at the corners; peduncles axillary and terminating, bowed in, three-flowered, all the flowers hermaphrodite; seeds globular, smoothish; style bifid; stigmas globular; bractes subulate at the base of the pedicels. It is an annual plant, and flowers in June and July, and even later in the stubble after the corn is off. It is very common in the corn in Cambridgeshire, especially where the soil is calcareous, as about Gogmagog hills, Linton, &c. It is also found in various parts of Oxfordshire, and, according to Hudson, in the isle of Thanet; near Leatherhead, and other places in Surry; near Stamford; and in the Isle of Wight.

10. Galium Tricorne; *Three-horned Ladies' Bedstraw.* Leaves from six to eight, the upper surface smooth, the rib underneath rough; peduncles lateral, almost naked, trifid; pedicels bowed back; fruit tubercled; umbels on peduncles, generally two to a whorl, opposite, dividing into three branches, not leafy at the base; fruit roughish, beset with minute tubercles, but which do not end in hairs.

11. Galium Anglicum; *English Ladies' Bedstraw.* Leaves about six, lanceolate, acuminate, reflex, ciliate, prickly; stems from a foot to eighteen inches high; flowering branches opposite, spreading, rough with prickles, pointing backwards; corollas smaller than the fruit; root annual, branched; panicle terminating; peduncles trifid; corolla greenish-yellow, small. The prickly hairs at the edge of the leaves point forwards, and sometimes there are a few scattered hairs on the surface; peduncles smooth, generally dividing into three, one of them supporting two flowers, sometimes dividing simply into two or three; flowers herbaceous; seed small, roundish, and not so rough as in most other species.—Found on walls at Hackney and Eltham by Sherard; and by Mr. Crowe, on the walls of Binham church in Norfolk. Hudson observed it in sandy ground, between Dartford and Northfleet, and on a wall at Farningham in Kent.

12. Galium Saxatile; *Rock Ladies' Bedstraw.* Leaves in sixes, obovate, obtuse; stem very much branched, procumbent. It is scarcely a hand high; root large, producing a prodigious number of angular stems; peduncles one-flowered, very short, scarcely emerging from the leaves, even when the seed is ripe; seed very large, wrinkled.—Native of Spain and Switzerland, where it is found on mountainous rocks.

13. Galium Pyrenaicum; *Pyrenean Ladies' Bedstraw.* Leaves in sixes; flowers lateral, opposite, subsessile, solitary; stems weak, of a finger's length, and branched; the internodes scarcely the length of the leaves, which are smooth, somewhat convex, and mucronate.—Native of the Pyrenees.

14. Galium Minutum; *Small Ladies' Bedstraw.* Leaves in eights, lanceolate, mucronate, serrate, prickly, smooth, incurved; fruits reflex; stem quite smooth, not scabrous even about the edge; fruits fleshy, large, with the peduncles reflex, whence they are conglomerate. Perennial.—Native of Russia.

15. Galium Pusillum; *Dwarf Ladies' Bedstraw.* Leaves in eights, hispid, linear, acuminate; fruit smooth; peduncles dichotomous; root branched, perennial; stems numerous, from three to ten inches high, branched, the corners commonly rough with prickles: they form large tufts, covered with numberless milk-white flowers, which are very conspicuous at a distance. Not only the corners of the stem, but the edges and midribs of the leaves, are rough, with short spreading hairs.—Native of Provence. It has been found on the lime-stone hills near Kendal in Westmoreland, flowering in August; and also near Matlock Bath, in Derbyshire, flowering in July.

16. Galium Verum; *Yellow Ladies' Bedstraw*, or *Cheese-rennet.* Leaves in eights, linear, grooved; flowering-branches short; root perennial, creeping, slender, somewhat woody, of a yellow colour; stem from one to two feet high, upright, slightly four-cornered, somewhat flexuose, scabrous, pubescent, below slightly, above more obviously, pale green, branched towards the top; the joints cylindric, subovate, whitish, surrounded with a slight margin; branches brachiate, opposite, alternately much shorter; flowers in a panicle, numerous, small, with a peculiar odour. The panicle about a span in length, interruptedly branched; the branches

many-flowered, unequal, leafy, with single leaflets on the pedicels; corolla yellow. It is observed by Dr. Withering, that the segments of the corolla are greatly expanded, that the style is cloven more than half way down, and that not only the corolla, but the stamina and pistil, are yellow.—It is an almost universal opinion, that the flowers and herb of this plant will curdle milk. Both Dioscorides and Galen attribute to it this quality; and Matthiolus informs us, that the Tuscans use it for this purpose, in order that the cheese they make from the milk of goats and sheep, may eat the sweeter. Gerarde, who was himself a Cheshire man, says, that in his county, especially about Namptwich, they use it in their rennet, esteeming that to be the best cheese that is made with it; and in some of the Western Isles, they curdle milk with a strong decoction of this herb. Though, says Mr. Miller, no coagulation has followed the experiments which I have seen tried, yet I should not, perhaps, have ventured to dispute the fact, were I not supported by Bergius and Krocker, who could not succeed in coagulating milk with this herb alone. It has been probably put into the milk designed for cheese-making, not so much for the purpose of curdling it, as of giving it a flavour; or, as Matthiolus expresses it, to make it eat the sweeter. The French prescribe the flowers in hysteric and epileptic cases. Both flowers and leaves are sensibly acid to the taste, and the flowering-tops, committed to the still as soon as gathered, afford, says Lewis, a pretty strong acid liquor, in a moderate heat. Hence it appears, that the restringent and refrigerating virtues ascribed to this plant, are not grounded on mere conjecture. An infusion of the plant in boiling water, is esteemed useful in the gout, rheumatism, and sciatica. The leaves and branches dried, and reduced to powder, are sometimes taken internally for spitting of blood, and other hæmorrhages, with success; and have also been said to cure cancerous ulcers. The flowers, digested for six weeks in oil of olives, make it a more efficacious ointment for burns and scalds. Made into syrup, they are said to promote the menses; and a bath or fomentation of them cures the scabs in the heads of children. The flowering-stems, when boiled in alum-water, yield a dye of a good yellow colour. The roots, though small, afford a very fine red dye, not inferior to madder; indeed, an ingenious gentleman, who was conversant in dyeing, assured Mr. Curtis, that the roots produced a brighter colour than madder; and, on that account, the experiment of their cultivation may be well worth trying, especially as the rest of the plant may be successfully used in dyeing yellow. They were cultivated a few years since, under the direction of the committee of privy council for trade. The roots were supposed on an average to weigh seven ounces; and the produce, when dried, to be twelve hundred and a half per acre.—This plant is common in most parts of Europe, in pastures, and by the sides of fields and roads, in a dry soil, flowering from June to August and September. It will flourish in the most unremitting drought, when not a blade of grass is to be seen. The best soil for it is a sandy loam; heavy soils will not answer. Prepare the land as for flax; sow four pounds of seed on an acre. In April, hoe out the plants to six inches square. The crop will require three or four hoeings more in the first season. In May or June, take up as many plants as will leave the rest at the distance of one foot square; and in March following take up again as many as will leave the rest standing at two feet square; and in the fourth, take up the whole crop in March; keeping it always free from weeds. Besides the names set down in the title, Gerarde says, it is called *Maid's-hair* and *Petty Mugwet*, which last is derived from the French, *petit muguet*. The common name, *Bedstraw*, is from the verb to *strew* or *straw*, for, before the invention of feather-beds, a variety of herbs were used to *strew beds* with, of which this was undoubtedly one.

17. Galium Erectum; *Upright Ladies' Bedstraw*. Leaves mostly in eights, lanceolate, with fine prickly serratures; panicles trichotomous; stem flaccid; root perennial, branched. Stems several, rather upright, swelled at the joints, roughish at the corners, a little hairy, branched; flowering-branches opposite; panicle terminating, dividing into three; flowers white; seeds small. It flowers in June and July, and is found in meadows, and moist pastures. Mr. Bryant observed it on Heydon common in Norfolk.

18. Galium Mollugo; *Great Ladies' Bedstraw*. Leaves in eights, ovate-linear, subserrate, spreading very much, mucronate; stem flaccid; branches spreading. The whole plant is smooth to the touch; root perennial, creeping; stem two, three, and four feet high, and even more, generally depressed, unless supported by the weight of the branches, quadrangular, (by which it is distinguished from the next species,) thickest just above the joints; flowering-branches very much extended, sustaining abundance of white flowers, the four segments of which are lanceolate and pointed; they rise from the whorls of leaves, generally two long and two short ones from each whorl, forming in the whole a panicle. There are several varieties.—It is common in hedges and bushy places, flowering from June to August. It is called *Wild Madder*, and *Great Bastard Madder*. The roots yield a red dye like the true madder, and of brighter colour: it is also remarkable, that the animals feeding on this plant, as well as those feeding on madder, have their bones dyed red.

19. Galium Sylvaticum; *Wood Ladies' Bedstraw*. Leaves in eights, smooth and even, but scabrous underneath; a pair of floral leaves on capillary peduncles; stem smooth and even. Stems lofty, weak, smooth and even, very obscurely cornered or roundish; peduncles elongated, the outmost often two-flowered, and near these two leaflets; flowers very minute, nodding before they open. The root is perennial, yellowish on the outside, and affords a very fine red dye like the last.—It flowers from June to August, and is a native of woods in Germany, Switzerland, and the south of Europe.

20. Galium Linifolium; *Flax-leaved Ladies' Bedstraw*. Leaves in sevens or thereabouts, linear-lanceolate, smooth and even; peduncles capillary; stem upright, four-cornered. It flowers in June and July, and is perennial.—Native of the south of Europe.

21. Galium Rigidum; *Rigid Ladies' Bedstraw*. Leaves whorled, linear, scabrous above; panicles divaricate; stem upright, roundish, hairy, and roughish. Perennial; flowering in June.

22. Galium Aristatum; *Bearded Ladies' Bedstraw*. Leaves in eights, lanceolate, smooth and even; panicle capillary; petals awned. Perennial. The whole plant is smooth and even; stem a foot high: leaves eight or nine in a whorl, nicely lanceolate, by no means stiff. It flowers in July.—Native of Italy, on Monte Baldo and Cenisio.

23. Galium Scabrum; *Rough Ladies' Bedstraw*. Leaves about eight, scabrous, mucronate. Perennial: stems upright, closely beset with very short soft hairs. There is no appearance of prickles on the stem or leaves: flowering-branches opposite, one always shorter than the other; peduncles smooth.—Found by Dr. Stokes in a hedge-row in a marly soil on the side of Red House lane, near Worcester; and by Professor Jacquin, in Austria. It flowers in August.

24. Galium Sylvestre. Leaves six to nine, linear-lanceo-

late, quite entire, awned; stems angular, decumbent; root small, very slender, creeping; panicles terminating, and axillary, short; peduncles branched, not very leafy, bifid or trifid; corolla white; style very deeply cloven; seeds minute, round, cloven. Haller informs us, that it is common by the way-sides, in corn-fields, and stony parts of France, Germany, and Switzerland: it is also found in the Alps, where it becomes a more humble creeping plant.

25. Galium Hierosolymitanum. Leaves in tens, lanceolate-linear; umbels fastigiate.—Native of Palestine.

26. Galium Glaucum; *Glaucous Ladies' Bedstraw.* Leaves linear; peduncles dichotomous; stem smooth and even; root perennial, somewhat creeping, branched. Stems slender, weak, prostrate, glossy; leaves five or six in a whorl, glossy, glaucous underneath, hardly scabrous on the edge, the lower ones turned back: flowers white, in subtrifid small umbels. This plant flowers in our gardens from June to September, and is a native of mountain woods, and fissures of rocks, in the south of Europe, Tartary, and Siberia.

27. Galium Cinereum. Leaves in sixes, linear, rigid, serrate, prickly; stems smooth, flexuose, filiform, somewhat woody at bottom; branchlets upright, leafless, with about three flowers. Perennial. This is an elegant species, covered with a glaucous bloom: when this bloom is wiped off, the plant is of a shining, not a dark green. The stems are obscurely quadrangular; the leaves of a long elliptic form, wider at the end, and terminating in a remarkable white prickle. A panicle of flowers terminates the stem and branches, the extreme peduncles bearing usually three flowers, one of which is abortive; seeds large, dirty white, smooth, but, when full ripe, wrinkled.—Native of Piedmont and Dauphiny.

28. Galium Tenuifolium. Leaves six to eight, linear, grooved, rigid, slightly and finely serrate, with a small prickle at the end; stems diffusely branched, each branch terminated by a panicle; peduncles two or three flowered. Perennial. The peduncles are very much branched, capillary, and longer than the leaf, divaricate; segments of the corolla large, white, and awned; seeds slightly wrinkled, but neither hairy nor rough, the colour of them black.—Native of the county of Nice, Provence, and Dauphiny.

29. Galium Purpureum; *Purple Ladies' Bedstraw.* Leaves linear-bristle-shaped; peduncles capillary, longer than the leaves; stem upright, very much branched, and so leafy that the leaves can hardly be numbered. They are usually in eights, smooth, and keeled underneath; branches ascending, and from their axils innumerable: peduncles above the leaves upright, sustaining few flowers; these and the stems are dark purple. The roots will dye red. Perennial.—It is found near Ripa and Chiavenna; by Lago Lugano; and in the counties of Nice and Montserrat.

30. Galium Rubrum; *Red Ladies' Bedstraw.* Leaves linear, patulous; peduncles very short; root perennial, slender; stems slender, prostrate, nearly a foot in length, rough with small prickles. The whole plant is of a pale green; the flowers, which are very small, are of a pale purple colour, or white, disposed in panicles at the end of the stem and branches.—It flowers in July and August; and is a native of the Palatinate, Silesia, Carniola, and Italy.

** *With a hispid Fruit.*

31. Galium Boreale; *Cross-leaved Ladies' Bedstraw.* Leaves in fours, lanceolate, three-nerved, smooth; stem upright; root perennial, long, slender, dark purple. Stems a foot or eighteen inches in height, obscurely quadrangular, stout, much branching at the top, the lower part smooth, the upper slightly hairy; flowers copious, in a terminating panicle, formed of racemes or corymbs, growing gradually smaller; corolla white, with ovate segments; styles two; fruit covered with long, soft, whitish hairs, slightly incurved upwards. This is one of the species, the roots of which afford a beautiful red dye. The process is thus described by Haller: The roots are gathered in spring, they are ground with malt-dust, and infused in small beer, which then constitutes the dye in which the macerated woollen yarn is boiled, after having been previously dyed yellow in a decoction of Birch leaves.—It flowers in July and August: and is a native of Lapland, Sweden, Silesia, Switzerland, Carniola, and various parts of Britain: it is found in the mountains of Westmoreland and Wales; near Pooley bridge, by Ullswater: and near the ferry at Winandermere, in Cumberland; in some parts of the county of Durham; and on the rocks near the sides of many lakes and rivers in Scotland.

32. Galium Pilosum; *Hairy Ladies' Bedstraw.* Leaves in fours, nearly oval, hairy, nerveless; seeds hairy.—It flowers in June and July, is perennial; and a native of North America.

33. Galium Rotundifolium; *Round-leaved Ladies' Bedstraw.* Leaves in fours, ovate, obtuse, terminating in a very short prickle, ciliate about the edge, three-nerved; root perennial, slender, creeping, cinnamon-coloured. Stem procumbent, weak, a foot long, slightly grooved; branches alternate, green at bottom, pubescent, with very short hairs, and leafy, frequently purplish above, naked, and jointed; peduncles naked, an inch or two in length, bifid, seldom trifid, diverging, each terminating in a solitary flower, and filiform; corolla white; seeds white, bearded with long hairs. It flowers in July and August.—Native of Silesia, Switzerland, Savoy, Austria, &c.

34. Galium Maritimum; *Sea Ladies' Bedstraw.* Leaves in fours, hispid; peduncles one-flowered; fruits villose; root perennial; stem brachiate, rough with hairs, very much branched, the last branches dichotomous; peduncles capillary, shorter than the leaves, usually one-flowered, seldom bifid; flowers small.—Native of the Levant, and probably of Montpellier, the Pyrenees, and the county of Nice.

35. Galium Bermudianum. Leaves in fours, linear, obtuse; branches very much subdivided; whorls of leaves very distant; flowers dark purple; seed lanuginose.—Native of Virginia and Maryland.

36. Galium Græcum; *Candia Ladies' Bedstraw,* Leaves about six, linear-lanceolate; stems woody; the whole plant rough with hairs; peduncles longer; the leaves subdivided, forming a kind of umbel of few flowers, capillary.—Native of the islands of the Archipelago.

37. Galium Aparine; *Common Rough Ladies' Bedstraw, Cleavers,* or *Goose-grass.* Leaves in eights, lanceolate; keels scabrous, with prickles pointing backwards; joints villose; root annual; stem four feet high or more, weak, and supporting itself on other plants, brittle, jointed, the joints villose at the base; the angles are set with pellucid prickles, pointing downwards; it is very branched, and the branches are opposite; flowers few and small, on rough peduncles; calix none; corolla whitish, scarcely longer than the germen, divided to the base into four ovate-acute segments.—This plant is reckoned to purify the blood, and is therefore a common ingredient in spring broth. The expressed juice of the herb, taken to the amount of four ounces, or a quarter of a pint, night and morning, during several weeks, is very efficacious in removing many of those cutaneous eruptions, which are commonly, though improperly, called scorbutic. It has been much celebrated in scrofulous and cancerous sores; but it must be confessed, that the experiments made in our hospitals have not confirmed its celebrity. The juice

of the stem and leaves is acknowledged nevertheless to be of a cooling nature; it increases the urinary discharge, and is therefore esteemed in the jaundice, dropsy, suppression of urine, gravel, and other disorders that arise from obstructions of the viscera. Linneus says, that this plant is very apt to infest crops of peas; and that the Swedes use the stalks as a filter, to strain their milk through. Dioscorides observes, that the same use was made of it in his time; and it certainly is not a bad substitute, to take hairs out of the milk, where a sieve is not at hand. The seeds have been used instead of coffee. The roots, like most others of this genus, will dye red; and are found to tinge the bones of the birds that eat them, of that colour. As it is an annual weed, it is easily destroyed, if it be cut or plucked up early, for it begins to seed in June.—It is common in hedges and cultivated grounds. The well-known property of adhering to whatever it comes in contact with, has given this plant the names of *Cleavers*, *Clevers*, *Clivers*, and *Catchweed*, or *Scratchweed;* from the same idea, it also derived the more elegant appellation of *philanthrophon*, among the Greeks and Romans; from its roughness, it has been called *Hariff*, or rather *Hairough;* and from being a favourite food or medicine of geese, *Goose-grass*, *Goose-share*, *and Gosling-weed*.

38. Galium Parisiense. Leaves linear, in sevens; peduncles two-flowered; root annual; stems a foot high, weak, scabrous backwards; flowering-branches opposite, shorter; peduncles naked, two or three flowered; corollas yellow, small.

39. Galium Megalospermum; *Large-seeded Ladies' Bedstraw*. Leaves in fives, elliptic, acuminate, finely serrate; peduncles two-flowered; fruits large, wrinkled. This plant forms a tuft: the stems do not exceed a finger's length; branches alternate; from the last whorl they produce two-flowered peduncles; flowers pale yellow; fruits dirty white. —Native of Monte Cenisio.

40. Galium Saccharatum. Supposed to be a variety of the 37th species. Ray says, the leaves are smooth, and fruits warted, but not lappacious or tenacious.—Native country unknown.

41. Galium Umbrosum.—Native of Zealand.

42. Galium Viscosum; *Clammy Ladies' Bedstraw*. Lower leaves in fours, obovate; upper ones in sixes, linear-lanceolate, serrate; keel and stem smooth; root annual; stems several, ascending, a finger or a hand in height, smooth, even, made four-cornered by a pale decurrent line, branched from all the lower axils, ending at length towards the top in opposite peduncles, an inch long. In a rich soil, the stems are frequently a span high, and spreading. Corolla yellowish, white; seeds minute, viscid.—Native of the mountains of Tunis.

43. Galium Pascbale. Leaves in nines, or thereabouts, linear-lanceolate, rugged backwards; peduncles axillary, elongated, trichotomous; stems weak, a foot and a half high or more, simple, smooth, even. The whorls are very remote, eight or nine-leaved; the leaves an inch and a half long, mucronate, smooth, even, except at the edge; the seeds minute.

44. Galium Aparinoides. Leaves in sixes, oblong, on the edge and along the keel prickly backwards; joints smooth; stem herbaceous, weak, half a foot high, prickly backwards at the corners, with equal joints; peduncles three, from the ends of the branches, bifid.

45. Galium Album; *White Ladies' Bedstraw*. Leaves in eights, or thereabouts, oblong, unarmed, rugged on the edge; stem pubescent, even, the thickness of a pigeon's quill, erect, branched, a cubit in height, unarmed, purplish-brown at the joints; the internodes a span in length; fruit hispid.—Native of Smyrna.

46. Galium Microcarpum; *Small-fruited Ladies' Bedstraw*. Leaves in sixes, or thereabouts, lower ones oblong, upper ones bristle-shaped; peduncles trifid; stems several, filiform, a hand and sometimes a finger high, erect, rugged at the corners below, but even above, branched at the base, dichotomous or trichotomous at top; peduncles terminating, capillary, in threes, bifid; pedicels one-flowered; two bristle-shaped leaflets at the base of the peduncles; flowers purple; fruit minute, whitish, hispid.—Native of the dry mountains of Tunis, and of Spain.

47. Galium Tuberosum. Leaves in fives, lanceolate; peduncles heaped, axillary; root a small, oblong, irregularly-shaped, white, farinaceous tuber; stem herbaceous, a foot and a half high, rufous, procumbent, simple; flowers white, on longish, one-flowered, heaped, axillary peduncles; fruit roundish, rough.—It is cultivated in China and Cochin-china for the roots, which are reckoned very salutary, and are eaten boiled, either whole or in meal.

48. Galium Cruciatum; *Crosswort*. Leaves in fours, ovate, hairy; stem simple above, hairy; bunches of flowers lateral, with two leaves; flowers polygamous; fruit smooth; root perennial, creeping, slender. The flowers are yellow, formed exactly like the Galiums, except that some are only male, and some of the hermaphrodites are five-cleft; the style is deeply cloven; and there are two germina, one of which is generally abortive; the fruit is globose, smooth, and sheltered by the reflex leaves.—Crosswort is often found about hedges and in thickets, flowering early in the summer.

Galopina; a genus of the class Tetrandria, order Digynia. —Generic Character. *Calix:* none. *Corolla:* monopetalous, quadrifid, superior, revolute. *Stamina:* filamenta four, capillary, long, inserted into the receptacle, deciduous. *Pistil:* germen inferior; styles two, a little shorter than the stamina, growing out; stigmas simple. *Pericarp:* none. *Seeds:* in pairs, naked, subglobular, muricate. Essential Character. *Calix:* none. *Corolla:* four-cleft. *Seeds:* two, naked.——The only known species is,

1. Galopina Circæoides. Root annual; stem herbaceous, round, red, smooth, seldom branched, erect, but weak, about two feet high; branches alternate, spreading, resembling the stem; leaves opposite, petioled, oblong, acute, entire, smooth, pale underneath, an inch or a little more in length. In the axils of the leaves are others similar, but smaller; flowers terminating, in a loose diffused panicle: peduncles and pedicels opposite, capillary, smooth, with two opposite bristle-shaped bractes.—Native of the Cape of Good Hope.

Garb. See *Salix Babylonica*.

Garbanzo. See *Cicer Arietinum*, p. 298; to which we wish to add, that the pulse called Garbanzo is highly esteemed in Spain, as fodder for cattle; and at the table, in soups and other dishes, but principally with that standard dish in all families, the *olio*. The Garbanzo plant has a very inconsiderable root, not penetrating far into the ground, and therefore not impoverishing the soil; its branches are numerous, and the large sort throws out shoots three feet long; it varies in colour, white, reddish, or rather gray, and the seed of each is of the same colour respectively. Each pod contains but one seed, or at most two, not round, but rather pointed; whence it is compared to a sheep's head, and has the trivial name *arietinum*. In Castile, they say that the best sort has the surface wrinkled like the face of an old woman, the broad back of a porter, and the bill of a parrot; the colour also should not be white, but a pale hue; and it should be light, soft, and flat. This pulse does not succeed so well in the hotter parts of Spain, as in the cold northern districts of Fuente Sauco, Mentrida, and others. It is generally sown

in the open fields, in the same manner as other pulse: a soft rich soil is best for it, but a stiff clay is not unsuitable. The Spaniards have a proverb, that rain never hurts Garbanzos. There are two principal sorts, or rather varieties; the large or winter, and the small or summer Garbanzo: the former should be sown the first week in October, that it may acquire a good root, and spread out luxuriantly for fodder; the latter must be sown about the end of February. The Spaniards consume large quantities of the Garbanzo as fodder for their cattle. It is reckoned to be tolerably nutritive, and is used either by feeding it on the ground, by cutting it green, and giving it to them in the stall or stable, (which is the best,) or dried after the manner of hay. The large sort furnishes an early fodder for cattle, sheep, and lambs, at a time when no other is to be had. It is a good preparation for other crops, because it is destructive of weeds, and shades the surface of the ground.

Garcinia; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved; leaflets roundish, concave, obtuse, spreading, permanent. *Corolla:* petals four roundish, concave, spreading, a little larger than the calix. *Stamina:* filamenta about sixteen, upright, placed in a cylinder, simple, shorter than the calix; antheræ roundish. *Pistil:* germen superior, suboval; style scarcely any; stigma flat, spreading, peltate, eight-cleft, obtuse, permanent. *Pericarp:* berry coriaceous, globular, large, crowned with the stigma, of six or eight pulpy cells, with membranous partitions. *Seeds:* solitary, imbedded in the pulp, convex on one side, angular on the other. *Observe:* Jussieu remarks, that the clefts in the stigma, and the number of seeds, vary from five to eight: Gærtner says, six or eight, and the cells of the pericarp as many; he adds, that there is no other difference between this genus and Cambogia, except the form of the stigma, and the number of stamina. Essential Character. *Calix:* four-leaved, inferior. *Petals:* four. *Berry:* eight-seeded, (or five, six, or eight,) crowned with the peltate stigma.——The species are,

1. Garcinia Mangostana; *Mangostan,* or *Mangosteen.* Leaves ovate; peduncles one-flowered. The Mangostan rises with an upright stem nearly twenty feet high, sending out many branches on every side, which are placed opposite, and stand oblique to each other, and not at right angles; the bark of the branches is smooth, of a gray colour, but on the tender shoots it is green, and that of the trunk is of a darker colour, and full of cracks; the leaves are entire, seven or eight inches long, and about half as much in breadth as in the middle, gradually diminishing to both ends, of a lucid green on their upper side, and of an olive colour on their under, having a prominent midrib through the middle, with several small veins running from that to both sides of the leaf: the flower is like that of a single rose, composed of four roundish petals, which are thick at their base, but are thinner towards their ends, they are of a dark red colour; the fruit is round, the size of a middling orange; the shell of the fruit is like that of the pomegranate, but softer, thicker, and fuller of juice; it is green at first, but changes to a dark brown, with some yellowish spots; the inside of the fruit is of a rose-colour, and divided into several parts by thin partitions, as in Oranges, where the seeds are lodged, surrounded by a soft juicy pulp of a delicious flavour, partaking of the Strawberry and the Grape, and is esteemed one of the richest fruits in the world. As these trees naturally grow in the form of parabolas, and the branches are well garnished with large shining green leaves, they have an elegant appearance, and afford a kindly shade in hot countries, where they are highly deserving of cultivation, and indeed in any country where there is warmth enough to ripen the fruit, which is esteemed the most delicious of all the East Indian fruits. A large quantity may be eaten without any inconvenience, as it is the only fruit which sick people are allowed to eat. It is given with safety in almost every disorder; and we are told, that Dr. Solander, in the last stage of a putrid fever, at Batavia, found himself insensibly recovering by sucking this delicious and refreshing fruit; the pulp has a most happy mixture of the tart and sweet, and is no less salutary than pleasant, for which reason, in hot climates, it is allowed with the sweet orange in any quantity, to those who are afflicted with fevers, either of the putrid or inflammatory kind: the dried bark is used with success in the dysentery and tenesmus; and an infusion is esteemed a good gargle for a sore mouth, or ulcers in the throat. The Chinese dyers use this bark for the ground or basis of a black colour, in order to fix it the firmer.—Native of the Molucca Islands, whence it has been transplanted to Java and Malacca. The head is so fine and regular, and the leaves so beautiful, that it is looked upon at Batavia as the tree most proper for adorning a garden, and affording an agreeable shade.—As there are but few of the seeds which come to perfection, (for the greatest part of them are abortive,) so most of those which have been brought to Europe have failed; therefore the surest way to obtain the plants, is to sow the seeds in tubs of earth in the country, and when the plants have obtained strength, they may be brought to Europe; but there should be great care taken in their passage to screen them from salt water, and the spray of the sea, as also not to give them much water, especially in a cool or temperate climate, for they are very impatient of wet. When the plants arrive in Europe, they should be carefully transplanted, each into a separate pot filled with light kitchen-garden earth, and plunged into the tan-bed, observing to shade them from the sun till they have taken new root; then they must be treated in the same manner as the other tender plants from hot countries. It may be increased in England by cuttings, in the same manner as is directed for *Gardenia.*

2. Garcinia Celebica; *Celebes Mangostan.* Leaves lanceolate; peduncles three-flowered. This is not a lofty tree, but it has an elegant spreading head; the fruit resembles that of the common Mangostan, but sometimes grows to a larger size; it is of a yellowish red or saffron-colour, like the pomegranate, and is not crowned with a star, but with a little crown, which is hollowed above, and broader there than at its origin.—Native of the island of Celebes, about Macassar, whence it has been transplanted into Amboyna and Java, where, however, it seldom bears ripe fruit.

3. Garcinia Cornea; *Thorny Mangostan.* Leaves lanceolate, veinless; peduncles one-flowered, drooping. The trunk of this tree is lofty, but not very thick; it is covered with a black bark, adhering firmly to the wood; the branches extend wide, and divide into many short branchlets, which have a pair of leaves at each joint; the flower comes out from the branch between the upper leaves, hanging on an incurved peduncle, having the form of a small rose, but of a yellow colour; fruit solitary, growing close to the branch, the size of a plum, crowned by a sort of wart like the head of a nail, it is of a dusky brown or smoky colour on the outside, and within it has a mucous pulp, in which lie a few seeds in shape of a half moon; it has a resinous smell when fresh. The wood is heavy, and very hard, like horn; hence Rumphius calls it *Lignum corneum,* or *hornwood:* it is used for the handles of tools, and the young trees are employed in building, the old being too hard to work.—Native of the high mountains of Amboyna.

Gardenia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix*: perianth one-leafed, five-cleft, superior; divisions upright, permanent. *Corolla*: one-petalled, funnel-form, or salver-form; tube cylindric, longer than the calix; border flat, five-parted. *Stamina*: filamenta none; antheræ five, inserted into the mouth of the tube, linear, streaked, half the length of the border. *Pistil*: germen inferior; style filiform, or club-shaped; stigma standing out, ovate, obtuse, two-lobed, often furrowed. *Pericarp*: berry dry, one, two, or four celled. *Seeds*: very many, flatted, imbricate, in rows. *Observe*: According to Thunberg, the most natural number of the parts of the flower is five; but they vary as far as nine in the antheræ, as likewise in the divisions of the calix and corolla. Essential Character. *Corolla*: one-petalled, contorted or twisted. *Stigma*: lobed. *Berry*: inferior, two to four celled, many-seeded.——The species are,

* *Without Thorns.*

1. Gardenia Radicans; *Rooting Gardenia.* Corollas obtuse; calix angular; leaves elliptic; stem rooting, decumbent, smooth, the thickness of a reed, about a foot high, putting out roots at bottom; branches opposite, tubercled with rudiments of leaves, flexuose, upright; flowers solitary, subsessile, at the ends of the branches.—It is commonly cultivated in Japan, where it flowers in June and July.

2. Gardenia Florida; *Fragrant Gardenia*; or *Cape Jasmin.* Corollas salver-shaped; calicine segments vertical, lanceolate-subulate; stem large and woody, sending out many branches, which are first green, but the bark of which afterwards becomes gray and smooth; the branches come out by pairs opposite, and have short joints; the leaves also are opposite, close to the branches, five inches long, and two and a half broad in the middle, of a lucid green, having several transverse veins from the midrib, entire, and of a thick consistence; the flowers are produced at the ends of the branches, sitting close to the leaves; when fully blown, the double flower is as large as a middling-sized rose: it has a very agreeable odour on the first approach, something like that of the orange-flower, but, on being more closely smelt to, like the common double white Narcissus. It varies with single and double flowers; the flowers appear in July and August.—Native of the Cape of Good Hope, Cochin-china, China, Japan, Surat, Amboyna, and the South Sea islands. There are hedges of it in Japan, and the Japanese are very fond of it near their houses, and in the walks of their gardens: both in Japan and China the fruit is used for dyeing yellow; the mucilage pressed out with the seeds, yields a fine yellow colour; that from the seeds only is lighter, but tinges water of a lively yellow, and is said to dye silk of a deep orange, or even scarlet, but not of the deep China scarlet.—This plant is easily propagated by cuttings, during the summer season, planted in pots plunged into a moderate hot-bed, covered close with bell or hand glasses, and screened from the sun. When they have taken root, they should be carefully parted, and put each into a separate small pot, plunging them again into the hot-bed, and shading them until they have taken new root, after which they should be gradually inured to the open air. Though the cuttings strike freely, and make strong shoots a year or two after, yet in three or four years they are apt to be stinted in their growth, the leaves turn pale and sickly, and the plants frequently die soon after. The other sorts are propagated in the same manner.

3. Gardenia Thunbergia; *Starry Gardenia.* Corollas salver-shaped; calices bursting laterally, with the segments dilated at the tip; leaves elliptic. This is a tree about two fathoms in height, smooth, and branching very much; branches alternate, round, having rings on them from the rudiments of leaves, ash-coloured, smooth, erect, branchletted; flowers on the branchlets terminating, solitary, sessile, erect; berry ovate, somewhat wrinkled, smooth, greenish, turning white, one-celled, five-valved, the size of a hen's egg, continuing several years without opening or falling, having a woody hard bark, and scarcely any pulp.—Native of the Cape of Good Hope.

4. Gardenia Latifolia; *Broad-leaved Gardenia.* Corollas salver-shaped; calicine segments subulate, obtusely keeled; leaves obovate-roundish.—Native of the East Indies.

5. Gardenia Gummifera; *Gummy Gardenia.* Corollas obtuse; calix rough with hairs; leaves oblong, obtuse. A gum resin, very much like gum-elemi, exudes from the clefts of the bark, and from the leaves.—Native of Ceylon.

6. Gardenia Mussænda. Corollas acute; calix rough with hairs; leaves ovate, acute. It is shrubby, with round branches, rough with hairs; stipules between the leaves, solitary, dilated at the base, subulate; flowers axillary, and at the ends of very short branches, solitary, sessile.—Native of South America.

7. Gardenia Genipa. Leaves oblong lanceolate; pedunceles axillary, many-flowered; corollas salver-shaped, with an abbreviated tube. Swartz describes this as a thornless shrub, with oblong-lanceolate leaves, axillary, many-flowered pedunceles, and salver-shaped corollas, with a short tube.—Native of South America.

8. Gardenia Rothmannia; *Spotted-flowered Gardenia.* Corollas funnel-shaped; calicine segments subulate; leaves oblong; stem arboreous, erect, branching very much, a fathom and a half in height; branches and branchlets opposite, somewhat angular, striated, rugged, erect, ferruginous; flowers on the branchlets terminating, solitary, sessile; berry ovate, fleshy, angular, with about twelve obscure lines, smooth, two-valved, one-celled, pulpy, the size of a small pear, black when ripe, opening on one side, and falling from the tree when dry; pulp soft, like that of the tamarind: the wood of this is very hard; flowers white, smelling very sweet, especially during the night.—Native of the Cape.

** *Thorny.*

9. Gardenia Spinosa; *Thorny Gardenia.* Stem shrubby; branches round, smooth, spiny, rigid; leaves from buds below the spines, several, subsessile, ovate, obtuse, entire, smooth, spreading, unequal; flowers sessile, hirsute, axillary, solitary; corolla funnel-shaped, white.—Native of China, near Macao.

10. Gardenia Dumetorum; *Bushy Gardenia.* Thorns opposite, longer than the leaves; germina smooth. This is a very thorny shrub, with very stiff, round, smooth branches; thorns in pairs, an inch long, simple, horizontal, decussated, straight, very stiff, smooth, coming out above the origin of the twigs; leaves obovate, entire, very smooth, opposite, a little smaller than those of Box; flowers solitary, small, fragrant, on short pedicels at the end of each twig.—Native of the East Indies. See the second species.

11. Gardenia Micranthus. Stem shrubby; branches round, villose, spiny; branchlets capillary, few, rough with hairs, spiny; flowers sessile, smooth, axillary, two or three, the size of a grain of rice; style capillary, white, the length of the corolla; stigma globular.—Native of China, and the isle of Ceylon.

12. Gardenia Scandens; *Climbing Gardenia.* Climbing; flowers peduncled; stem shrubby; branches round, smooth, ash-coloured, spiny, climbing; leaves from the buds below the spines aggregate, ovate, bluntish, entire, smooth, spreading, unequal, on very short petioles; stipules bristle-shaped;

flowers axillary, solitary; style filiform, the length of the tube.—Native of Macao.

13. Gardenia Uliginosa; *Boggy Gardenia.* Branches thorny at the end; tube of the corolla hirsute within. This is a shrub with brown squarish branches; the twigs short and growing by pairs, having leaves and two thorns at the end; leaves elliptic, obtuse, smooth.—Native of the marshes in the East Indies.

14. Gardenia Armata; *Armed Gardenia.* Spines of the branchlets terminating in fours; calicine segments linear, wedge-form; flowers crowded; leaves roundish; teeth of the calix lanceolate-subulate; corolla salver-shaped; the berry is two-celled, and even when ripe, a very thin partition yet remains. This is a small tree, about ten feet high. The flowers are commonly four together, and extremely odorous.—Native of South America and the West Indies.

15. Gardenia Aculeata; *Round-leaved Gardenia.* Thorns opposite; both they and the flowers shorter than the leaves; branches smooth. Browne calls it the Indigo Berry, and describes it as a small shrub rising by a branched stalk, and shooting commonly to the height of seven or eight feet; the main stem tough and hard; the branches somewhat prickly at the ends; the leaves of an oval form, and growing in tufts; the pulp of the berries, which are generally numerous on the smaller branches, is very thick, and stains paper or linen of a fine fixed blue colour. Native of the West Indies.—This plant is propagated by seeds, sown early in the spring, in pots filled with light fresh earth, and plunged into a hot-bed of tanners' bark, observing to water the earth frequently but gently. When the plants come up, admit fresh air to them every day when the weather is warm, and refresh them often with water. In a month's time they will be fit to transplant; shake them carefully out of the pots, place each in a small pot filled with light fresh earth, and plunge them into a hot-bed again, screening them from the sun until they have taken new root, after which they must have air and moisture according to the warmth of the season. The plants may remain in the hot-bed till towards Michaelmas, when the nights begin to be cold; then they should be removed into the stove. During the two first seasons, while the plants are young, keep them constantly in the stove, and wash their leaves whenever they contract filth; after they have acquired strength, expose them in summer to the open air, for two or three months, in a warm situation; but in winter, place them in a stove, in a moderate warmth.

Garidella; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved, small; leaflets ovate, acute, deciduous. *Corolla:* petals none, unless the calix be taken for them; nectaries five, long, equal, two-lipped; outer lip bifid, flat; divisions long, linear, blunt; inner lip shorter, simple. *Stamina:* filamenta usually ten, subulate, shorter than the corolla; antheræ upright, blunt. *Pistil:* germina three, ovate, upright, acuminate, connected; styles scarcely any; stigmas simple. *Pericarp:* capsules three, superior, connected, oblong, acuminate, compressed, one-celled, two-valved; the inner suture more convex. *Seeds:* several, short, about twelve in each cell, ovate-acuminate, wrinkled, black or brown. *Observe.* This genus approaches very near to Nigella; the capsules are so closely united, as to seem one three-celled three-valved capsule. Essential Character. *Calix:* five-leaved, like petals. *Nectary:* five, two-lipped, bifid. *Capsules:* three, connected, containing many seeds.——The only known species is,

1. Garidella Nigellastrum; *Fennel-leaved Garidella.* It is an annual plant, which rises with an upright stalk a foot high, dividing into several slender branches, having very fine cut leaves, like those of Fennel, at their joints; the stalks are terminated by one small flower, of a pale herbaceous colour. It flowers in June and July, and the seeds ripen in September.—Native of the south of France, and of Italy. It is propagated by seeds, sown in autumn on a border of light fresh earth. When the plants come up, weed and thin them to the distance of four or five inches; or if the seeds be permitted to scatter, the plants will come up without further care. They do not well bear transplanting.

Garlic. See *Alium Sativum.*

Gaultheria; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth double, approximating, permanent; outer two-leaved, shorter; leaflets half-ovate, concave, obtuse; inner one-leafed, five-cleft, bell-shaped; segments half-ovate. *Corolla:* one-petalled, ovate, half five-cleft; border small, rolled back; nectary of ten subulate, upright, very short bodies or glands, surrounding the germen within the stamina. *Stamina:* filamenta ten, subulate, bent in, shorter than the corolla, inserted into the receptacle; antheræ two-horned, with the horns bifid. *Pistil:* germen roundish, flatted; style cylindric, the length of the corolla; stigma obtuse. *Pericarp:* capsule roundish, obtusely five-cornered, flatted, five-celled, five-valved, opening into five parts at the top, covered all round with the inner perianth, changed into a roundish coloured berry, previous at the top. *Seeds:* very many, subovate, angular, bony. Essential Character. *Calix:* outer two-leaved, inner five-cleft. *Corolla:* ovate. *Nectary:* with ten dagger points. *Capsule:* five-celled, covered with the inner calix, now become a berry.——The species are,

1. Gaultheria Procumbens; *Trailing Gaultheria.* Leaves obovate, pointed, slightly serrated, smooth, corroded about the tops of the branches; stem shrubby, trailing. This plant has the appearance of Pyrola, or Vaccinium, with a creeping root: it is a small, evergreen, trailing shrub, a span high, and scarcely branched; flowers solitary, axillary, pendulous, peduncled; inner calix and corolla white, or of an herbaceous colour, and rarely succeeded by fruit in England.—Native of Canada, where it is found upon a dry, sterile, sandy soil. The natives use the leaves instead of tea. The method of propagating this plant in an English garden, is, to set it in a light sandy loam, with a mixture of peat earth. It is very hardy, and bears flowers and fruit most part of the year.

2. Gaultheria Antipoda. Leaves scattered, roundish, serrate-toothed; stem shrubby, diffused.—Native of New Zealand.

Gaura; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, deciduous; tube cylindric, long, thicker at the base, containing four oblong glands growing to it; border four-cleft; divisions oblong, acute, reflex. *Corolla:* petals four, oblong, rising towards the upper lip, equal, with narrow claws, placed on the tube of the calix. *Stamina:* filamenta eight, filiform, broader at top, straight, shorter than the corolla; a nectareous gland of a conical form within the base of each; antheræ oblong, versatile. *Pistil:* germen oblong, inferior, four-celled, many-seeded; the seeds fixed to a columnar receptacle; style filiform, length of the stamina; stigmas four, columnar, ovate, spreading. *Pericarp:* drupe ovate, four-cornered, the corners flatted; Gærtner says, dry, often with one cell only, and one seed, with the vestiges of the partitions and the abortive seeds. *Seed:* nut with one seed, oblong, angular; or, according to Gærtner, solitary, one or four, subovate, narrowed at top, convex on one side, angular on the other, of a yellowish-bay colour, with a brown callus at the

base. ESSENTIAL CHARACTER. *Calix:* four-cleft, tubulous. *Corolla:* four-petalled, rising towards the upper side. *Nut:* inferior, one-seeded, four-cornered.——The species are,

1. Gaura Biennis; *Biennial Gaura.* Stem four or five feet high, sending out several branches; leaves oblong, smooth, pale green, sitting pretty close; flowers in close tufts at the ends of the branches, pale rose-coloured, appearing in September, and, when the autumn proves favourable, ripening the seeds towards the end of October.—Native of Virginia and Pennsylvania. If the seeds be sown on an open border soon after they are ripe, they will more certainly succeed than when they are sown in the spring. When the plants come up, keep them clean from weeds, and thin them if they be too close. In autumn they must be transplanted where they are to stand.

2. Gaura Fruticosa. Stem shrubby; leaves linear-lanceolate; stamina and style direct. The flowers of this are not near so large as those of the first species; nor the corolla so much expanded.—Native of South America.

Gelder Rose. See *Viburnum.*

Geniostoma; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth inferior, turbinate, five-cleft, permanent; divisions short, sharp. *Corolla:* one-petalled, funnel-form; tube widened, longer than the calix; throat villose, bearded; border five-parted, spreading; divisions ovate, sharpish, the length of the tube. *Stamina:* filamenta five, short, in the throat of the corolla, antheræ oblong, standing out. *Pistil:* germen ovate; style filiform, longer than the tube; stigma cylindric, blunt, grooved. *Pericarp:* oblong, two-celled. *Seeds:* very many, subangular, placed on a filiform receptacle. ESSENTIAL CHARACTER. *Calix:* turbinate, five-cleft. *Corolla:* one-petalled, with a villose throat, and a five-parted border. *Capsule:* oblong, two-celled, many-seeded.——The only known species is,

1. Geniostoma Rupestris. Stem shrubby, climbing without tendrils.—Native of the isle of Tanna, in the South Seas.

Genista; a genus of the class Diadelphia, order Decandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed, small, tubular, two-lipped; upper lip two-toothed, more deeply divided, lower three-toothed, nearly equal. *Corolla:* papilionaceous; banner oblong, remote from the keel, the whole reflex; wings oblong, loose, shorter than the others: keel straight, emarginate, longer than the banner. *Stamina:* filamenta ten, connate, emerging from the keel; antheræ simple. *Pistil:* germen oblong; style simple, rising; stigma sharp, rolled in. *Pericarp:* legume roundish, turgid, one-celled, two-valved. *Seeds:* several, usually kidney-form. ESSENTIAL CHARACTER. *Calix:* two-lipped, two and three toothed. *Banner:* oblong, reflex downwards from the pistil and stamina.——All the shrubs of this genus are propagated by seeds, which, if sown in the autumn, will succeed much better than if sown in the spring, and a year will be thereby saved. As these plants send out long, stringy, tough roots, which run deep into the ground, they do not bear transplanting well, especially if they are not removed young; therefore the best way is, to sow a few seeds in those places where the plants are designed to remain, and to pull up all except the most promising plants, as soon as they are past danger; after this, the plants will require no other culture, but to keep them clean from weeds. But where this cannot be practised, the seeds may be thinly sown upon a bed of light earth, and when the plants come up they must be kept clean from weeds till the following autumn, when they should be carefully taken up, and transplanted where they are designed to grow. Such as do not produce seeds here, may be increased by layers.——The species are,

* *Unarmed, or without Thorns.*

1. Genista Canariensis; *Canary Genista,* or *Cytisus.* Leaves ternate, pubescent on both sides; branches angular; calix trifid, the lowest segment three-toothed; flowers in corymbs, five or six together, they are sweet-scented, and appear from May to September.—Native of Spain and the Canaries. This, with the third and sixteenth species, require the protection of a green-house.

2. Genista Candicans; *Hoary Genista,* or *Montpellier Cytisus.* Leaves ternate, villose underneath; peduncles lateral, leafed, sustaining about five flowers; legumes hirsute. This species rises to the height of seven or eight feet, sending out many slender-growing branches, the upper parts of which, for more than a foot in length, send out small flowering branches on their sides, supporting five yellow flowers, which appear in June and July. The seeds ripen in autumn; the flowers are scentless.—Native of Spain, Italy, and France.

3. Genista Linifolia; *Flax-leaved Genista,* or *Broom.* Leaves ternate, sessile, linear, silky underneath. This is a small shrub, with branches that are knotty from indentations left by the fallen leaves; the branchlets or shoots are leafy, angular, upright, and silky; flowers in racemes at the ends of the branches; calix three-parted, the lowest segment trifid.—Native of Spain and the Levant.

4. Genista Triquetra; *Triangular Genista,* or *Broom.* Leaves ternate, the upper ones simple; branches three-sided, procumbent. This is a hardy evergreen trailing shrub, producing a vast profusion of bloom, which renders it eminently conspicuous in May and June; it rarely produces seed. When tied up properly, and trained to a stake, it may vie in point of beauty with most of our ornamental shrubs.—Native of Spain, Italy, and France.

5. Genista Sagittalis; *Jointed Genista,* or *Broom.* Branches ancipital, membranaceous, jointed; leaves ovate-lanceolate. This species sends out several stalks, which spread flat on the ground, and divide into many flat branches, which are jointed, and their two sides are edged like a broad-sword; they are herbaceous, but perennial; at each of the joints is placed one small sessile spear-shaped leaf, ending in a point, of a deep green colour, and smooth; the flowers are produced in close spikes at the ends of the branches, and are succeeded by short hairy pods, which contain three or four kidney-shaped seeds. It flowers in June, sometimes in May, and ripens seeds in September.—Native of France, Germany, Switzerland, Savoy, Austria, Carniola, Italy, and Spain.

6. Genista Tridentata; *Three-toothed Genista.* Branches three-sided, membranaceous, somewhat jointed; leaves three-cusped; legumes woolly, white.—Native of Portugal.

7. Genista Tinctoria; *Common Dyer's Genista,* or *Broom.* Leaves lanceolate, smooth; branches streaked, round, upright; the roots creep far and wide; stems many, angular, tough, from a foot to eighteen inches or two feet in height, sometimes more; branches subdivided, ending in short spikes of yellow flowers, with stipules between them.—When cows feed on it, their milk, and the butter or cheese made from it, are said to be very bitter. A bright yellow colour may be prepared from the flowers; and for wool that is to be dyed green with woad, the dyers prefer it to all others. A drachm and a half of the powdered seeds operates as a mild purgative. A decoction of the plant is sometimes diuretic, and therefore has proved serviceable in dropsical cases. A salt prepared from the ashes, is also recommended in the same disorder.—Native of most parts of Europe, particularly in

dry gravelly or sandy soils, flowering in July. In the old writers it is called *base broom, green weed,* or *green wood, dyer's weed,* and *wood-waxen.*

8. Genista Sibirica; *Siberian Genista.* Leaves lanceolate, smooth; branches equal, round, upright. This resembles the foregoing.—Native of Siberia.

9. Genista Florida; *Spanish Dyer's Genista,* or *Broom.* Leaves lanceolate, silky; branches streaked, round; flowers in bundles, directed one way, terminating, succeeded by short pods, which turn black when ripe, and contain four or five kidney-shaped seeds. This rises with woody stalks two or three feet high: it flowers in June and July.—Native of Spain.

10. Genista Pilosa; *Hairy Genista,* or *Broom.* Leaves solitary, lanceolate, obtuse, somewhat hairy; peduncles the length of the calix; standard hairy on the outside; branches diffused; root long, running obliquely, and furnished with many small fibres; stem a foot in length or more, much branched, tough; the old branches naked; the young ones clothed with numerous minute, oval, or oval-lanceolate leaves, entire, smooth on the upper surface, beneath covered with long, white, silky hairs; flowers in short spikes on the summits of the branches, on short hairy peduncles.—Native of Sweden, Germany, Austria, Carniola, Hungary, Switzerland, France, Italy, and Spain. It was not known to be growing wild in England, until discovered by the late Sir John Cullum and Mr. Dickson, about Lackford, four or five miles from St. Edmundsbury in Suffolk. Mr. Woodward also observed, that Cavenham, and other heaths near Bury, appear yellow with the great plenty of these flowers, the flowering branches standing up; at other times it is difficult to find this shrub, the stem and branches being so closely procumbent, that they are often found even beneath the moss. It flowers in May.

11. Genista Humifusa. Leaves lanceolate, ciliate; branches prostrate, streaked, villose.—Native of the Levant.

** *Thorny.*

12. Genista Anglica; *English Genista, Petty Whin,* or *Needle Furze.* Thorns simple, awl-shaped; flowering-branches abbreviated, unarmed; leaves lanceolate, acute; legumes straightish; stem much branched; branches tough, without leaves, furnished with extremely sharp slender thorns, from a quarter to half an inch in length. The yearly shoots grow in bundles, on the summits of the old ones, and sparingly from the sides: flowers few, small, pale, and yellow. They appear from May till the end of July.—Native of Dauphiny, Denmark, and Britain, where it is found growing on the heaths, and generally in moist spongy ground.

13. Genista Germanica; *German Genista,* or *Broom.* Thorns compound; flowering-branches elongated, unarmed; leaves lanceolate, hairy; legumes oblong, straightish; stems about a foot and a half in height, very much branched. The old branches have no leaves, but strong branched thorns; the younger ones are full of green hairy leaves; flowers in a spike, long, and almost sessile; banner cordate, reflex, and thus much shorter than the keel, which is straight, and much longer than the wings. It flowers in the end of May, or the beginning of June, and ripens its seeds in September.—Native of Germany; Switzerland, as about Lausanne, Basil, Savoy, on Mont Saleve; near Geneva, where it was observed by Ray. It is also found in dry woody parts of Dauphiny, Piedmont, Carniola, and Arragon.

14. Genista Hispanica; *Dwarf Prickly Genista,* or *Broom.* Spines decompound; flowering-branches unarmed; leaves linear-lanceolate, hairy; legumes ovate, straight. It rises with woody stalks, two or three feet high, sending out many taper-channelled branches, which grow erect; flowers yellow, in terminating spikes, succeeded by short pods, which turn black when ripe, and contain four or five kidney-shaped seeds.—Native of Spain, south of France, and Carniola. It flowers in June and July, and the seeds ripen in autumn.

15. Genista Lusitanica; *Portugal Genista,* or *Broom.* Stem leafless; thorns decussated. The woody stems are leafless; the younger stems are leafy, and covered with decussated spines. It flowers from March to May.—Native of Portugal.

16. Genista Scandens; *Climbing Genista,* or *Broom.* Spines simple; stem climbing; leaves bipinnate. This is a large shrub, with a very long, round, climbing, branched stem, having many short recurved spines scattered over it; flowers in large, loose, terminating, pendulous racemes; corolla yellow, with an oblong reflex banner; calix of the same colour.—Native of Cochin-china, near rivers, mounting to the top of large trees, and covering them with its golden flowers.

17. Genista Hirsuta. Spines ternate, decussated; leaves simple, lanceolate; spikes terminating, hirsute. This is a very thorny rigid shrub, with round branches, leafless below, extremely hirsute at top; spike of flowers from the ends of the branches, an inch in length, imbricate, very hirsute.—Native of Old Castile.

Gentian. See *Gentiana.*

Gentiana; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-parted, sharp; divisions oblong, permanent. *Corolla:* petal one, tubular at bottom, imperforate, at top five-cleft, flat, withering, various in form. *Stamina:* filamenta five, subulate, shorter than the corolla; antheræ simple. *Pistil:* germen oblong, cylindric, length of the stamina; styles none; stigmas two, ovate. *Pericarp:* capsule oblong, columnar, acuminate, slightly bifid at the tip, one-celled, two-valved. *Seeds:* numerous, small, fixed all round to the walls of the capsule; receptacles two, each fastened longitudinally to a valve. *Observe.* The figure of the fruit is constant; but, both that and the flower vary much in the different species, as well in number as in form. Some species exclude a fifth part of the number in the flower. One adds three parts of the number in the flower. One species has the neck of the corolla spreading; a second has the neck closed with hairs; a third has the segments of the corolla ciliate; a fourth has a bell-shaped, upright, plaited border; in a fifth, it is starred with small segments, interposed between the larger ones; some have a bell-shaped, and others a funnel-shaped corolla. Essential Character. *Corolla:* monopetalous. *Capsule:* superior, two-valved, one-celled; with two longitudinal receptacles.——The species are,

* *Corollas five-cleft or thereabouts, and somewhat bell-shaped.*

1. Gentiana Viscosa; *Clammy Gentian.* Corollas five-cleft, one-styled; panicles trichotomous; bractes perfoliate; leaves oblong, three-nerved. See *Exacum Viscosum.*—This, together with the thirty-fourth and thirty-fifth species, with a few others not at present in cultivation, require the protection of the green-house.

2. Gentiana Lutea; *Yellow Gentian.* Corollas usually five-cleft, wheel-shaped in whorls; calices spathaceous; root thick, of a yellowish-brown colour, and of a very bitter taste; lower leaves petioled, oblong-ovate, a little pointed, stiff, yellowish-green, having five large veins on the back, and plaited; stem three or four feet high or more, with a pair of leaves at each joint, sessile, or almost embracing, of the same form with the lower ones, but diminishing gradually to the top; flowers in whorls at the upper joints; fruit short,

swelling in the middle; seeds often barren.—Native of Lapland, Sweden, Germany, France, Italy, and North America. Haller observes, that it occupies large tracts of country, where it is left untouched by any kind of cattle. Our old English authors call it Felwort and Bitterwort. Before hops had established their reputation, this, with many other bitter herbs, was used occasionally in brewing: Mr. Houghton, at the end of the seventeenth century, assures us, that he had often sold it for that purpose. Gerarde says, that Master Isaac de Laune, a learned physician, sent him plants of this sort for the increase of his garden, from Burgundy; and it is named in English, Felwoort, Gentian, Bitterwoort, Baldmoyne, and Baldmoney. The root of this species of Gentian, imported from Switzerland and Germany, is the principal bitter now employed in medicine, though the roots of several other sorts are said to be equally efficacious, and are even preferred by some. As the intense bitters are generally admitted to be not only tonic and stomachic, but also anthelmintic, antiseptic, emmenagogue, antiarthritic, and febrifuge, this root has a better claim to the possession of these powers than most of the kind. Many dyspeptic complaints, though arising from the debility of the stomach, are more effectually relieved by these bitters than by Peruvian bark; and Gentian, joined with equal parts of Tormentil, or galls, has constantly succeeded, as we are told by Dr. Cullen, in curing intermittents, if given in sufficient quantity. As a simple bitter, Gentian is rendered more grateful to the stomach, by the addition of an aromatic; and for this purpose, orange-peel is generally used. Meyrick says of it, the dried roots are kept in the shops, and are the principal ingredient in most of the bitter tinctures and infusions. A tincture made with two ounces of the root, one ounce of dried orange-peel, and half an ounce of cardamom-seeds bruised, in a quart of brandy, is an excellent medicine in disorders of the stomach, which it strengthens surprisingly; and is no less efficacious in restoring an appetite, and promoting digestion. It is likewise useful in the decline of putrid and malignant fevers, in disorders arising from obstructions of the viscera, in intermittent fevers and agues, and also for the worms.—This plant delights in a light loamy soil, and a shady situation, where it will thrive much better than in a light dry soil, or on an open exposure. It is propagated by seed, which should be sown in pots soon after it is ripe, for if it be kept till the spring, it will not succeed; these pots should be placed in a shady situation, and kept clean from weeds. In the spring the plants will appear, when they must be duly watered in dry weather, and kept clean from weeds until the following autumn; they should then be carefully shaken out of the pots, so as not to break or injure their roots; and a shady border of loamy earth should be well dug and prepared to receive them, into which the plants should be put, at about six inches' distance each way, observing to let the top of the roots be a little below the surface of the ground, then press the earth close to the roots: after this, they will require no further care, except to keep them constantly clean from weeds; and if the following spring should prove dry, they must be duly watered, which will greatly forward their growth. In this border the plants may stand two years, by which time they will be fit to transplant where they are designed to remain; therefore in autumn, as soon as their leaves decay, they may be removed; but as the roots of these plants run deep into the ground, like carrots, there must be great care taken, in digging them up, not to cut or break their roots, for that will greatly weaken, if it does not kill them. After the plants are well fixed in their places, they require no other culture, but to dig the ground about them early in the spring, before they begin to shoot, and in the summer to keep them clean from weeds. The roots of these plants will continue many years, but the stalks decay every autumn: the same roots do not flower two years together, nor seldom oftener than every third year; but when they flower strong, they make a fine appearance, and as these delight in shady moist ground, where but few ornamental plants will thrive, they should not be excluded from any good garden.

3. Gentiana Purpurea; *Purple Gentian.* Corollas usually five-cleft, bell-shaped, in whorls; calices truncate; root as thick as a man's arm, and two feet long, white within, and striated on the outside, extremely bitter, and used medicinally in some countries, instead of the second species, with great success. The stem is smaller than that, about a foot or a foot and a half only in height; the leaves somewhat broader.—Native of Denmark, Switzerland, and Silesia. This, and the following, to the thirteenth species, may be cultivated in the same manner as the second species.

4. Gentiana Macrophylla; *Long-leaved Gentian.* Flowers five-cleft, sessile, in whorls; root-leaves equal to the stem, which is almost naked; root creeping, with a transverse stock, and abundance of whitish fibres; root-leaves often a span in length, standing up above the stem, broad, lanceolate, five-nerved, sheathing at the base; flowering-stem coming out on the side of these, procumbent at bottom, but gradually rising, having only one or two pairs of leaves, besides the floral ones on the top; calix small, membranaceous, unequally four-toothed; corolla small, of a livid pale colour, the border pale blue, four or five cleft; the segments very short, and sharpish. The herbaceous part is hardly bitter.—It flowers in July and August, and is a general inhabitant of Siberia, especially the eastern part, where, Professor Pallas says, it is easily raised from seed.

5. Gentiana Campanulata; *Bell-shaped Gentian.* Corollas bell-shaped, seven-cleft, streaked, unspotted; calices seven-cleft; root yellow on the outside, very bitter, fusiform, branched; stem smooth and even, from dark blue becoming green, erect, two spans in height, round, but alternately somewhat ancipital between the joints; flowers almost sessile, in two or three whorls, in each axil from one to three.—It flowers in July, and is found on Mount Garten in Richenau in Carinthia.

6. Gentiana Punctata; *Spotted-flowered Gentian.* Corollas bell-shaped, five-cleft or thereabouts, dotted; calices five-toothed; segments of the border commonly seven, sometimes eight, but very seldom six, always shorter, narrower, contiguous, rounded, blunt, without any auricles at the base; and finally, the bellying of the corolla is blunter, and almost the same over the whole bell.—Native of Austria, Silesia, Italy, &c.

7. Gentiana Pannonica; *Rough Gentian.* Corollas bell-shaped, six or seven-cleft, dotted; calices usually six-cleft; stem-leaves lanceolate, acuminate; root yellowish on the outside, whitish within, intensely bitter. The whole plant is smooth and shining; stem from half a foot to two feet in height, round, or slightly angular, erect, a finger thick at the base, which is covered with sheathing scales, having a bifid or trifid mouth; leaves opposite, broad ovate or lanceolate, acute, quite entire, bright green, somewhat plaited, having five prominent pale nerves on the back, attenuated into connate petioles, flowers from the axils, on very short pedunceles, three, four, or five, seldom more on each side, forming whorls, supported by bractes resembling the leaves. There are commonly two or three whorls, with flowers much more numerous in the upper one; but in smaller plants there is

only one.—Native of Switzerland, the Tyrol, Silesia, and the Carpathian mountains.

8. Gentiana Septemfida; *Seven-cleft Gentian.* Corollas seven, and five-cleft, with ciliate segments interposed; leaves ovate-acuminate, somewhat stem-clasping. Stem a foot or eighteen inches in height, round, smooth, quite simple; leaves spreading, five-nerved; flowers from the upper axils, usually two together, and three at the top of the stalk, crowded together into a corymb, on short peduncles, the same size as in the next species, the upper one flowering first. The whole plant is smooth, but both herb and root are very bitter.—Native of the mountains of Persia, near the Caspian sea, and of the Chersonesus Taurica.

9. Gentiana Asclepiadea; *Swallowwort-leaved Gentian.* Corollas five-cleft, bell-shaped, opposite, sessile; leaves stem-clasping; stem upright, nearly a foot high; leaves smooth, about two inches long, and three-quarters of an inch broad at the base, where they embrace, and end in an acute point; they are of a fine green, have five longitudinal veins joining at both ends, but diverging at the middle, and diminish in size as they are nearer the top; flowers in pairs, opposite, on short peduncles; they are pretty large, bell-shaped, and of a fine blue colour. It flowers with us in July and August. This is the most tasteless and least bitter of the genus. Native of Switzerland, Hungary, Stiria, Austria, Silesia, Piedmont, Barbary, Mount Caucasus, &c.—It requires a light loamy soil, with the same treatment as the second species. Clusius states, that he introduced it as a flower into his garden, but that it drooped, and lost much of its native vigour and elegance.

10. Gentiana Triflora; *Three-flowered Gentian.* Corollas bell-shaped, five-cleft, aggregate-sessile; leaves linear; floral-leaves four, two longer and two shorter; root fibrous; root-leaves none; stem upright, very straight, a span high, round, furnished with very small leaves at bottom, becoming gradually longer higher up, decussately opposite; they are stiff and somewhat rigid, blunt at the end, and turned back at the edge; the largest are nearly three inches in length. Flowers at the end of the stalk, in threes, and sometimes another pair of them from the next axil of the leaves; calix purplish, unequally five-cleft, subspathaceous, cut more deeply on one side; the segments linear, and sharp, alternately larger and smaller; tube of the corolla angular, whitish; the border dark blue, with subcordate blunt segments, distant at the base from each other, with a right-lined interval; filamenta unequal; antheræ upright; germen fusiform, with a bifid stigma. It is really different from the next species, with which it may easily be confounded, from having a flower of the same colour, by its being so stiffly upright and bitter.—It flowers in July and August, and is a native of eastern Siberia.

11. Gentiana Pneumonanthe; *Marsh Gentian,* or *Calathian Violet.* Corollas five-cleft, bell-shaped; flowers peduncled; leaves linear. Stem upright, about a foot high; leaves smooth, an inch and a half long, and less than a quarter of an inch broad; they have no petioles; flowers on the top of the stalk, three or four in number, on peduncles, alternately above each other; they are large, and being of a deep blue colour, make a fine appearance; calix cylindric, or very obscurely angular, with linear leaflets, often reflex at top, scarcely a third of the length of the corolla, which is plaited in angles of different shades of blue; the tube paler, and dotted within; stigma revolute, and remarkably long. It has the bitterness, and other qualities, of several among its congeners.—Native of Sweden, Denmark, England, Switzerland, Carniola, the Palatinate, Silesia, Piedmont, in the temperate parts of Russia, and all Siberia, in moist meadows and marshes. Ray found it near Lindau in Germany. It is not common in the southern parts of Great Britain, but much more so in the north. It has been found between Clapham and Engleton, on Longfield downs near Gravesend, near Greenhithe, Cobham, Hellingstone, and Dartford, in Kent. Gerarde observed it near Bath; and Parkinson, in divers parts of the west of England. It abounds in Lincolnshire and Yorkshire, on boggy heaths, as on Nettleton Moor, near Caster, in Tattershal park, and near Doncaster. Stillingfleet saw it on Stratton Strawless heath, near Norwich; it has also been observed near Milnthorp in Westmoreland; and is common all over Lancashire. This species does not strike its roots so deeply into the ground as the Yellow Gentian, and may be transplanted with less hazard, especially if it be removed with a good ball of earth to the roots. It will flower annually in a strong moist soil.

12. Gentiana Saponaria; *Soapwort-leaved Gentian.* Corollas five-cleft, bell-shaped, ventricose, in whorls; leaves three-nerved. This usually rises sixteen inches high, with upright straight stems, having long, sharp-pointed, opposite leaves, spreading horizontally; from the axils of these come out four or five blue flowers. It flowers in August and September.—Native of North America.

13. Gentiana Villosa; *Hairy Gentian.* Corollas five-cleft, bell-shaped, ventricose; leaves oblong, acuminate, slightly villose; flowers bell-shaped, ventricose, erect, pale yellow, or white on the outside, and variegated with lines on the inside.—Native of Virginia.

14. Gentiana Acaulis; *Dwarf Gentiana,* or *Gentianella.* Corolla five-cleft, bell-shaped, higher than the stalk; root large, woody, branched; a set of ovate-lanceolate leaves spreads on the surface. Stem from one to three inches in height, with one or two pairs of leaves on it, and terminated by one very large upright handsome flower. There is sometimes more than one flower, in gardens, where the plant is strong and healthy. This plant, in its natural alpine situation, has little or no stem, whence its trivial name; but it acquires one in a state of cultivation. It flowers in our gardens in April and May, and sometimes a second time in autumn. The flowering time in the Alps, is in June, July, and August. Ray observed it growing upon the highest parts of Mount Jura.—Native of Switzerland, Austria, Carniola, and Silesia. This species is commonly propagated by parting the roots; but it must not be often transplanted or parted: in order to have it flower strong, it should have a loamy soil and a shady situation. It may also be increased by seeds sown in autumn; in a good soil the plants will be strong enough to flower the second year, and these seedling plants will flower much stronger than those which are propagated from offsets. Ray observes, that although it be a native of the highest Alps, yet it readily admits cultivation; and that it was much sought after in his time, by gardeners and florists, for the beauty of the flower. It is still much esteemed for the brilliant azure of its flower, so large in proportion to the size of the plant. The other alpine *Gentianellas* may be increased and treated in the same manner. In common with other alpine plants, they love a pure air, an elevated situation, and a loamy and moderately moist soil; so that it is absolutely impossible that they should ever flourish in the neighbourhood of London.

15. Gentiana Nana. *Tufted Dwarf Gentian.* Corolla five-cleft, bell-shaped, bearded on the throat; stem-leaves ovate; root small, annual, very slender, bitterish; stems in tufts, from an inch to a span in height, seldom branched, decumbent at bottom, then upright, jointed, leafy, terminated by one flower; root-leaves four, seldom more, spreading on

the ground; both they and the stem-leaves smooth, quite entire, bright green, sessile, flat; calix cloven to the base, green, smooth, the segments equal, lanceolate.—Native of Dauphiny, Savoy, Piedmont, and Silesia.

16. Gentiana Exaltata; *Crowned Centian.* Corollas five-cleft, crowned, notched; peduncle very long, dichotomous, terminating.—This rises with an upright branching stalk, nearly two feet high; leaves oblong, smooth, acute-pointed; the upper part of the stalk divides into several forks, between which are six or seven long naked peduncles, each sustaining one large blue flower.—Native of the West Indies. Dr. Houston found abundance of it at La Vera Cruz, in low moist places, where the water stagnates, remote from the coast. This plant is propagated by seeds, sown on a hot-bed soon after they are ripe. They must be treated in the same manner as other tender annual plants from hot countries. If the seeds be sown in autumn, in pots placed in the tan-bed in the stove, they will succeed better than when sown in the spring; the plants will flower early, and good seeds may be obtained.

17. Gentiana Decumbens; *Creeping Gentian.* Corollas five-cleft, bell-shaped; root-leaves very long, ten or more in a bunch, linear-lanceolate, three-nerved; stalk decumbent; root perennial; stems one or two, coming out on the side of the bunch of leaves, decumbent at bottom, then rising, a span or foot in height, naked at bottom, a pair of leaves in the middle, bearing leaves and flowers at the end; stem-leaves linear; flowers sessile, commonly three, terminating among the top leaves, and two pairs opposite, accompanied also with leaves, seldom in threes. Sometimes the plant is larger, the root-leaves nearly an inch in breadth, and the flowers more in number; and sometimes there is a little axillary branch with one flower on it at the lowest pair of sessile flowers. It varies with a white and purplish corolla; is generally bitter and aromatic, and therefore medicinally used in Thibet.—Native of farther Siberia, where it begins to flower in July, and continues till stopped by the frost.

18. Gentiana Algida; *Cold Gentian.* Corollas five-toothed, bell-shaped, sessile, dotted; root-leaves in bunches; root perennial; stem very straight, round, from a finger's length to a span in height, with two or three pairs of broad, lanceolate, three-nerved leaves on it, slightly sheathing it at the base; flowers three or four together, sessile among the upper leaves, with sometimes an accessory one or two from the next axil; calix purplish, cylindric, cut on one side, when the flower is in maturity cloven half way down; the segments linear, two alternately larger than the rest; seeds gray, scariose, and wrinkled. The leaves next the root are collected into a bunch; they are pale green, juicy, tender, and linear-lanceolate. The whole plant becomes pale in drying. It is intensely bitter, and proper to be used medicinally.—Found on the snowy alpine tops of eastern Siberia, and other parts of the Russian empire, flowering in August.

19. Gentiana Saxosa; *Stony Gentian.* Corollas five-cleft, bell-shaped; leaves spatulate; root perennial; stem herbaceous, single, very seldom subdichotomous, slender, round, grooved, erect, smooth and even, a hand or a span in height; peduncles two or three together, seldom four, from the top of the stem, one-flowered, angular, from upright spreading, two inches long; flowers white, and upright.—Native of Dusky Bay in New Zealand.

20. Gentiana Montana; *Mountain Gentian.* Corollas five-cleft, bell-shaped; leaves heart-shaped, sessile.—Found also in Dusky Bay, New Zealand.

21. Gentiana Glauca; *Blue Gentian.* Corolla five-cleft, bell-shaped; flowers sessile; leaves ovate-rounded; root filiform, slender, woody; root-leaves in a ring, thickish, with nerves scarcely visible; stem simple, round, upright, from two to four inches in height, having three or four pairs of sessile leaves on it, which are somewhat fleshy, and smaller than the root-leaves; flowers usually three, seldom one only, at the end, together with an accessory pair from the uppermost axils.—There is a variety of this, in high exposed rocky situations, with two or three flowers sitting close to the root-leaves, without any stalk. The former flowers from June to August, and ripens its seeds in September. It is a native of the highest mountains of Kamtschatka.

** *Corollas five-cleft, or thereabouts, and funnel-shaped.*

22. Gentiana Verna; *Green Gentian.* Corolla five-cleft, longer than the stalk; root-leaves crowded, larger than the others. This is a little plant, hardly two inches high. A perennial yellow branched root, puts up several simple stalks, each supporting one flower; root-leaves spread in a ring, smooth, ovate-lanceolate; on the stalk two or three pairs; calix five-cornered, half the length of the corolla; segments of the corolla slightly serrate, either blue or beautifully deep azure, and between each a small horned whitish blue process; capsule fusiform, long, bursting when touched. Linneus observes, that this plant is scarcely bitter. It varies with a white flower. A beautiful blue colour may be extracted from the flowers, as they are more commonly found.—Native of Switzerland, Savoy, Piedmont, Austria, Carniola, and Silesia. Ray found abundance of this plant on the mountains near Geneva. It flowers early in the spring, both in moist meadows, and in alpine situations. Clusius declares, that this plant rejects all culture.

23. Gentiana Pyrenaica; *Pyrenean Gentian.* Corolla ten-cleft, equal; the outer divisions ruder than the others. This plant strongly resembles the preceding species, but the corolla is regularly ten-cleft; the segments blunt; the alternate or outer ones green on the outside, within all blue; leaves linear or linear-lanceolate; stalk perennial, procumbent, with upright branches, bearing one flower the length of the branch.—Native of the Pyrenees.

24. Gentiana Altaica; *Altaic Gentian.* Corolla ten-cleft; the clefts alternately smaller, and serrulate; stalk shorter than the flowers; root slender, two or three inches long; both root-leaves and stem-leaves closely imbricate, subulate-linear, sharp; stem usually single, but sometimes two or three, about an inch in length, somewhat naked under the flower, with one pair of leaves near it. This is very nearly allied to the preceding species, and, like that, is almost void of bitterness.—Native of the snowy cliffs of the Altaic Alps.

25. Gentiana Pumila; *Small Gentian.* Corolla five-cleft, subserrate; leaves lanceolate-linear; stems one-flowered; leaves sharp, scarcely four lines long, and one broad; stem one-flowered, about an inch in height, with two pairs of leaves, one near the calix, which is cloven half way down, and is angular, with five raised lines; tube of the corolla yellowish, not plaited; segments quite entire, with horned processes.—Native of the mountains of Dauphiny, Austria, and Carniola.

26. Gentiana Bavarica; *Bavarian Gentian.* Corolla five-cleft, serrate; leaves ovate-obtuse; root-leaves spreading in a ring perfectly round; stem often prostrate, three inches or more in height, with eight or ten pairs of ovate leaves on many; flower solitary, large; calix half the length of the tube of the corolla, divided not more than a third of the way down, into five sharp segments, frequently violet-coloured; segments ovate, moderately acuminate, a little serrate, of the finest sky-blue; the processes, shortly horned, arise from a white line of the tube. It varies with a white flower, like most of the others. The Siberian plant is taller and larger in

all respects than the German. They flower early in the spring. The latter is found near the lake Baikal, and the Carpathian mountains, in the Russian empire; and the former, in Switzerland and Germany.

27. Gentiana Aurea; *Golden Gentian.* Corollas five-cleft, extremely acuminate; throat beardless and awnless; branches opposite; root annual. Stem erect, a span high; branches at the root several, small, very upright; root-leaves ovate, smooth, small; stem-leaves similar, larger, sessile, bluntish; flowers terminating, few in a head; calices narrow, subpeduncled, divided into five awl-shaped segments; tube of the corolla the length of the calix; border yellow; the segments quite entire, without any teeth interposed.—Native of the mountains about Bourdeaux, and of Norwegian Lapland.

28. Gentiana Nivalis; *Winter Gentian.* Corollas five-cleft; branches one-flowered, alternate; root annual, small; stem one-flowered, but frequently branched, having one flower coming out from each axil, regularly one above another, often alternately, but sometimes in pairs; root-leaves ovate, bluntly lanceolate, few; stem-leaves a little longer, ovate-acuminate, as far as eight pairs: calix five-cornered, half the length of the corolla, cut one-third of the way; segments ending in a long and very sharp point, they are lanceolate, greenish on the outside, deep blue within, having a tinge of green. It varies, like most of the others, with a white corolla: the fading from blue to white is indeed very common in flowers. Haller observes, that it is a genuine alpine plant, common in the mountains of Lapland, between Savoy and Piedmont, on mount Cenis. Linneus also remarked it upon the Pyrenees, adorning them, as he expresses it, with the splendour of its deep vivid blue flowers; and Mr. Dickson saw it on Ben Lawers in Scotland.—This, with the two following species, being partial to spongy ground, cannot easily be cultivated in gardens. The seeds must be sown in pots, or in a shady situation, upon a moist boggy ground, in the autumn. When the plants come up, the surface of the ground should be covered with moss, which should be kept continually moist.

29. Gentiana Aquatica; *Water Gentian.* Corollas five-cleft, terminating, sessile; leaves membranaceous at the edge; root annual, filiform, somewhat branched, white; root-leaves spreading in a ring, very much crowded together, ovate-rounded; stem-leaves imbricate, ovate-sharpish, decussated. Stems from two to twenty, usually simple, but sometimes branched, dichotomous, in the flowering plant very short, but in the fruiting plant lengthened out, the leaves becoming more remote, and produced into an oblong form; flowers small, blue, varying to green and white; calix largish, five-cornered; the segments awl-shaped, sharp, equal. It approaches very nearly to the preceding species, and grows to a larger size in northern than in southern countries. Being very bitter, the Daurians use it as a medicine. It flowers in the middle of May, and is found from the river Jenisca to the eastern ocean, in sandy wet meadows, and especially by lakes and rivers: it is also found in China and Japan. See the preceding species.

30. Gentiana Utriculosa; *Bottle Gentian.* Corollas five-cleft, salver-shaped; calices plaited and keeled; root slender, fusiform, fibrous, yellow, annual, but, according to Allioni, perennial; root-leaves spreading on the ground in a four-cornered tuft, but soon decaying; stem upright, a finger's length or a hand in height, sometimes higher, slightly angular, smooth; branches opposite, each with the stem terminated by one flower; leaves seven pairs or more, ovate, blunt, quite entire, connate, sessile, upright, bright green, smooth; calix five-cornered; the corolla is sometimes six-cleft. Ray remarks that this species differs from all the Gentianellas which he had observed, in having the tube of the corolla no longer than the calix, but the segments of the former spreading immediately over the top of the latter, as in the Pink. Mr. Miller observes, that after the top flower decays, there are frequently two smaller flowers come out from the side of the stalk, at the two upper joints; as these flower after each other, there is a succession of flowers till autumn: it varies with white flowers.—Native of the mountains of Switzerland, Germany, Austria, Idria, and Italy, flowering in June. Ray says, he found it in abundance, passing from Munich to Augsburg.

31. Gentiana Exacoides; *Healing Gentian.* Corollas five-cleft, salver-shaped; calices membranaceous and keeled; stalk dichotomous; leaves cordate. The whole of this plant is only about a finger's length; stem simple, slender, upright, angular; leaves small, roundish, broad-veined, connate, two or three pairs; flowers terminating in a loose, broad, ventricose, membranaceous, striated calix; segments of the corolla oblong, narrow, equal, yellow.—Native of the Cape.

32. Gentiana Centaurium; *Centaury Gentian*, or *Lesser Centaury.* Corolla five-cleft; stem dichotomous; pistil simple. The whole of this plant is smooth and glaucous; root fibrous, annual, woody, yellowish; stalk from four inches to a foot in height, upright, hexangular or quadrangular, generally simple, but frequently putting out upright simple branches, some way above the root, and sometimes branching all the way to the top; leaves next the root oblong, or wedge-shaped, narrowed at the base, blunt at the end; stem-leaves lanceolate, pointed, upright, the uppermost often bent inward; floral-leaves linear, all sessile, three-nerved, quite entire; flowers in a corymb, upright, and subsessile; calix upright, slightly adhering to the tube of the corolla, permanent; segments awl-shaped, connected by a membrane, at the base two very short awl-shaped bractes; corolla tube one-third longer than the calix, slightly coloured, streaked; border generally rose-coloured or pink, plaited at the base, the fissures keeled on the outside, and the segments on the inside; there are no ears or processes between the segments. Gerarde remarks, that the flowers, which he describes as growing at the top of the stalk, in a "spokie bush or rundell, of a red colour tending to purple, in the day-time, and after the sun is up, do open themselves, and towards evening do shut up again." This plant is not uncommon with a white corolla. It is often found in boggy places, with a very short stem, and remarkably branched. This plant is extremely bitter, with a disagreeable flavour; so that, as Haller observes, it was called *fel terræ*, or gall of the earth, by the ancients: he also determines it to be the *graveolentia centaurea* of Virgil, to which Lucretius gives the more significant epithet of *tristia*, expressive of its extreme bitterness. This herb forms the basis of the famous Portland powder, which prevents fits of the gout when taken in a large quantity, and a long time together; but is said at the same time to bring on hardness of the liver, palsy, and apoplexy. An infusion of the whole plant is, however, an excellent stomachic medicine, as it strengthens the digestive faculties, excites an appetite, opens obstructions of the viscera, removes the jaundice, kills worms, and cures the ague. A decoction of the whole plant destroys lice, and cures the itch.—For its propagation and culture, see the second species.

33. Gentiana Pulchella; *Neat Gentian.* Corolla five-cleft; tube elongated; style simple; stalk quite so; stem scarcely an inch high; root-leaves commonly in fours, ovate; stem-leaves opposite, obovate, all naked, quite entire; flower terminating, solitary; calix five-cornered; segments acute, membranaceous.—Native of Sweden.

34. Gentiana Verticillata; *Whorled Gentian.* Corollas quinquefid, in whorls eight together; stem scarcely a hand high, round, and somewhat woody; branches opposite, extremely simple, four-cornered, compressed, smooth and even; leaves subsessile, lanceolate, smooth and even, longer than the internodes of the branches; flowers sessile.—Native of the East Indies. For its propagation and culture, see the first species.

35. Gentiana Maritima; *Procumbent Sea Gentian.* Corolla five-cleft; styles twin; stem dichotomous, few-flowered; the calix is permanent, and not easily separable from the corolla. There is a variety with two flowers at top, one terminating, the other lateral, sometimes bifid or three-flowered, the lateral flowers equally peduncled, the middle one sessile. It is an annual plant, flowering in May in its native countries, but with us in July and August.—Native of the sea-coast of the south of France and Italy; about Naples; near Tefflis in Persia; and every where on the shores of the Euxine, where it usually has white corollas; it has been found also in the Azores. See the first species.

36. Gentiana Spicata; *Spiked Gentian.* Flowers alternate, sessile; corollas five-cleft. This is an annual plant, with an upright stalk, about a foot high, sending out several branches towards the top; the flowers are produced from the side and the top of the stalk, in loose irregular umbels, they are white, and about the size of those of common Centaury; it frequently has purple corollas.—Native of the south of France and Italy.

37. Gentiana Verticillaris; *Rounded Gentian.* Flowers in whorls; corollas five-cleft; stalk extremely simple; root perennial; stems several, a hand high, jointed; leaves lanceolate; flowers sessile; the nectary a roundish scale, annexed to the base of each filamentum, within the tube of the corolla.—Native of America.

38. Gentiana Quinqueflora; *Five-flowered Gentian.* Corollas five-cleft; stalk acute-angled; leaves ovate, stem-clasping; stem undivided and four-cornered, with the corners membranaceous; leaves three-nerved, sharp; peduncles opposite, being at the end; five flowers on very short pedicels.—Found in Pennsylvania by Kalm.

39. Gentiana Scilloides; *Squill-like Gentian.* Corollas five-cleft; stalk one-flowered, prostrate, branched; leaves obovate, obtuse, three-nerved. It is a foot in height, tender, and very smooth, with but few branches; leaves subpetioled, small, the upper ones more so, remote; peduncles long, naked, terminating, one-flowered; bractes in pairs, below the flower, opposite, awl-shaped, upright; calix linear; tube of the corolla funnel-form, longer than the calix; border flat, beardless, yellow.—Found by Masson in the Azores.

40. Gentiana Aphylla; *Leafless Gentian.* Corolla five-cleft, salver-shaped; stalk leafless. This is a very small, filiform, annual plant, scarcely branched; stem upright, simple, four inches high, tender, shining, straw-coloured, with opposite, very short remote stipules at the joints; flower terminating, solitary, erect, yellowish, inodorous.—Native of the mountainous woods of Martinico, where it is found in the hollow of trees, scarcely pervious to the light.

41. Gentiana Amarella; *Autumnal Gentian.* Corollas salver-shaped, five-cleft, (sometimes four or even three cleft,) bearded at the throat; segments of the calix five, equal; root annual, twisted, yellowish; stem square, erect, bearing several pairs of sessile, ovate, three-nerved, dark-green leaves, and clothed from top to bottom with flowers, on short, axillary, forked side-branches, one being terminal; calix pale, with green ribs, and divided half way down into five, lanceolate, nearly equal segments; tube of the corolla twice as long as the calix; segments of the border five, rarely three or four, horizontal when the sun shines, the orifice crowned with a purple upright fringe, which conceals the stamina. A variety, under the name of the *Taller Autumnal Gentian with centaury-like leaves*, is said, in Ray's *Synopsis*, to have been found near Welwyn in Hertfordshire, and Belchamp St. Paul in Essex; but it does not differ in any thing essential from the other.—It flowers from July to September, though Ray says earlier. It is not uncommon in calcareous soils, and in dry pastures, in most parts of Europe.

42. Gentiana Auriculata; *Eared Gentian.* Corollas four and five cleft, bell-shaped, villose within, the alternate segments cordate. Upright, almost simple, a foot or less in height: root slender, somewhat woody: stalk subquadrangular, a little contracted: root-leaves smaller than the others, ovate, attenuated towards the base; the lower stem-leaves resembling these, the rest very remote from each other, oblong, five-nerved, sessile; the uppermost somewhat clasping, and more lanceolate, they are all paler underneath, and sometimes purplish: flowers five on the top of the stalk, between two pairs of leaves, on very long peduncles, and sometimes from the next axils accessory little branches, having two or three flowers, and one pair of leaves.—Near the sea it branches very much, and grows large; the farther it recedes from the sea, the smaller it becomes, insomuch, that in mossy wet situations inland, it is hardly an inch high, slender, and one-flowered. The maritime plants have generally the corolla violet or reddish; on open heaths, at a distance from the sea, it is pale blue or white; and in marshes, commonly blue. It is found throughout all Kamtschatka, the islands towards Japan and America, and on the shore of America itself. The herb, both fresh and dry, is used by the natives as a stomachic and antiscorbutic, and against vernal diarrhœas, caused by feeding on fish; it is not, however, so bitter as some of the other species. It flowers in the beginning of August, and perfects its seeds in September.

**** Corollas not five-cleft.*

43. Gentiana Campestris; *Field Gentian.* Corollas four-cleft, bearded at the throat; calix four-leaved, the two outer segments very large. Although both Linneus and Scopoli pronounce this and the forty-first species to be one and the same, others have no doubt of their being perfectly distinct; the calix consists of four separate leaflets, the two outer oval-lanceolate, very large, the inner lanceolate, something membranaceous, but one-fourth the breadth of the outer; the flowers also are larger than those of the Amarella, though the plant is generally smaller. Haller describes it as extremely branched, and there are specimens in England branched from the root to near the top; the branches long, with leaves and flowers scattered the whole length; but Amarella has the branches short, even the lower ones not exceeding the length of the leaves from which they sprang, the upper ones in general are much shorter: it is rather paler in colour, and never so tall as Amarella; the stem being less drawn up, the flowers fewer, and on longer flower-stalks, they appear more corymbose: but the essential mark of distinction is in the calix being deeply divided into four unequal segments, two external, opposite, oval, very large, completely enfolding and concealing the two others, which are lanceolate, and not a fifth part of their breadth. Linneus and Pallas say, that the poor natives of the countries where it is found, use this species instead of hops, and as a medicine, in common with many others of the same genus. In the *English Botany*, it is observed, that it grows in pastures, more particularly towards the sea, and that it is not so much confined to a calcareous soil as the Amarella. Linneus says,

GARDENIA ___ *Cape Jasmin.*

P. 596.

GENTIANA SAPONARIA ___
Soapwort-leaved Gentian.

P. 601.

P. 604.

P. 602.

GENTIANA VERNA ___ *Spring Gentian.*

GENTIANA CAMPESTRIS ___
Field Gentian.

Published by Nuttall, Fisher & Dixon, Liverpool.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

that it flowers in summer after the solstice, and with us in September and October. Various months are set down by others, as from April to June, and August: Dr. Withering has seen it flowering in a garden in October.—Native of most parts of Europe, from Lapland to Sicily; and is often found in Russia, and in Siberia, near the lake Baikal. In England it is observed near Kendal, and other places in the north; near Bury, in Suffolk, and Stratton heath in Norfolk; also in Cornwall, Cheshire, and Wales.

44. Gentiana Ciliata; *Fringed-flowered Gentian.* Corollas four-cleft, ciliate at the edge; root small, round, straight, biennial; stalk from two to eight inches long, reddish, angular, smooth, leafy, sometimes simple and one-flowered, sometimes with opposite branches, terminated by upright, sessile, solitary flowers; leaves sessile, the lower ones shorter, obovate, or spatulate, the rest linear-lanceolate, acuminate, longer, quite entire, upright, smooth, not veined. The corolla varies in different countries; in America, it is much ciliated, in Italy but little, in Iceland and Norway it is only serrate.—Native of Switzerland, Norway, Denmark, Germany, Austria, Carniola, Italy, Siberia, Caucasus, and Canada. It flowers in August and September; and till October in Italy, and even till winter. It is used as a medicine by the natives, and deserves admittance into every garden for the beauty of its flowers. For its propagation and culture, see the fourteenth species.

45. Gentiana Cruciata; *Crosswort Gentian.* Corollas four-cleft, beardless; flowers in whorls, sessile; leaves lanceolate, three-nerved, connate; flowers few from the lower axils, but more crowded from the top of the stalk. At each bunch of flowers there are two small leaves; calix short, truncate, with the teeth remote and short; corolla of a fine blue colour. The root is perennial, and puts up several stalks, from a span to a foot high and more. The leaves being in pairs, and each pair crossing the next at right angles, has given occasion to the trivial name *cruciata*, and the English name *Crosswort Gentian.* In the English gardens, it flowers in June, and sometimes in May; in other parts, it flowers in July and August.—Native of Switzerland, Germany, Austria, Carniola, Hungary, the Apennines, Siberia, and various parts of the Russian empire. For its propagation and culture, see the fourteenth species.

46. Gentiana Sessilis. Corollas four-cleft; flowers stemless; leaves ovate.—Native of Chili.

47. Gentiana Filiformis; *Least Gentian*, or *Marsh Centaury.* Corollas four-cleft, beardless; stalk dichotomous, filiform; root white, woody, simple, or with large fibres; root-leaves small, narrow, oblong; stalk about three inches high, simple or branched, at each joint a pair of small, narrow, sharp leaves; flowers at the end of the branches on long pedicels, yellow, small, almost always closed, seeming, as far as could be discerned, to have five petals; capsule elliptical. Every part of the herb is smooth; the flowers expand only in bright sunshine. The time of flowering is July.—It is a small annual plant, growing in the bogs of Denmark, France, and England. Mr. Ray first noticed it, in rotten marshy ground, near St. Ives in Cornwall. Dr. Pulteney sent it out of Dorsetshire; and it has since been found in Hampshire and Devonshire.

48. Gentiana Heteroclita; *Irregular Gentian.* Flowers four-cleft, irregular; stalk brachiate; root annual, fibrous; stalk erect, a span high, dichotomous, quadrangular; leaves sessile, ovate, quite entire, smooth, somewhat fleshy; the lower ones roundish; under the upper ramifications awl-shaped, very short; flowers sessile, solitary in the divisions of the stem, of a purple colour.—Native of Malabar.

49. Gentiana Scandens; *Climbing Gentian.* Stem shrubby, climbing; corollas bell-shaped, five-cleft, in elongated pendulous panicles; stem large, woody, round, with many very long climbing branches, without spines or tendrils; leaves ovate-lanceolate, quite entire, smooth, ash-coloured, opposite; flowers lateral, with a small fine-toothed calix, and a bell-shaped corolla, with a wide tube, on the outside ash-coloured, dotted with white, within filled up with dense purple hairs; border spreading, white, bluntly five-cleft, short; the segments usually laciniate, plaited; capsule roundish.—Native both of China and Cochin-china, climbing trees and hedges. It has an unpleasant fetid smell, which is lost in drying, and a very bitter flavour. In the Chinese plant, the leaves are often cordate, slightly emarginate at the base. It is tonic and stomachic.

50. Gentiana Fimbriata; *Fringed Gentian.* Corollas bell-shaped, ten-cleft, alternate segments fringed and smaller; stem round, erect, simple; leaves lanceolate, connate at the base, two inches long, very smooth, three-nerved; flowers from the upper axils and at the end of the stalk, the lower ones solitary on each side, sometimes only in one axil, the terminating ones four, sessile; corolla large, an inch and a half wide.—Native of Virginia.

51. Gentiana Diffusa; *Branched Gentian.* Stem branched, dichotomous, divaricate; leaves ovate-oblong; peduncles capillary, one or two flowered. Stem herbaceous, four-cornered, with decurrent lines, smooth; leaves sessile, opposite, an inch long; the upper ones subcordate, all very smooth, ending in a short dagger-point, and three-nerved; peduncles at the ends of the branchlets commonly in pairs, one longer, two-flowered, the other shorter, one-flowered; at the base, on each side, is a bristle-shaped leaf; calix tubular, smooth.—Native of the East Indies.

52. Gentiana Albens; *White Gentian.* Leaves ovate, stem-clasping; calices ovate; stem trichotomous.—Native of the Cape.

53. Gentiana Dubia; *Doubtful Gentian.* Corollas four-cleft; calix lanceolate; panicle terminating, trichotomous, superdecompound.—Native of the Cape.

Geoffroya; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, half five-cleft; the two upper divisions diverging, spreading. *Corolla:* papilionaceous; banner roundish, emarginate, flat, reflex; wings the same length with the banner, blunt, concave; keel compressed, the same length and figure with the wings. *Stamina:* filamenta diadelphous, (simple and nine-cleft,) the length of the keel; antheræ roundish. *Pistil:* germen roundish; style subulate; stigma obtuse. *Pericarp:* drupe ovate, large, with a longitudinal groove on each side. *Seed:* nut subovate, woody, rather flatted, with a longitudinal groove on each side, acute, two-valved. Essential Character. *Calix:* five-cleft. *Drupe:* ovate. *Nut:* flatted.——The species are,

1. Geoffroya Spinosa; *Thorny Geoffroya.* Thorny: leaflets oblong. It is described by Jacquin as an inelegant tree, twelve feet high, upright, branched; thorns few, awl-shaped, frequently an inch long, thick on the trunk and branches; leaves pinnate; mid-rib smooth, grooved above, four inches long; leaflets commonly seven on each side, with an odd one, oblong, blunt, smooth, quite entire; racemes simple, dense, axillary, three or four inches long; flowers on very short peduncles, with corollas of a dirty fulvous colour, diffusing widely a most fetid odour. The drupe does not ill represent the fresh fruit of an almond; the rind is very slighly tomentose, and of a greenish yellow colour;

the pulp is soft, sweet, yellowish, has a nauseous smell, and stains the hands with a rust colour, not easily washed out; the nut or stone is whitish, adheres close to the pulp, and contains a white kernel that has a farinaceous astringent taste. A plant with papilionaceous flowers, and a drupe for a fruit, is certainly a great singularity.—Native of Carthagena in New Spain.

2. Geoffroya Inermis; *Smooth Geoffroya.* Without thorns: leaflets lanceolate. This tree rises to a considerable height, and towards the top sends off several branches; the wood is hard enough to admit of being polished. The external bark is smooth and gray, internally it is black and furrowed; leaves pinnate; leaflets opposite, oblong, ovate, or lanceolate, acuminate, smooth above, nerveless beneath, on short petioles; flowers in clusters, upon large branched spikes; calix very slightly five-parted, with short ovate divisions; corolla pale rose-colour; keel of the corolla ovate, spreading, very slightly divided into two parts. The fruit is a large subovate drupe, enclosing a woody nut.—Native of Jamaica, where it has the name of *Cabbage-bark*, or *Worm-bark-tree.* The bark, which has a mucilaginous sweetish taste, and a disagreeable smell, was first noticed as a vermifuge by Mr. Peter Duguid; but Dr. Wright, who resided a long time in Jamaica, has communicated the fullest information concerning this tree: according to him, the bark is powerfully medicinal, and its anthelminthic effects have been established at Jamaica by long experience. It may be administered in decoction, syrup, powder, or extract; but must be cautiously used, in small doses at first, gradually increasing them as the case may require.

Geranium; a genus of the class Monadelphia, order Decandria.—Generic Character. *Calix:* five-leaved; leaflets ovate, acute, concave, permanent. *Corolla:* petals five, obcordate or ovate, spreading, regular; nectary five honied glands, fastened to the base of the longer filamenta. *Stamina:* filamenta ten, awl-shaped, connected slightly at the base, spreading at top, shorter than the corolla; antheræ oblong, versatile. *Pistil:* germen five-cornered, beaked; style awl-shaped, longer than the stamina, permanent; stigmas five, reflex. *Pericarp:* capsule five-grained, beaked; the cells opening inwards, each having a simple naked tail fixed to it. *Seeds:* solitary, ovate-oblong. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled, regular; nectary five honied glands, fastened to the base of the longer filamenta. *Fruit:* five-grained, beaked; beaks simple, naked, neither spiral nor bearded.—This genus, as constituted by Linneus, having become very unwieldy through modern discoveries, it is found very convenient to divide it; and a division is commodiously made from this remarkable circumstance; namely, that in some species all the ten filamenta are fertile; whilst in others, three or even five of them are castrated, as Linneus terms it, that is, are destitute of antheræ. Hence three genera are now constituted out of one genus: *Erodium*, with five fertile stamina only; *Pelargonium*, with seven; and this, retaining the old name, with all the ten fertile. There are also other marks of discrimination, recited in their respective essential characters. These three artificial genera or families, however, form but one natural family, agreeing in their five-leaved calices, their five-petalled corollas, their pentacoccous rostrated fruits, and their general habit and structure. They also agree in their inflorescence, the peduncles being curved downwards before flowering-time; but when the flowers are about to open, the general peduncle first, and then each pedicel, becoming erect.—The annual sorts of Geranium may be increased by seeds; and if these be permitted to scatter, the plants will come up without any further care. The perennial sorts, which are more numerous, may be increased the same way, or by parting the roots in autumn. They may be planted in almost any soil or situation, and require no other culture but to keep them clean from weeds. Many of them, indeed, are common weeds, but even some of these have beauty enough to recommend them to a place in a garden, particularly the second, eighteenth, twenty-first, and twenty-second species. Most of the *Erodiums* are also hardy, and may be increased in the same manner; the annual sorts by seeds, and the perennial by dividing the roots. Some of them require the protection of a green-house. The seeds of the Glaucophyllum should be sown on a moderate hot-bed in spring; and when the weather is warm, the plants should be carefully transplanted on a sheltered border.——The species are,

* *Peduncles one-flowered.*

1. Geranium Sibiricum; *Siberian Crane's Bill.* Peduncles commonly one-flowered; leaves five-parted, acute; leaflets pinnatifid; root perennial; stem herbaceous, annual, diffusely dichotomous, jointed, almost round and smooth. At the divisions on each side, is a lanceolate acuminate stipule; calicine leaflets somewhat hirsute, with short awns; petals pale purplish, without any streaks, scarcely longer than the calix, either quite entire, or slightly emarginate.—It flowers in June, and is a native of Siberia.

2. Geranium Sanguineum; *Bloody Crane's Bill.* Peduncles one-flowered; leaves five-parted, trifid, orbiculate; root perennial, somewhat woody. The whole plant set with white spreading hairs; stems a foot or more in height, lax, spreading, branched, round, jointed, swelling at the joints; calicine leaflets oval, with membranaceous reddish edges, and terminated by a short red awn; petals obcordate, very large, pale red, with deeper veins, hairy at the base. The whole plant frequently turns red or purple after flowering.—Native of many parts of Europe, in thickets and rocky pastures, flowering most part of the summer, and often introduced into gardens, as an ornamental plant.—Mr. Miller insists, that the Lancashire Bloody Crane's Bill is a distinct species; the plants, which he raised from seeds, having always continued the same. The stalks are shorter, and spread flat on the ground; the leaves are much less, and not so deeply divided; and the flowers are much smaller, of a pale colour, marked with purple. It grows naturally in Lancashire and Westmoreland. There are also other varieties of this species, but none of sufficient importance to be inserted here.

3. Geranium Spinosum; *Shining Crane's Bill.* Peduncles one-flowered; stem fleshy, knobbed; spines solitary, strict. This is a low succulent plant; root simple, scarcely fibrous; stem suffruticose, erect, branched, fenced all round with broad, smooth, irregular tubercles, from the centre of which arises a long sharp black spine; leaves opposite, subsessile, wedge-shaped, reflex, sinuate-crenate; flowers solitary, peduncled; calix awned; corolla purple, spreading, larger than the calix; petals quite entire.—Native of the Cape.

4. Geranium Emarginatum. Peduncles one-flowered; leaves ovate, emarginate, crenate.—Native of the Cape.

** *Peduncles two-flowered, shrubby.*

5. Geranium Anemonifolium; *Smooth Crane's Bill.* Leaves palmate; leaflets pinnatifid; stem shrubby. The whole plant is remarkably smooth. From a thick root arises a very short stem, the thickness of a finger, and succulent, whence spring branches two feet long, with very long leafless internodes; root and stem-leaves numerous, subpeltate, palmate, five-lobed; lobes pinnate; pinnules gashed, having little notches ending in a very short awn; petioles longer

than the leaves, thick, red, declining; stipules membranaceous, reddish, kidney-form; flowers in the forks, and at the ends of the branches, on erect peduncles; they are of a fine crimson, as large as a half-crown; petals quite entire; capsules smooth. It flowers from May to September.—Native of Madeira.

6. Geranium Macrorhizum; *Long-rooted Crane's Bill.* Calices inflated; petals entire; pistil very long; scape dichotomous; root perennial, the thickness of a finger, becoming woody, dark purple on the outside, round, single, or branched, having many long, round, thickish fibres; hence springs a bundle of leaves, and several almost upright stems, or rather scapes; these are all very soft and smooth, like the leaves of the Marshmallow, with a very short close down. Most of the leaves are large, subpeltate, seven-parted; flowers large and elegant, of a deep red or bright purple colour. The whole plant emits an agreeable odour when rubbed.—It flowers in May or June, and was first imported from Italy, where it is a native.

**** Peduncles two-flowered, perennial.*

7. Geranium Canescens; *Silky-leaved Crane's Bill.* Leaves subpeltate, five-parted, canescent underneath; lobes gashed; petals emarginate. It flowers in May and June.—Native of the Cape.

8. Geranium Incanum; *Hoary Crane's Bill.* Calices awned; petals entire; arils hirsute; leaves subdigitate, pinnatifid. Herbaceous: stems filiform, somewhat knotty, having bristle-shaped scales at the knots; lower leaves scattered, prostrate, on long petioles, five-parted, multifid, hoary underneath, with linear segments; peduncles scattered, either opposite to the petioles or axillary, long, with bristle-shaped bractes, either all two-flowered, or else the upper ones four-flowered.—Native of the Cape.

9. Geranium Tuberosum; *Tuberous-rooted Crane's Bill.* Leaves many-parted; segments linear, subdivided, obtuse; root tuberous; plant low, scarcely branched; flowers very abundant, terminating, appearing in May; calix awned.—Native of Italy and Silesia.

10. Geranium Phœum; *Dark-flowered Crane's Bill.* Peduncles solitary, opposite to the leaves; calices slightly awned; stem erect, nearly cylindrical, eighteen inches to two or three feet high, below woolly, and having a few long shining hairs on them; petals waved; leaves soft, the younger ones silky, ribbed; the lower on long petioles, in pairs, the upper solitary; lobes mostly five, unequally toothed, the lateral ones lobed; the lower leaves have frequently six or seven lobes, and the uppermost only three or four; peduncles very slender; petals ovate, somewhat five-cornered, acuminate, waved at the edge, blackish purple, shining; claws white, marked with five lines, and woolly; arils hairy.—Native of Switzerland, Hungary, Stiria, and of Great Britain, where it is found about Clapham and Ingleton in Yorkshire, and at Tovel, near Maidstone, in Kent.

11. Geranium Fuscum; *Brown Crane's Bill.* Peduncles two-flowered, opposite to the leaves, in pairs; stem patulous; petals quite entire. Linneus unwillingly separates this from the preceding species, with which it agrees in many circumstances, and particularly in having the whole corolla spread out, and dark-coloured; it differs, however, in having the leaves rigid; the corolla more reflex and smaller; the petals suborbiculate, mucronate, quite entire, flat; the peduncles not solitary, two-flowered, but two distinct.—Native of the south of Europe.

12. Geranium Reflexum; *Purple-flowered Crane's Bill.* Peduncles and leaves alternate; petals reflex, laciniated, the length of the calix, which is awnless; stem a foot high, dichotomous, or bifid, patulous, pubescent; upper leaves alternate, five-lobed, wrinkled, tomentose, not spotted; flowers drooping, on peduncles opposite to the leaves; calix awnless; petals red, somewhat gashed, not longer than the calix, reflex, gaping at the base.—Native of Italy.

13. Geranium Lividum; *Wrinkled-leaved Crane's Bill.* Leaves half-seven-lobed, gashed; calices simple, hairy; petals flat, somewhat waved. This is allied to the two last: stipules hirsute, green, those of the stem large, on the petioles small; flower much larger, flat; the petals marked with a very small star, acuminate, broad, perfectly flat, elegantly plaited, and serrate at the edge, pale blue, with a livid centre; root thick, woody, rufous.—Native of Switzerland.

14. Geranium Nodosum; *Knotty Crane's Bill.* Petals emarginate; stem-leaves three-lobed, entire, serrate, lucid underneath. An herbaceous plant, having knobs like little bulbs at the origin of the branches and peduncles; peduncles axillary, very long, simple; calix streaked, awned; corolla purple; capsules smooth.—Native of Dauphiny, and the mountains of Cumberland, flowering in July and August.

15. Geranium Striatum; *Streaked Crane's Bill.* Leaves five-lobed, light green; lobes widened in the middle; petals two-lobed, netted, veined; root perennial, sending up many branching stalks a foot and a half high; peduncles long and slender; the lobes of the leaves are gashed, and have a ferruginous or purplish brown spot at their base; calices awned. It flowers in May and June.—Native of Italy.

16. Geranium Argenteum; *Silvery-leaved Crane's Bill.* Petals emarginate; leaves subpeltate, seven-parted, trifid, tomentose, silky; root perennial, thick; flower-stalks four or five inches high, with one or two small leaves on them like those below, but sessile, and terminated by two pretty large pale flowers.—It flowers in June, and is a native of Monte Baldo and Dauphiny.

17. Geranium Maculatum; *Spotted Crane's Bill.* Stem dichotomous, erect; leaves five-parted, gashed, the uppermost sessile: root perennial; flowers pale purple.—It flowers in June, and is a native of Carolina and Virginia.

18. Geranium Pratense; *Meadow Crane's Bill.* Leaves subpeltate, many-parted, wrinkled, acute; petals entire; root perennial, sending up many stalks, which rise nearly three feet high, and are forked, and tinged more or less with red; hairs on the upper branches white, terminated by minute dark red globules; bractes four, lanceolate, acute; flowers mostly two, on very short downy peduncles; calicine leaflets lanceolate, ribbed, membranaceous at the edges, thick set with fine white hairs, tipt by scarlet globules, and ending in an awn; petals very large, inversely ovate, marked with from seven to nine whitish lines, and a little hairy at the base. The common colour of the petals is a fine blue, but it varies to white, and sometimes to variegated or striped. It has been found with double flowers.—Native of meadows in most parts of Europe.

19. Geranium Palustre; *Marsh Crane's Bill.* Peduncles very long, declined; leaves five-lobed, gashed; petals entire; the branches of this species are extremely divaricated, bifariously and obtusely angular. It resembles the twenty-first species in the leaves, but may be distinguished from it by the greater length of the peduncles, which are also recurved before the flowers open, and are not erect, but declined.—Native of Germany, Russia, and Denmark.

20. Geranium Aconitifolium; *Aconite-leaved Crane's Bill.* Leaves subpeltate, seven-parted; petals entire, veiny-lined; stems smooth, scarcely a foot high, forked; stipules in pairs at the origin of each branch; a pair of bractes also to each peduncle, which is downy; calicine leaflets ribbed, hairy

awned; petals white, or slightly tinged with pale purple, marked with dark purple lines; antheræ violet, the ends of the calix, the bractes and the upper part of the peduncles are also purple.—Native of Switzerland and Dauphiny, flowering in May.

21. Geranium Sylvaticum; *Wood Crane's Bill.* Leaves subpeltate, five-lobed, gash-serrate; stem erect; petals emarginate; peduncles sometimes with more than two flowers; bractes four, awl-shaped, small; calicine leaflets ribbed, membranaceous at the edge, mucronate; hairs on the peduncles, and the edges of the leaves, which end in small globules; stamina all nearly equal; aril hairy, with a brown elevated keel, but not rugged.—It flowers in June and July, and is a native of mountainous woods and thickets, in many, and particularly in the northern, parts of Europe. In England it has been observed in Durham, Westmoreland, Cumberland, Lancashire, and Yorkshire; about Aysgarth Force, Wensly-Dale; near Hales Owen in Shropshire; Holtwood at Leziate; and near Lynn in Norfolk.

22. Geranium Pyrenaicum; *Mountain Crane's Bill.* Leaves rounded, five-lobed or three-lobed, gashed; petals two-lobed. This species is twice as large as the common sort, and always nearly upright; stem hairy, forked twice or thrice; peduncles solitary, from the forks, upwards from the bosom of the leaves, and longer than the leaves themselves; calicine leaflets broad and short, terminated by a red gland; aril even, sharply keeled, scarcely pubescent.—Native of the south of France, near the Pyrenees; and of England, where it is found about Chelsea, Battersea, and Brompton, in the neighbourhood of London; near Enfield, Oxford, Bingley, and Keighley in Yorkshire.

**** *Peduncles one-flowered, annual.*

23. Geranium Molle; *Common Crane's Bill*, or *Dove's Foot.* Peduncles and floral-leaves alternate; petals bifid; calices awnless; stem somewhat erect; root-leaves roundish, hoary, and veiny underneath, deeply divided into seven segments, which are jagged; stem-leaves alternate, divided into fewer, narrower, and more pointed segments; stipules at each joint four, membranous, and withering; peduncles the length and form of the petioles, opposite to them and bifid; pedicels nearly three times shorter, with smaller stipules, some of the hairs on which appear glandular when viewed with a glass; calicine leaflets ovate, three-ribbed, hairy, unequal, terminated by a reddish and somewhat blunt point. It is the most common of all our Geraniums, on dry banks, under walls, in corn-fields and in pastures, beginning to flower in April, and continuing through the summer. It is frequently confounded with the next species.

24. Geranium Rotundifolium; *Round-leaved Crane's Bill.* Petals almost entire, equal to the calix, which is somewhat awned; leaves kidney-shaped, lobed, gashed; sinuses glandular; stems much branched, straggling, but scarcely prostrate; peduncles alternate on the stem, and arising from the axil of a leaf, which is always smaller, and on a shorter footstalk than its opposite. The leaves are rounder, and of a paler colour; the seeds are dotted, so as to appear reticulated; hairs on the aril spreading. These marks distinguish it from the preceding species. The filamenta are clearly distinct at the base; the petals are flesh-coloured or purple, varying to white, emarginate, or obcordate. When fresh gathered, it has a pretty strong scent of musk, but it soon goes off.—It is found on walls, roofs, banks, and in sandy pastures, about Islington, Hackney, Battersea, Wandsworth, Mortlake, and Kew, near London; at Church Brampton, in Northamptonshire; about Bath and Bristol; and is common all over Suffolk.

25. Geranium Pusillum; *Small-flowered Crane's Bill.* Petals emarginate; arils even, with hairs pressed close; stem pubescent; leaves roundish, seven-lobed; lobes trifid, obtuse, some of them more deeply divided; the sinuses rather acute, veiny, villose, soft, pale green; the root-leaves on very long petioles; the stem-leaves opposite, unequal, nearly as long as the peduncles, their lobes more acute; stipules lanceolate, broad at bottom, red, shining; segments sharp, edged with hairs; flowers very small, purplish blue, on peduncles from the axils, about an inch long; corolla a little longer than the calix, bell-shaped, and open; petals obcordate; filamenta five, longer, with ovate blue antheræ, five shorter and sterile; seeds kidney-shaped, smooth, reddish; aril pale brown, even, with white hairs pressed close to it. It forms a larger tuft than the twenty-third species, and, like it, sometimes varies with white flowers; it is also equally common in many places, particularly on the west side of London, in neglected gardens and fallow fields, flowering in June and July.

26. Geranium Lucidum; *Shining Crane's Bill*, or *Dove's Foot.* Calices pyramidal, angular, raised in wrinkles; leaves five-lobed, rounded; stems and leaves smooth and shining, whence it derives its significant trivial name: they are, however, slightly hairy. In rocky situations, the leaves are only half an inch broad, and not so much divided; flowers on short spreading peduncles, with very minute bractes; petals rose-coloured, emarginate. The aril has several rugged longitudinal ribs, and is hairy at top. The whole plant is sometimes red.—It flowers from June to August, and is a native of most parts of Europe, on walls, roofs, banks, in rocky and shady places, and in a chalky soil among corn.

27. Geranium Columbinum; *Long-stalked Crane's Bill.* Peduncles longer than the leaf; leaves five-parted, multifid; calices five-cornered, awned; arils smooth. Slender, mostly procumbent, with small, rigid, close-pressed hairs; pedicels much divaricated; petals reddish blue or pale purple, marked with three lines, emarginate; the little tooth between the lobes not very pointed, antheræ blue. It flowers from June to August.—Native of most parts of Europe, in corn-fields and pastures, and under hedges.

28. Geranium Incanum; *Hoary Crane's Bill.* Peduncles two-flowered; calices awned; petals entire; arils hirsute; leaves subdigitate, pinnatifid.—Native of the Cape.

29. Geranium Dissectum; *Jagged Crane's Bill.* Peduncles shorter than the leaf; leaves five-parted, trifid, and multifid; petals emarginate; arils villose; stalks many, about a foot long, spreading, roundish, pale green, here and there reddish, beset with short white hairs pointing downwards, jointed, with alternate spreading branches; flowers small, purplish red, on peduncles shorter than the leaves; bractes two, red, minute; calicine leaflets three-ribbed, awned, beset with glandulous hairs; corolla a little shorter than the calix; petals oblong-cordate, emarginate. This plant varies greatly in size, also with flesh-coloured and white flowers. It flowers in May and June, until August.—Native of most parts of Europe, by road-sides, on banks, in fallow fields, and on the borders of pastures.

30. Geranium Carolinianum; *Carolina Crane's Bill.* Leaves five-parted, gashed; calices awned; petals emarginate; arils hirsute. This greatly resembles Dove's-foot Crane's Bill, Number 23, but is smaller, and the branches are shorter; the flowers are very small, of a pale blue colour; seeds black, with short erect beaks.—Native of Carolina.

31. Geranium Bohemicum; *Bohemian Crane's Bill.* Petals emarginate; arils rough with hairs; cotyledons trifid, with the middle cleft truncate; stems many, branched; leaves five-lobed, crenate, on long footstalks, mostly opposite; flowers on long, slender, axillary peduncles; corolla

of a fine blue colour. In flowers from June to August.—Native of Bohemia.

32. Geranium Robertianum; *Stinking Crane's Bill*, or *Herb Robert*. Leaves quinate and ternate, gashed; calices ten-angled; stems spreading, branched, blood-red, hairy, particularly in young plants; stipules four at each joint, two on each side; peduncles very long; pedicels short; calicine leaflets ovate-lanceolate, nerved, hairy, ending in a long awn; petals rose-coloured, varying to white, spreading, and equal; the lamina somewhat heart-shaped; the claw long and linear, the middle part of it prominent, grooved, and spreading into three whitish nerves. The whole is beset with pellucid hairs, but becomes smoother as the plant grows older; it is commonly red at the joints, and the whole plant is frequently red. It has a disagreeable rank smell when bruised. In the variety of this plant, which occurs near Swanning in Dorsetshire, and on the shore of Selsey island, the whole plant is shining, and the leaves smaller, and more deeply divided.—A decoction of this plant has been found to afford relief in the stone and gravel; it is considerably astringent, and is given to cattle when they make bloody water, or have the bloody flux. This plant, says Meyrick, is an excellent vulnerary or wound herb, whether used externally or internally. An ointment made of the green leaves and hog's lard, is good for sore breasts, and has been found serviceable to anoint scrofulous or cancerous swellings with. Cattle have certainly been cured of what the farmers call the black water, and of the bloody flux, by a decoction of this herb, after all other medicines have proved ineffectual; and there is little doubt but its effects on the human body would be equally salutary in similar circumstances. The whole plant should be gathered, root and all, and dried for use; it is a most excellent astringent; scarcely any plant is in that respect equal to it: it may be given dried or powdered, or in decoction. It stops overflowings of the menses, bloody stools, and all other hæmorrhages. It is to be observed, that nature seems to have set her stamp upon several herbs, which have the virtue to stop bleedings; this and the Tutsan, the two best remedies the fields afford for outward and inward bleedings, become all over as red as blood at a certain season. The name *Stockbill* is set down in Dr. Withering's arrangements; which is probably a corruption of *storkbill*.—Native of all parts of Europe, in woods, under hedges, in hollow trees, on walls, and the roofs of houses, among rubbish, and in stony places, flowering from April through the whole of the summer.

Geranium. See *Erodium*, and *Pelargonium*.

Gerardia; (so called, in honour of John Gerarde, the celebrated English botanist,) a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, upright, sharp, permanent. *Corolla:* one-petalled, ringent; tube round, longer than the calix; upper lip upright, blunt, flat, broader, emarginate; lower lip reflex, three-parted; divisions lateral, emarginate; middle shorter, two-parted. *Stamina:* filamenta four, scarcely the length of the tube, two a little shorter; antheræ small. *Pistil:* germen ovate, small; style simple, short; stigma blunt. *Pericarp:* capsule ovate, two-celled, two-valved, gaping at the base; partition contrary. *Seeds:* ovate, solitary. Essential Character. *Calix:* five-cleft. *Corolla:* two-lipped; lower lip three-parted; the lobes emarginate; the middle segment two-parted. *Capsule:* two-celled, gaping.——The species are,

1. Gerardia Tuberosa; *Tuberous Gerardia*. Leaves subovate, tomentose, repand, the length of the stalk; root-leaves as on the spike; bractes imbricate, one-flowered; border of the corolla wheel-shaped.—Native of South America.

2. Gerardia Japonica; *Japanese Gerardia*. Leaves ovate, gash-pinnatifid, petioled; stalk simple; flowers axillary, peduncled, solitary; peduncles many times shorter than the leaves; corolla purplish; stalk villose.—Native of Japan.

3. Gerardia Delphinifolia; *Larkspur-leaved Gerardia*. Leaves linear, pinnatifid; stalk somewhat branched; stem a foot high, obtusely four-cornered, upright, even, with few alternate branches; flowers axillary, from the middle to the top of the stem, opposite, directed one way, on very short peduncles; corollas oblong, with a gaping mouth, and a five-lobed rounded border, the two upper lobes shorter.—Native of the East Indies.

4. Gerardia Scabra; *Rough Gerardia*. Hispid, scabrous; leaves oblong, pinnatifid.—Native of the Cape of Good Hope.

5. Gerardia Purpurea; *Purple Gerardia*. Leaves linear; root annual; stalks a foot high, filiform, either very simple, or brachiate, smooth; flowers opposite, on one-flowered filiform peduncles, or else sessile; calices smooth, small, bell-shaped, five-toothed; corollas very deep purple, either wheel-shaped or bell-shaped, or tubular.—Native of North America.

6. Gerardia Tubulosa; *Long-tubed Gerardia*. Smooth: leaves linear, entire, sharp; tube of the flower longer than the calix.—Native of the Cape of Good Hope.

7. Gerardia Flava; *Yellow Gerardia*. Leaves lanceolate, pinnate-toothed; stalk extremely simple, about a foot high; spike terminating, lax, consisting of opposite large yellow flowers: there is no fifth stamen.—Native of North America.

8. Gerardia Pedicularia. Leaves oblong, doubly serrate; stalk panicled; calices crenate; corollas pubescent on the outside, oblong, patulous.—Native of North America.

9. Gerardia Glutinosa. Leaves ovate-serrate; bractes linear, hispid; stem roundish, upright, with short branches; racemes terminating, solitary, composed of opposite flowers, on very short peduncles; calices five-parted, sharp, the uppermost division largest; a filiform bracte or two, of the same length with the calix, is close to it, hispid, like that, with glutinous hairs.—Native of China.

10. Gerardia Nigrina. Scabrous: leaves lanceolate, serrate at bottom; stalk four-cornered. This was formerly made a distinct genus by Linneus, under the name of *Nigrina*, but he was afterwards of opinion that it could not be separated from the Gerardias.—Native of the Cape.

Germander. See *Teucrium*.

Geropogon; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common, simple, many-leaved; leaflets lanceolate-subulate, keeled, upright, longer than the corolla. *Corolla:* compound, subimbricate, uniform; corollules hermaphrodite, outer as many as there are leaflets in the calix, inner fewer, shorter, proper, one-petalled, ligulate, truncate, five-toothed. *Stamina:* filamenta five, very short; antheræ cylindric, tubular. *Pistil:* germen oblong; style filiform, the same length with the stamina; stigmas two, bowed back, filiform. *Pericarp:* none; calix oblong, upright, gaping. *Seeds:* of the ray subulate, the same length with the calix; down with five patulous awns; of the disk subulate, shorter; down feathered. *Receptacle:* with bristle-shaped chaffs. *Observe:* there is a species with a calicled calix. Essential Character. *Calix:* simple. *Receptacle:* with bristle-shaped chaffs. *Seeds:* of the disk, with a feathered down; of the ray, with five awns. For the propagation and culture of this species, see *Tragopogon*.——The species are,

1. Geropogon Glabrum; *Smooth Geropogon*, or *Old Man's Beard*. Leaves smooth. It has an upright stalk more than a foot high, with long grass-like leaves; the stalk branches at

top into two or three divisions, each terminated by one flesh-coloured flower. The whole plant is smooth, and abounds with a milky bitterish juice: calix usually seven-leaved.—It is an annual plant, and a native of Italy.

3. Geropogon Hirsutum; *Rough Geropogon.* Leaves hairy; stalks upright, a foot high. It seldom divides into branches, but is terminated by one flower: annual.—Native of Italy.

3. Geropogon Caliculatum; *Perennial Geropogon.* Calices calicled; root perennial; stems ascending, several, branched, a foot or more high, villose, and leafy; flowers terminating, nodding before they open; leaves sub-linear, acuminate, the lowest stem-leaves and the root-leaves channelled beneath, and hairy on both sides, the upper ones flat, and a little hirsute only on the back; corolla yellow on both sides; receptacle naked.—It flowers in June, and is a native of Italy.

Gesneria: a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, superior, five-cleft, sharp, permanent. *Corolla:* one-petalled, incurved and recurved; tube thickish, with a contracted neck and funnel-form throat; border five-cleft, blunt; upper divisions concave, three lower flat, spreading. *Stamina:* filamenta four, shorter than the corolla; antheræ simple. *Pistil:* germen inferior, flatted; style filiform, the same in situation and length with the stamina; stigma capitate. *Pericarp:* capsule roundish, and crowned with the patulous calix, subbilocular; partition in the middle, longitudinally interrupted. *Seeds:* extremely numerous, and very small; receptacles on each side fastened to the partition. *Observe:* If the capsule be cut transversely near the top, it appears to be one-celled; if through the middle, two-celled. Essential Character. *Calix:* five-cleft, sitting on the germen. *Corolla:* incurved and recurved. *Capsule:* inferior, two-celled.——The species are,

1. Gesneria Humilis; *Low Gesneria.* Leaves lanceolate, serrate, sessile; peduncles branched, many-flowered; root diffused, creeping; stem branched, naked at bottom; peduncles branched, three-flowered.—Native of Carthagena, in New Spain. This, like all the plants of the genus, is propagated by seeds, which must be procured from the country where they naturally grow. They should be brought over in their capsules, for as they are very small and light, when they are separated from the partition to which they adhere, they soon lose their vegetative power. These seeds should be sown in pots filled with light earth, and plunged into a hot-bed of tanners' bark as soon as they arrive, for they sometimes lie long in the ground: those which Mr. Miller sowed in autumn, came up in the following spring; therefore when they happen to arrive here at that season, the pots in which the seeds are sown should be plunged into the tan-bed in the stove, and during the winter the earth should be now and then gently watered, to prevent it from becoming too dry, but at the same time it must not be made too moist. In the spring, the pots should be removed out of the stove, and plunged into a fresh hot-bed, which will bring up the plants soon after. When these are fit to remove, they should be each planted in a separate pot, and plunged into a good hot-bed of tan, observing to shade them till they have taken new root, and afterwards treat them in the same way as other plants from the same countries. In autumn they must be plunged into the tan-bed in the stove, where during the winter they should have but little water given to them, for if they receive much wet, it will destroy them: in this stove the plants must constantly remain, for they will not thrive when taken out of the tan. In the summer, free air should always be admitted to them during warm weather, and they should at that time also be frequently refreshed with water, but in small quantities. As the plants advance in growth, they will require larger pots, but there must be care taken not to overpot them, for they will not thrive in large pots. With this management, the plants will flower in the second year, and may be continued three or four years; but they are not of long duration in their native country.

2. Gesneria Acaulis; *Stemless Gesneria.* Leaves lanceolate-ovate, serrate, subpetioled, crowded at the end; peduncles three-flowered, shorter than the leaf; stem round, woody, having a clay-coloured bark, with some furrows in it, rising three or four inches high, having at the top very many oblong leaves, standing very thick, without any order, on footstalks a quarter of an inch in length, covered with a reddish wool-like moss. They are seven inches long, and an inch and a half broad near the farther end, whence they narrow to a point, and also grow gradually narrower to the footstalk; from the axils come out small peduncles, branched, sustaining scarlet flowers an inch long, which are followed by a short, fungous, cornered seed-vessel, having no distinct cells, containing many small, oblong, yellowish seeds. Browne calls it, *Small-tufted Gesneria with scarlet flowers,* and observes, that the stem is always simple, creeping along the rocks, and bearing a pretty large tuft of leaves at each extremity, with single flowers springing from each axil.—Native of Jamaica. For its propagation and culture, see the first species.

3. Gesneria Tomentosa; *Woolly Gesneria.* Leaves ovate-lanceolate, crenate, hirsute, seven or eight inches long, and two and a half broad in the middle; peduncles lateral, very long, corymbiferous. This rises with a shrubby stalk to the height of six or seven feet, dividing into two or three irregular branches, covered with a russet wool; corolla irregular, subcampanulate, gibbous at the base and under the limb; the two upper segments approximate, so as to form one as it were that is bifid, arched in the middle, spotted on the inside with yellow and dark purple; the three lateral ones are spreading, ovate-acute, the lowest ventricose underneath; the tube is spotted within; the two interior filamenta are longer than the two others, and are bowed in towards the pistil; antheræ convex. This plant bears some affinity to the saxifrages, in the situation of the receptacles, and in the opening of the capsule. Browne calls it the *Hairy erect Gesneria with open flowers.*—Native of Jamaica. For its propagation and culture, see the first species.

4. Gesneria Craniolaria. Leaves wedge-shaped, oblong, tooth-laciniate; peduncles terminating; corollas bell-shaped. It rises with a shrubby stalk to the height of ten or twelve feet, dividing upwards into a few branches, which are garnished with spear-shaped leaves, cut on their edges, these are soft and hairy: the flowers are produced from the side of the branches, growing several together on the same footstalk, they are shaped like those of the Foxglove, of a greenish yellow colour, with brown spots on the inside; the flowers have a swelling tube, which is recurved; and the brim is slightly divided into five unequal segments. They appear in July, but are not succeeded by seeds in England.—This sort grows naturally at the Havannah, and in some other islands of America.

5. Gesneria Grandis. Leaves broad-lanceolate, very long, toothletted, rough-haired above, rugged beneath; peduncles terminating; stem arborescent.—Native of Jamaica.

6. Gesneria Scabra. Leaves ovate-lanceolate, serrate, rugged; peduncles axillary; corollas cylindric, recurved.—This is a shrubby plant, and a native of Jamaica.

7. Gesneria Corymbosa. Leaves ovate, acute, serrate

scariose, sharp; peduncles many-parted; flowers in corymbs, shrubby.—Native of Jamaica.

8. Gesneria Exserta. Leaves ovate-lanceolate, crenate, smooth; peduncles three-flowered; genitals twice the length of the corolla; capsules ovate, shrubby.—Native of Jamaica.

9. Gesneria Calycina. Leaves lanceolate-ovate, acuminate, serrate, smooth; peduncles three-flowered; genitals longer than the corolla; calices bell-shaped; capsules cylindric.—It is a shrubby plant, and a native of the West Indies.

10. Gesneria Ventricosa. Leaves elliptic, acuminate, crenate, smooth; peduncles four-flowered or thereabouts; segments of the calix awl-shaped, elongated; corollas ventricose.—This also is a shrubby plant, and a native of Jamaica.

11. Gesneria Pulchella; *Fair Gesneria.* Herbaceous: leaves ternate, ovate, acute, serrate, villose; peduncles axillary, one-flowered. Browne describes this as having a slender even stem, seldom rising above ten or fourteen inches in height, and throwing out a beautiful single reddish flower from the axil of each of the upper leaves; filamenta longer than the corolla, and somewhat twisted as they rise.—Native of Jamaica. This sort deserves to be cultivated in the flower-gardens of America. It thrives best in a cool gravelly soil, well furnished with moisture, and intermixed with rich mould.

12. Gesneria Pumila. Stemless: leaves ovate-wedge-shaped, crenate, subsessile; peduncles subbiflorous, shorter than the leaves.—Native of Jamaica.

Gethyllis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none, unless a sheath obliquely truncate. *Corolla:* one-petalled, superior; tube long, filiform, radical; border expanding, flat, six-parted; divisions oblong. *Stamina:* filamenta six, inserted into the mouth of the tube, shorter than the border, usually divided; antheræ linear, spirally bent in. *Pistil:* germen inferior; style simple, longer than the stamina; stigma capitate. *Pericarp:* berry club-shaped, blunt, radical, (sessile in the bulb itself, and proceeding from it,) somewhat fleshy, one-celled. *Seeds:* nestling, one upon another in three rows, globular, smooth. *Observe.* In some flowers, particularly those of the second species, the filamenta are divided above the base, with as many antheræ; but two antheræ are seldom seen on a single filamentum; so that the same flower may have eight, ten, or more antheræ. Essential Character. *Calix:* none. *Corolla:* six-parted. *Berry:* club-shaped, radical, one-celled. All the plants of this genus have the habit or air of *Colchicum*, but are sufficiently distinguished from it, by having a monopetalous corolla, and a berry for a fruit. There is but one flower on a naked stalk; and the fruit has a grateful odour, with a pleasant taste.——The species are,

1. Gethyllis Villosa; *Hairy Gethyllis.* Leaves linear, filiform, spiral, villose; segments of the corolla ovate-oblong.—Native of the Cape of Good Hope.

2. Gethyllis Ciliaris; *Fringed Gethyllis.* Leaves linear, spiral, ciliate, three or four inches high; flower the height of the leaves, greenish-white, the size of a daffodil; segments of the corolla ovate-oblong.—Native of the Cape.

3. Gethyllis Spiralis; *Spiral Gethyllis.* Leaves linear, spiral, smooth; segments of the corolla oblong. It has been long known in Europe.—Native of the Cape of Good Hope.

4. Gethyllis Lanceolata; *Lanceolate Gethyllis.* Leaves lanceolate, flat; segments of the corolla lanceolate.—Native of the Cape of Good Hope.

Geum; a genus of the class Icosandria, order Polygamia.—Generic Character. *Calix:* perianth one-leafed, ten-cleft, uprightish; segments alternately very small, sharp. *Corolla:* petals five, rounded; claws the length of the calix, narrow, inserted into the calix. *Stamina:* filamenta numerous, subulate, length of the calix, into which they are inserted; antheræ short, broadish, blunt. *Pistil:* germina numerous, collected into a head; styles inserted into the side of the germen, hairy, long; stigmas simple. *Pericarp:* none; common receptacle of the seeds oblong, hirsute, placed on the reflex calix. *Seeds:* numerous, compressed, hispid, awned, with a long style. Essential Character. *Calix:* ten-cleft. *Petals:* five. *Seeds:* with a kneed awn.—This genus consists of perennial herbaceous plants. The leaves are usually unequally pinnate, with the terminating leaflet larger than the rest; the stipules fastened to the petiole; and the peduncles terminating or axillary, supporting few flowers, sometimes only one.——The species are,

1. Geum Virginianum; *American Avens.* Flowers upright; awns hooked, naked; stem-leaves ternate, the upper ones lanceolate; petals shorter than the calix; stem a foot and a half or two feet high, branching at top into small peduncles, each terminated by a small white flower.—It flowers in July and August, and is a native of North America.

2. Geum Strictum; *Upright Avens.* Flowers upright, yellow; awns hooked, naked; stem-leaves pinnate; leaflets and stipules gash-cleft; petals longer than the calix; stems upright, round, a foot and a half high and more, most of the branchlets ending in one-flowered peduncles; root-leaves pinnate, and petioled, with the outmost leaflet very large, rounded and lobed; the side ones ovate, differing much in size, all sessile, and unequally serrate; sometimes the extreme leaflet is trifid palmate; sometimes, but more rarely, all the leaflets are deeply gashed; stem-leaflets lanceolate, and acute. It flowers in May and June. The whole plant is covered with whitish hairs; the fruit is also hairy.—Native of North America.

3. Geum Urbanum; *Common Avens,* or *Herb Bennet.* Flowers upright; awn hooked, naked; stem-leaves ternate; root-leaves lyrate-pinnate; stalks from one to two feet high, nearly upright, somewhat flexuose, slightly angular, hairy, branched at top; peduncles single, nearly upright, round, somewhat hairy, supporting one flower; corolla small, yellow, with very short claws; filamenta yellowish, at first bent in, afterwards upright, half as long as the larger segments of the calix; antheræ roundish, yellow, turning brown, having hairs about the edge visible only in a glass; germina hairy; styles smooth, purple, fixed to the top of the germen.—The roots have a mildly astringent aromatic taste, somewhat like that of cloves, whence this plant has the name of *Caryophyllata.* They should be gathered in dry warm situations, for in shady moist places they have little virtue. Gathered in the spring, and put into fresh ale, they communicate a pleasant flavour, and prevent it from turning sour. Infused in wine, it is esteemed to be a good stomachic; but in water, Haller declares it to have been attended with bad effects, producing delirium, when given to those labouring under malignant fevers. The roots chewed in the mouth are said to relieve an offensive breath. Meyrick describes it to be of a mild, austere, aromatic nature, perfectly adapted to strengthen the head and stomach. A drachm of the powder taken in a glass of wine dissolves and disperses inward congealed blood, occasioned by falls and bruises: it is also efficacious in the bloody flux, and other profuse purgings and spittings of blood. Boiled in water, in the proportion of an ounce to a pint and a half, until one-third of the fluid be wasted, or, which is better still, infused in half a pint of red-port for the space of twelve hours, and the whole quantity taken at the coming on of an ague-fit, has frequently been known to cure that disorder. Hill calls it a cordial and sudo-

rific, and says that it is good in nervous complaints, and that he has known it alone to have cured intermittent fevers, even where the bark has been unsuccessful. The root has been found useful in several chronic disorders, as a general tonic and astringent; and experiments evince its antiseptic power to exceed that of the Peruvian bark.—This, like all the other plants of the genus, may be propagated by seeds, which should be sown in autumn; for when they are sown in the spring, they do not grow the same year.

4. Geum Japonicum. Flowers upright; fruits hirsute; awns naked; leaves with three lobes or more; stalk round, flexuose, upright, hirsute, a foot high or more, sometimes, but seldom, a little branched at top; branches alternate, very short, somewhat tomentose; flowers terminating the stem and branches, solitary.—Native of Japan.

5. Geum Rivale; *Water Avens.* Flowers nodding; awns hooked, villose; petals retuse, roundish-wedge-shaped; leaves pinnate; root creeping, reddish, astringent, aromatic, smelling like cloves; stem a foot high, upright, round, and branched, bending at top, but becoming erect as the fruit ripens; peduncles purplish, hirsute, with hairs terminating in a red globule, becoming less bent as the seeds ripen. It flowers from the end of May till autumn, and varies with yellow flowers, which frequently become double and proliferous. The powdered root is beneficial in diarrhœas and hæmorrhages; and is much used by the Canadians in the cure of tertian agues. It will cure malt-liquor of its ropiness.—Native of most countries in Europe, where it is found in moist pastures and woods, and indicates, according to Linneus, a barren soil, unfit for corn. It is also found in the Levant, and in North America. With us it is more common in the north; as, on the water of Leith near Edinburgh, and other parts of Scotland, on moorish grounds; near Settle and Ingleton, in Yorkshire; in Lancashire, and generally by the sides of rivers, and on mountains, in many parts of the northern counties; near Chevely and Wood-Ditton in Cambridgeshire; in Wolverton wood near Lynn; at Marham near Swaffham, and near Norwich in Norfolk; in a bog near Sudbury in Suffolk; near Aston in Warwickshire; and upon Snowden, and various parts of Wales.

6. Geum Hybridum; *Mule Avens.* Flower nodding; calix leafy, longer than the polypetalous corolla. This seems to be a mule plant, produced between the foregoing and subsequent species: it is much taller than the first, and a larger plant. The lower leaves are interruptedly pinnate, with three pairs of leaflets, besides the smaller ones, and that at the end, which is very large; calix duskier purple, tinged with green; corolla yellow, only tinged with purple at the edge, about the same length with the calix, having sometimes more petals than five.

7. Geum Montanum; *Mountain Avens.* Stem one-flowered; awns straight, villose; leaves pinnate, hairy; outmost leaflet very large and roundish, the lower ones gradually smaller; root-leaves in a tuft, on petioles of different lengths; these are hairy, and have several pairs of leaflets on them, the lowest very small, the succeeding ones gradually larger, and the pair immediately under the great terminating leaflet much bigger than any of the rest; the extreme leaflet is two or three inches in length and breadth, obscurely lobed, gash-serrate, and veined; flowers large, solitary, spreading, upright; calix wide, hairy, green. The small mountain avens is made a distinct species by Mr. Miller, who says that it is a very low plant, with flower-stalks about three inches long, bending on one side, each terminated by one bright yellow flower.—In its native places it flowers in June and July, and in our gardens from May to September.—Native of the mountains of Switzerland, Austria, Silesia, and Dauphiny.

8. Geum Potentilloides; *Siberian Avens.* Stem one or two flowered; awns straight, naked; calices of the fruit upright; leaves pinnate-toothed. On account of the ripe calix being bell-shaped, the corolla yellow and five-petalled, the receptacle elongated, the awns naked and jointed, this approaches nearer to a *Geum* than a *Dryas.* Receptacle cylindric, slender, excavated, naked, a little shorter than the calix; seeds numerous, obovate, gibbous on one side, thence comprised into a straight keel, shagreened on all sides with raised dots, of a brown ferruginous colour; awn straight like a needle. It flowers in June.—Native of Siberia.

9. Geum Reptans; *Creeping Avens.* Stems one-flowered; awns straight, villose; leaves pinnate, gashed, hairy; runners creeping; root large and woody; flower much larger than the seventh species; calix green, with the segments often reddish; petals yellow, emarginate, marked with lines much larger than the calix; the whole corolla sometimes two inches in diameter.—It flowers in June and July, and is a native of Switzerland, Austria, Silesia, Savoy, and Piedmont.

Ghinia; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubular, permanent; mouth expanded, five-toothed, acuminate. *Corolla:* one-petalled, irregular; tube long, narrow; border two lipped; upper lip largest, roundish, concave, ascending; lower three-parted; segments roundish; the middle one largest, bent down, emarginate. *Stamina:* filamenta four, inserted into the tube above the base, two longer than the others; antheræ with oblong cells, one at the end, fertile in the longer filamenta, barren in the shorter, the other inserted towards the middle of the filamentum, in the shape of a scale. *Pistil:* germen roundish; style the length of the tube; stigma four-lobed. *Pericarp:* drupe turbinate, angular, longer than the calix, which is permanent. *Seed:* nut angular, four or five celled, with one seed in each cell; according to Swartz, four-cornered, four-spined at the end, four-celled, with solitary kernels. Essential Character. *Calix:* five-toothed; teeth acuminate. *Corolla:* two-lipped. *Stamina:* four, with two barren antheræ at the end of the shorter filamenta. *Pericarp:* a drupe containing a four or five celled nut, with a seed in each cell; Swartz calls it a fleshy four-celled nut.——The species are,

1. Ghinia Spinosa. Fruits four-spined; stem slender, woody, branching, nearly three feet high; leaves oval, sharply indented, light green, on short footstalks; flowers distant, sessile, in a loose spike, on slender, naked, axillary peduncles, six or seven inches in length; corollas small, bright blue; seeds two, terminated by short awns, and inclosed in the calix.—Annual, and a native of the West Indies.

2. Ghinia Mutica. Fruits without spines; stems strong, straight, and a little woody; leaves rounded or subovate, deeply toothed, having short hairs on both surfaces: petiole three or four lines in length; spikes axillary, opposite; flowers solitary, few, alternate, pedicelled, with a small linear bracte at the base of each pedicel; corolla blue.—Native of Guiana, and the island of Cayenne.

Gilliflower; See *Dianthus.*

Gilliflower, Stock. See *Cheiranthus.*

Gilliflower, Queen's, or *Dame's Violet.* See *Hesperis.*

Ginannia; a genus of the class Enneandria, order Monogynia.—Generic Character. *Calix:* perianth double; outer one-leafed, bifid, acute; inner one-leafed, cup-shaped, four or five cleft; segments oval, concave, obtuse, spreading, one larger than the rest. *Corolla:* petals three, oblong, obtuse, fringed, spreading, inserted into the larger segment

of the calix at the base. *Stamina:* filamenta nine, filiform, flexuose, longer than the corolla, inserted into the mouth of the calix; antheræ parallelopiped, versatile. *Pistil:* germen oblong, compressed at the bottom of the calix, affixed to a pedicel, with a membranaceous wing at top; style filiform, flexuose, the length of the stamina; stigma obtuse. *Pericarp:* legume long, straight, one-celled, two-valved, pedicelled. *Seeds:* very many, oval, flatted, smooth. ESSENTIAL CHARACTER. *Calix:* double, both one-leafed. *Petals:* three, fringed, spreading. *Germen:* pedicelled, with a membranaceous wing at top.——The only known species is,

1. Ginannia Guianensis. This is a shrub, growing to the height of fifteen feet, beginning to be branched at one or two feet from the ground; leaves alternate, entire, smooth, ovate-oblong, acuminate, subsessile, the largest six inches long, and two inches and a half wide; stipules minute, in pairs at the base of the petioles; flowers terminating, few, red, large, and handsome, on a short peduncle, on which are four or five soft green scales or bractes; legume reddish, linear, compressed, three inches long.—Native of the forests of Guiana, flowering in February, and fruiting in May.

Ginger. See *Amomum.*

Ginkgo; a genus hitherto imperfectly described, the only known species of which is,

1. Ginkgo Biloba, or *Maidenhair Tree.* This tree grows to a prodigious size, with a trunk frequently as thick as the largest Oak; the branches are alternate, and spreading; leaves alternate, petioled, in bundles at the knots or tubercles of the branches, not much unlike the leaves of Maidenhair; of the fructification, we yet know very little with certainty. The flowers are male and female, separate, probably on different trees. They come out in April, before the leaves, and from the same bud with them, towards the end of the branches, on aments or catkins, as Kæmpfer describes them, pendent, and longish, abounding in pollen. The fruit grows on a thick fleshy peduncle, an inch in length, and, having figured them single, Kæmpfer describes them as round or oblong, of the size and appearance of a damson or damascene plum, with a warted surface, becoming yellow as the fruit ripens, and a fleshy, juicy, white pulp, adhering very closely to the nut, which resembles that of the pistachia, but is almost double the size, and more of the form of an apricot stone; the shell is woody, thin, brittle, and whitish, and the kernel is white, rather firm, sweet, with a mixture of austerity or bitterness when raw, but is agreeable when gently roasted on the coals, before the skin is taken off; and in that state, is supposed to help digestion.—Native of Japan and China.

Ginora; a genus of the class Dodecandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed; tube bell-shaped; border six-cleft; segments lanceolate, spreading, coloured, permanent. *Corolla:* petals six, roundish, spreading, longer than the calix, with long claws inserted into the neck of the calix. *Stamina:* filamenta twelve, subulate, patulous, as long as the calix, and inserted into it; antheræ kidney-shaped. *Pistil:* germen roundish, flatted; style subulate, the same length with the corolla, permanent; stigma obtuse. *Pericarp:* capsule flatted and roundish, shining, coloured, somewhat four-grooved, four-valved, one-celled, gaping at the tip. *Seeds:* very many, minute; receptacle roundish, large. ESSENTIAL CHARACTER. *Calix:* six-cleft. *Petals:* six. *Capsule:* one-celled, four-valved, coloured, containing many seeds.——The only known species is,

1. Ginora Americana. It grows upright, to the height of three or four feet, and divides into smooth branches, round, except that they are compressed at the origin of the twigs and leaves, all woody; leaves lanceolate, acute, quite entire, smooth, spreading, an inch and a half long, on very short petioles; peduncles slender, spreading, solitary, an inch in length; flowers handsome, almost an inch in diameter, without any scent; calix red; corolla blue; capsule dark red, outwardly resembling a berry. It is an elegant shrub, with the appearance of Myrtle.—Native of Cuba, by river sides, where it is called *rosa del rio*, or *river rose.*

Ginseng. See *Panax.*

Gisekia; a genus of the class Pentandria, order Pentagynia.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets ovate, concave, blunt, scariose at the edge, permanent. *Corolla:* none. *Stamina:* filamenta five, subulate, ovate at the base, short; antheræ roundish. *Pistil:* germen superior, roundish, retuse, five-parted; styles short, bowed back; stigmas blunt. *Pericarp:* capsules five, roundish, somewhat flatted, scabrous, blunt, approximating. *Seeds:* solitary, ovate, smooth. ESSENTIAL CHARACTER. *Calix:* five-leaved. *Corolla:* none. *Capsules:* five, approximating, roundish, one-seeded.——The only known species is,

1. Gisekia Pharnaeioides; *Trailing Gisekia.* Stalks herbaceous, decumbent, smooth, round, scored with a line on the upper side, a foot long, with remote joints; branches of the base alternate; leaves opposite, petioled, elliptic-lanceolate, quite entire, blunt, smooth and even, spreading; peduncles mostly axillary, solitary, round, naked; umbel simple, many-flowered; flowers green on the outside, white within, hanging down, except on the day of flowering; fruit blackish. It is an annual plant, flowering here in June; and a native of the East Indies.

Githago. See *Agrostemma.*

Glabraria; a genus of the class Monadelphia, order Polyandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed, tubular, five-cleft, shorter by half than the corolla. *Corolla:* petals five, lanceolate, blunt, equal; nectary surrounding the germen, consisting of five subulate, upright, coloured bodies, the length of the calix. *Stamina:* filamenta thirty, capillary, interposed between the nectaries, in sixes, connected at the base, the same length with the calix, antheræ kidney-shaped. *Pistil:* germen subglobose; style filiform, the length of the stamina; stigma simple. *Pericarp:* drupe juiceless, one-celled. *Seeds:* a bony oval nucleus. ESSENTIAL CHARACTER. *Calix:* five-cleft. *Petals:* five. *Nectary:* composed of five bristles, the length of the calix. *Stamina:* thirty, always in sixes. *Pericarp:* a drupe.—— The only known species is,

1. Glabraria Tersa. A large tree, resembling *Laurus Camphora*, or the *Camphor-tree.* Leaves alternate, petioled, ovate, lanceolate, quite entire, smooth, acuminate, subtomentose underneath, even nevertheless, and glaucous; flowers white, in little axillary balls, forming a sort of raceme, leafless, and much shorter than the leaves. The wood of this tree is very light and pale-coloured, not being liable to the rot, or to the attacks of insects: it is much used in the East Indies for house and ship building.

Gladiolus; a genus of the class Triandria, order Monogynia.—GENERIC CHARACTER. *Calix:* a spathe, two-valved, inferior, shorter than the corolla; valves oblong, permanent, the outer one larger, inclosing the inner. *Corolla:* one-petalled, superior; tube cylindric, bent; border somewhat bell-shaped, six-parted; segments oblong, from erect patulous, the uppermost and lowest lateral, either without or within. *Stamina:* filamenta three, inserted into the orifice of the tube, filiform, shorter than the corolla; antheræ ovate, incumbent. *Pistil:* germen inferior, triangular; style fili-

form; stigmas three, rolled back, and spreading, blunt, villose. *Pericarp:* capsule ovate, three-cornered, blunt, three-celled, three-valved. *Seeds:* very many, smooth. Gœrtner observes, that *Antholyza* may be very well placed in this genus. ESSENTIAL CHARACTER. *Corolla:* six-parted, irregular, unequal. *Stigmas:* three.——The species are,

1. Gladiolus Communis; *Common Corn Flag.* Leaves sword-shaped; flowers distant; root round, compressed, yellowish, covered with a brown furrowed skin; hence spring two sword-shaped leaves, embracing each other at the base; and between them rises the flower-stalk, growing nearly two feet high, having one or two narrow leaves embracing it like a sheath, and terminated by five or six purple flowers, one above another at some distance, ranged on the same side of the stalk. Mr. Miller makes three species of this. 1. That above described, with the flowers disposed on one side of the stalk, varying with white and flesh-coloured flowers, which Gerarde calls the Italian Corn-flag: 2. the Italian, or *Utrinque Floridus* of Caspar Bauhin, with flowers on each side the stalk, of which, he says, there is also a variety with white flowers, called by Gerarde and Parkinson, the French Corn-flag: 3. the Great Corn-flag of Byzantium, which has larger roots, but of the same form; the leaves are also much broader and larger, with deeper channels. The flower-stalks rise higher; the flowers are much larger, of a deeper red colour, and the sheaths are longer. It makes a fine appearance when in flower, and is worthy of a place in every good garden, especially as the roots do not increase so rapidly as to become troublesome. Parkinson, besides the French, Italian, and Byzantine Corn-flags, has three varieties, the blush, white, and small purple.—The Common Corn-flag requires no care; for when it is once planted, it will multiply fast enough. The Byzantine Corn-flag has latterly supplanted it. This is propagated by offsets, which are sent off from the roots, in the same manner as Tulips. The roots may be taken out of the ground at the end of July, when their stalks decay, and may be kept out of the ground till the end of September, or the beginning of October, at which time they should be planted in the borders of the flower-garden, where they will thrive in any situation, and being intermixed with other flowers of the same growth, add much to the variety.

2. Gladiolus Imbricatus; *Netted Corn-flag.* Leaves sword-shaped; flowers imbricate, small, all directed one way, of a purple or crimson colour.—Native of Russia.

3. Gladiolus Alatus; *Winged Corn-flag.* Leaves sword-shaped; the side petals very broad; stem a span high, thickish, flexuose between the flowers; upper lip of the corollas sickle-shaped, narrow; side petals or wings of the same length, rhomb-shaped, very broad; lower lip three-parted; the leaflets ovate and equal.—Native of the Cape of Good Hope. This, and all the other Cape sorts, may be increased by offsets, which should be planted in a warm border of kitchen-garden earth; and in winter they should be covered with glasses or mats, to guard them from the frost. A slight shelter has preserved those in pots under a common frame, and even some that were planted in the full ground, when the frost has not been severe. But it has always been remarked, that those plants, which were hardily treated, grew much stronger than those which were placed in a moderate degree of warmth; so that where it is convenient to cover a warm border with glasses in the winter, if these roots be planted under them in the full ground, and only protected from frost, there will be a greater probability of their flowering, than under any other mode of culture. They may also be propagated by seeds, which are often perfected in England: the seeds should be sown at the end of August, in pots filled with light earth, and placed in a shady situation till the middle of September; the pots should then be placed so as to enjoy the sun during the greater part of the day, until October, when they must be removed under a hot-bed frame, where they may be protected from frost and great rains, but enjoy the free air in mild weather. In the spring, the young plants will appear, and will require a little water once in eight or ten days; but it should be very sparingly given. In May, when the danger of frost is past, the pots should be removed to a sheltered situation, where they may have the morning sun till noon, and, if the season prove dry, be now and then refreshed with water. Towards the latter end of June, the leaves of these plants will decay; the roots should then be taken up, and may be mixed with sand, and kept in a dry room till the end of August, when they should be planted again; and, as the roots are small, four or five may be set in each halfpenny pot filled with light earth, and placed where they may have only the forenoon sun till the middle of September, when they should have a warmer situation, and in October should be placed under a hot-bed frame as before, and treated in the same way during the winter. In the spring, they must be placed in the open air till their leaves decay, when they may be again taken out of the ground, and treated in the same manner as before; but as the roots will have grown to a larger size, when they are planted again, they should each have a separate halfpenny pot, because they will not now be large enough to flower, and may be treated as the old roots.

4. Gladiolus Tubiflorus; *Long-tubed Corn Flag.* Leaves linear-lanceolate, villose, somewhat plaited, longer than the scape; tube very long; spathes hirsute; stem round, villose, a finger's length; flowers sessile, mostly on one side; bractes three at the base of each germen, hirsute, acuminate; the outer an inch and a half long, the inner half that length; stigmas somewhat wedge-shaped, villose above. It flowers in June.—Native of the Cape. See the preceding species.

5. Gladiolus Plicatus; *Hairy Corn Flag.* Leaves oblong-lanceolate, villose, plaited; tube longer than the spathes; root round, compressed, about the size of the small Spring Crocus; the skin red; from this arise five or six sword-shaped hairy leaves, from two to four inches long, and one-third of an inch broad, dark green, sitting close at the base, but spreading upwards like the sticks of a fan; between these rises the flower-stalk, six or eight inches in length, naked to the top, terminated by a spike of deep blue flowers; corolla divided to the base into six obtuse parts, equal in size and division. It flowers in May, and the seeds ripen in July; soon after which, the stalk and leaves decay to the root.—Native of the Cape. See the third species.

6. Gladiolus Strictus; *Upright Corn Flag.* Leaves linear-lanceolate, villose, plaited; tube equal to the spathe. This varies with a blue corolla; the tube and the base of the segments are very dark purple; and with a pale purple corolla, the tube blue. It flowers in June; and is a native of the Cape. See the third species.

7. Gladiolus Tristis; *Square-stalked Corn Flag.* Leaves linear-cross-shaped; corollas bell-shaped. From the root come out two or three narrow leaves, a foot and a half long, having a longitudinal furrow in the middle, and ending in acute points; they are of a deep green, and stand erect. Between these arises a slender taper stalk, about the same length as the leaves, having one or two short acute-pointed leaves on the lower part, embracing the stalk at their base; flowers alternate, distant; tube of the corolla curved downwards, not so long as in the other sorts. It flowers at the end of May, and the seeds ripen about six weeks after.

GOSSYPIUM RELIGIOSUM — *Spotted-bark Cotton Tree.*

GLADIOLUS — *Byzantium Corn Flag.*

P. 634.

P. 614.

P. 614.

P. 650.

GLADIOLUS — *Cape Corn Flag.*

GUNDELIA TOURNEFORTII.

Published by Henry Fisher Caxton, London. 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Linneus gave the name *tristis* to this species, from the gloomy colour of its flowers. They are very frequently of a pale yellow or sulphur colour, shaded in particular parts with very fine pencillings, especially on the under side; but they vary much with different shades of white and green, yellow, flesh-coloured, blue, purple, and violet. Thunberg has distinguished sixteen of these varieties. It is commonly said to produce only two flowers on a stem; but there are frequently more. They generally emit a most fragrant odour, when they expand.—Native of the Cape.

8. Gladiolus Carinatus; *Spotted-stalked Corn Flag.* Leaves linear, keeled on both sides, smooth; tube of the corolla shorter than the spathes and the borders; stigmas undivided, folded together; stalk a foot and a half high, and round; flowers sweet; tube subcylindric, little more than half an inch in length, whitish; border subcampanulate, subringent; the three upper divisions obovate, oblong, twice as long as the tube, pale violet; the three lower narrower, that in the middle the same length with the three upper ones, yellow below the middle; the side ones shorter, yellow in the middle. It flowers in April and May.—Native of the Cape of Good Hope.

9. Gladiolus Blandus; *Blush-coloured Corn Flag.* Leaves linear-lanceolate, nerved, smooth; flowers in spikes, the upper segment reflex; stigmas slightly two-lobed; tube of the corolla narrow, compressed, little bent, an inch and a half in length, pale red; filamenta white, half the length of the corolla; antheræ oblong, linear, erect, blue; style white, longer than the filamenta; stigmas three, patulous, dilated at the top into two lobed laminas, villose at the edge. The flowers vary in colour from white to pale pink, and are scentless. It flowers in June.—Native of the Cape.

10. Gladiolus Undulatus; *Waved Corn Flag.* Leaves sword-shaped; petals nearly equal, lanceolate, waved; stalk a foot and a half high; flowers alternate in a double row, yellowish-white, or pale blush-colour; proper spathes two-leaved, the inner leaf smallest; tube of the corolla long, filiform; the six parts of the border nearly equal, in form of a Lily, waved, especially the alternate ones.—Native of the Cape.

11. Gladiolus Recurvus; *Recurved Corn Flag.* Leaves sword-shaped; petals nearly equal, lanceolate, bowed back. The flowers are ranged on one side of the stalk near the top, and stand pretty far asunder; corolla curved; segments of the border almost equal, ending in blunt points; the lower segments turning downwards, the upper erect, and spreading open; the colour pale bluish, approaching to white; each segment marked with a broad, purple, divided line along the middle. The flowers have an agreeable violet odour; they appear at the end of May, and the seeds ripen in July.—Native of the Cape.

12. Gladiolus Spicatus; *Spiked Corn Flag.* Leaves linear; stem extremely simple; scape simple, round, sheathed, erect, a span high; flowers in spikes, distich, imbricate, blue, about twelve pairs in a spike of an inch long.—Native of the Cape.

13. Gladiolus Alopecuroides; *Fox-tail Corn Flag.* Leaves linear; spike distich, imbricate. The spike is covered, like that of the Plantain, with very numerous small flowers, but in a double row. It varies with the scape simple and branched, with corollas white and blue.—Native of the Cape.

14. Gladiolus Angustus; *Narrow-leaved Corn Flag.* Leaves linear, smooth; flowers in spikes, distant; the upper segments of the corolla straight; stigmas spatulate, undivided; scape simple, or but little branched, sheathed, round, striated, smooth, flexuose, erect, a foot high; flowers all on the same side, ascending, on one or two spikes a hand in length; rachis angular, flexuose, twisted, smooth; spathes the length of the tube of the corolla, shorter than the branches, green.—Native of the Cape.

15. Gladiolus Flavus; *Yellow Corn Flag.* Leaves lanceolate-sword-shaped, flat; the throat of the upper lip of the corolla has three laminas, shaped like the nail, and placed perpendicularly; bractes acuminate. This differs from the sixteenth species, in having the bractes acuminate, the whole corolla intensely yellow, and the leaves a little broader. It flowers in February and March.—Native of the Cape.

16. Gladiolus Securiger; *Copper-coloured Corn Flag.* Leaves linear-sword-shaped, flat; the throat of the upper lip has three laminas, shaped like the nail, and placed perpendicularly; bractes shorter; stalk roundish, a little shorter than the leaves, sometimes branched; bractes short, ovate, obtuse, sometimes gashed at the tip, membranaceous; corollas pale tawny; tube funnel-shaped, less than an inch in length; segments of the border oblong-ovate, obtuse, sometimes obscurely emarginate, shorter than the tube, the three upper ones having in the chaps a yellow spot, with a border of red round it, and three flat obtuse yellow laminas, a line and half in diameter. It flowers in May.—Native of the Cape.

17. Gladiolus Ramosus; *Branched Corn Flag.* Stem branched; leaves linear.—Native of the Cape.

18. Gladiolus Capitatus; *Crowned Corn Flag.* Stem branched; heads peduncled; root tuberous. This is a very large plant, with blue flowers.—Native of the Cape.

19. Gladiolus Crispus; *Curled Corn Flag.* Leaves lanceolate, crenate, waved; flowers directed the same way; spikes two; tube filiform, long; stem round, with one or two crenate-waved leaves on it; glumes obtuse, with a scariose, toothletted, red margin; tube of the corolla twice as long as the border. This is two feet high.—Native of the Cape.

20. Gladiolus Junceus; *Slender Corn Flag.* Leaves broad-lanceolate; culm branched; flowers directed the same way; style six-parted; stem a hand only in height, filiform, smooth, with one or two patulous branchlets; flowers alternate, sessile; glumes ovate, entire; corolla violet-coloured, with a filiform tube, longer than the border.—Native of the Cape.

21. Gladiolus Anceps; *Double Corn Flag.* Leaves sword-shaped, waved; stem branched, ancipital, divaricate; flowers alternate at the tips of the branches; spathes very obtuse, purple at the edge; tube of the corolla three or four times as long as the border.—Native of the Cape.

22. Gladiolus Gramineus. Petals lanceolate, bristle-shaped, acuminate; stem more than a foot high, round, smooth, and even, with few flowering branches; flowers few, at the end of the stem and branches; spathes ovate-acuminate; corolla whitish, with a violet-coloured base, small, without a tube, six-parted.—Native of the Cape.

23. Gladiolus Marginatus. Leaves cartilaginous, margined, smooth, many-nerved; spike lengthened; flower alternate, nodding; stems the thickness of a goose-quill; spike very long, slightly flexuose between the flowers; spathes distant, the length of the bractes, which are often jagged at the tip; tube of the corolla twice as long as the spathes; segments of the border nearly equal, oblong, elliptic, purple.—Native of the Cape.

24. Gladiolus Montanus; *Mountain Corn Flag.* Leaves sword-shaped, nerved, smooth; flowers in spikes; corolla ringent; stem round, leafless; spike oblong; with the flowers rather remote; root-leaves narrow, linear, not above a line in breadth, but nearly the length of the stem, smooth and even; upper lip or helmet of the corolla three-parted; the middle segment arched or bowed in, channelled, linear, ovate at the

tip; lateral segments spreading, divaricate.—Native of the Cape. See the third species.

25. Gladiolus Falcatus. Stem simple; leaves sickle-shaped; flowers alternate; style trifid; scape compressed, striated; flexuose, smooth, a hand in height; one or two leaves obversely stem-clasping, ovate-lanceolate, sickled, bluntish, entire, striated, smooth; spathes green, obtuse, much shorter than the tube; corolla blue, with a spreading border.—Native of the Cape.

26. Gladiolus Flexuosus. Leaves linear; stem simple, flexuose; flowers in spikes, ringent; tube long; scape round, flexuose, erect, smooth, a foot high; spathes oblong, lanceolate, acuminate, smooth, shorter than the tube of the corolla; spike ovate, four or five flowered; corolla whitish flesh-colour, with a tube double the length of the spathe, and a ringent border.—Native of the Cape.

27. Gladiolus Longiflorus; *Long-flowered Corn Flag.* Stem round; tube of the corolla very long; spathes and leaves linear, smooth; scape round, simple, and many-spiked, erect, smooth, a foot high and more; flowers alternate, pale flesh-colour, very many, close; bractes membranaceous, striated, very short.—Native of the Cape.

28. Gladiolus Spathaceus. Stem branched; flowers in imbricate spikes; spathes membranaceous, awned; leaves plaited; scape sheathed, a span high, terminated by several spikes; flowers whitish, with the tube of the corolla many times longer than the spathes.—Native of the Cape.

29. Gladiolus Setifolius. Stem branched; corolla ringent; the lowest leaf filiform, setaceous; scape many-spiked, very seldom simple, flexuose, erect, smooth, a hand high, with round erect branches; flowers alternate, white, ringent, with the tube scarcely longer than the spathes.—Native of the Cape.

30. Gladiolus Cardinalis; *Superb Corn Flag.* Leaves sword-shaped, many-nerved; flowers directed the same way; many on a stem; corolla upright, with a bell-shaped border; flowers fine scarlet, with large white, and somewhat rhomboidal spots on several of the lowermost divisions of the corolla. Strong plants will throw up a stem three or four feet high, dividing at top into several branches. It flowers with us in July and August.—Probably a native of the Cape. Introduced from Holland a few years ago; and first flowered with Messrs. Lewis and Mackie, at Kingsland; and in 1790, at Messrs. Grinwood's and Co. Kensington.

31. Gladiolus Milleri. Leaves with many prominent ribs; flowers bell-shaped, inclined one way; tube fleshy, slender. The root is bulbous, in shape and size like that of the Vernal Crocus: from this spring up five or six long narrow leaves, deeply furrowed; between these arises the flower-stem, about a foot and a half high, bending on one side, bearing towards the top five or six flowers, each having a two-leaved sheath; they are of a pure white when they first open, but afterwards change to a yellower colour.—Native of the Cape.

Glasswort. See *Salicornia.*

Glastonbury Thorn, so famous in legendary lore, buds and blossoms in the midst of winter. The story of its budding always upon Christmas-day, is false; though, if the winter be mild, it buds about the latter end of December, but later if it be severe.—See *Mesphilys.*

Glaux; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* none, unless the corolla be so called. *Corolla:* petal one, five-parted, bell-shaped, upright, permanent; segments obtuse, rolled back. *Stamina:* filamenta five, subulate, upright, the length of the corolla; antheræ roundish. *Pistil:* germen ovate; style filiform, the length of the stamina; stigma capitate. *Pericarp:* capsule globular, acuminate, one-celled, five-valved. *Seeds:* five, roundish. *Receptacle:* very large, globular, hollowed for the reception of the seeds. *Observe:* The cover of the flower is perhaps a calix more properly than the corolla. Essential Character. *Calix:* one-leafed, bell-shaped. *Capsule:* one-celled, five-valved, five-seeded. ——The only known species is,

1. Glaux Maritima; *Sea Milkwort*, or *Black Saltwort.* Root perennial, creeping; stems about four inches high, erect, branched a little; leaves sessile, oval-oblong, or oval-lanceolate, succulent, opposite at bottom, but among the flowers alternate; flowers almost sessile, axillary, solitary, from about the middle of the stem purple, greenish-white, white, or striped.—It is found on the sea-coast, and on salt-marshes at a distance from the sea, and even about Upsal in Sweden, which is at a great distance from the ocean. It is a pretty little plant, enlivening large tracts of the dreary situations where it is found. The whole plant is succulent, and salt to the taste. Cows eat this herb, and it is used for a pickle. It flowers in June, and continues the rest of the summer; but is seldom cultivated in gardens.

Glechoma; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, cylindric, streaked, very small, permanent; mouth five-cleft, acuminate, unequal. *Corolla:* one-petalled, ringent; tube slender, compressed; upper lip erect, obtuse, semibifid; lower spreading, larger, obtuse, trifid; middle segment larger, emarginate. *Stamina:* filamenta four, under the upper lip, of which two are shorter; each pair of antheræ converging in form of a cross. *Pistil:* germen four-cleft; style filiform, bending beneath the lip; stigma bifid, acute. *Pericarp:* none; calix cherishing the seeds in its bosom. *Seeds:* four, ovate. Essential Character. *Calix:* five-cleft; each pair of antheræ converging in form of a cross.——The only species is,

1. Glechoma Hederacea; *Ground Ivy, Gill, Cat's-foot, Tun-hoof, Robin-run-in-the-hedge*, or *Ale-hoof.* Leaves kidney-shaped, crenate, or scalloped. Root perennial, sending out trailing four-cornered shoots, producing roots at the joints, and spreading wide; the flowering-stalks spring from the joints, which are woolly, these are upright, but weak, square, hirsute with hairs turning downward, from four to six inches high; the leaves are beset underneath with hollow dots, in which are glands secreting an essential oil, and above with little eminences, but which do not secrete any odoriferous oil, so that this surface being rubbed gives out no peculiar scent, whereas the under surface affords a pleasant reviving smell; peduncles axillary, opposite, short, branched, supporting from three to five flowers; corolla blue, sometimes varying to white; the larger middle segment of the lower lip marked with purple dots of a deeper colour, and hairy at the base; stamina sometimes in the spring imperfect, with filamenta only half the usual length, terminated by a reddish blunt point, or sometimes by effete antheræ; when perfect, the antheræ, after bursting, form a cross, or the shape of the letter X; the leaves are often deformed with red hairy tumors, which are the galls of the cynips glechomæ.—Ground Ivy expels the plants which grow near it, and thus impoverishes the pastures: the leaves were formerly thrown into the vat with ale, to clarify it, and to give it a flavour. This was called *Gill-ale*, Ground Ivy being named *Gill*, or *Gill-creep-by-ground*, in some places. From this use of the plant, and the form of its leaves, it has also the names of *Ale-hoof* and *Tun-hoof*, but has gradually fallen into

disuse since the introduction of hops. Cattle seem in general to avoid it, though Linneus says that sheep eat it; horses are not fond of it; and it is refused by cows, goats, and swine. It is said to be injurious to those horses that eat much of it; although the expressed juice, mixed with a little wine, and applied morning and evening, destroys the white specks which frequently infest their eyes. This plant has a peculiarly strong smell, with a bitterish and somewhat aromatic taste; it was formerly in a high repute for a pectoral, detergent, aperient, diuretic, and corroborant, and was particularly recommended in pulmonary and nephritic complaints. In obstinate coughs it is still a favourite remedy with the country people, though seldom prescribed by medical practitioners, and wholly discarded from the materia medica of the London college. Mr. Ray cites a remarkable instance of its efficacy in removing a violent and inveterate headache, by drawing the juice of the plant up the nostrils; but Dr. Cullen will not allow it to be of any utility, except as an errhine: he thinks the use of it in ale to be frivolous, and declares, that in many cases where he had seen it employed, there was no evidence either of its diuretic or pectoral effects. The usual manner of taking it is in an infusion, or tea; the expressed juice is also used with honey in coughs; a conserve or syrup is also made with it. The distilled water is wholly useless. The conserve made of the young tops in the spring, or the juice made into a syrup, is excellent for colds, coughs, and shortness of breath; and the infusion, made strong, and drank as tea, is serviceable in all complaints of the breast and lungs. The expressed juice snuffed up the nose, is an excellent, and often an instantaneous remedy for the headache, and may be advantageously used in inflammations of the eyes, arising from external violence. Notwithstanding what Dr. Cullen advances against the use of this plant in ale, Meyrick asserts, that the leaves, when bruised, and thrown into the vat with the liquor, not only effectually clarify and give it an agreeable flavour, but also communicate an antiscorbutic virtue.—It is so common under hedges, on banks, in woods, and sometimes in dry pastures, that it is never cultivated in gardens. It varies in size, as well as the degree of colour in the flower, according to its situation: the flowers appear in April, May, and June. A plant so universally esteemed by the multitude, was sure to acquire many names. To those already enumerated we have to add that of *Hay-maids;* the Germans call it, *gundelreben, gundermann, grundermann, gundelrab, gundrebe, grundrebe, gunderlunze, donnerrebe, erdepheu, erdenkranzlein, meerwurzel;* the Dutch call it, *aardveil, hondsdraf, onderhave;* the Danes, *vedbende;* the Swedes, *jordrefrot;* the Italians, *ellera terrestre;* and the Spaniards, *hicdra terrestre.*

Gleditsia; a genus of the class Polygamia, order Dicœcia. —Generic Character. *Male*: a long, compact, cylindric ament. *Calix:* perianth proper, three-leaved; leaflets patulous, small, acute. *Corolla:* petals three, roundish, sessile, patulous, like the calix; nectary turbinate, with the other parts of the fructification growing to the mouth. *Stamina:* filamenta six, filiform, longer than the corolla; antheræ incumbent, oblong, compressed, twin. *Hermaphrodite:* in the same ament with the males, usually terminating. *Calix:* perianth four-cleft, otherwise as in the male. *Corolla:* petals four, otherwise as in the male; nectary as in the male. *Stamina:* as in the male. *Pistil, Pericarp,* and *Seed:* as in the female. *Female:* a lax ament, on a distinct plant. *Calix:* perianth proper, as in the male, but five-leaved. *Corolla:* petals five, long, sharp, from upright spreading; nectaries two, short, like filamenta. *Pistil:* germen broad, flatted, longer than the corolla; style short, reflex; stigma thick, the length of the style, along which it grows, pubescent at top. *Pericarp:* legume very large, broad, extremely flatted, divided by several transverse partitions, and filled with pulp. *Seeds:* solitary, roundish, hard, shining. Essential Character. *Hermaphrodite. Calix:* four-cleft. *Corolla:* four-petalled. *Stamina:* six. *Pistil:* one. *Male. Calix:* three-leaved. *Corolla:* three-petalled. *Stamina:* six. *Female. Calix:* five-leaved. *Corolla:* five-petalled. *Pistil:* one. Legume.——The species are,

1. Gleditsia Triacanthos; *Three-horned Acacia.* Leaflets ovate-oblong; spines very frequent, in all the varieties axillary, and commonly triple. It rises with an erect trunk to the height of thirty or forty feet, and is armed with spines, three or four inches long, which have two or three smaller ones coming out from the side, and are frequently produced in clusters at the knots of the stem; leaves bipinnate, composed of ten pairs of leaflets, of a lucid green, and sessile; the flowers come out from the side of the young branches, and being of an herbaceous colour, make no figure: legume nearly a foot and a half long, and two inches broad; seeds smooth, surrounded by a sweet pulp. The leaves seldom come out till June in this country, and the flowers not till the end of July; neither does the tree produce any flowers until it has grown to a large size. There are several varieties, with the spines stronger and weaker, and different in number.—These trees are propagated by seeds, which must be procured from America; those of the first are annually sent to England in plenty, by the title of *Locust*, or *Honey-locust*, to distinguish them from the False Acacia, which is frequently called Locust-tree in America. The seeds may be sown upon a bed of light earth in the spring, burying them half an inch deep; and, if the spring should prove dry, they must be frequently watered, otherwise the plants will not come up the first year, for sometimes the seeds remain two years in the earth before they appear; so that those who wish to save time, should sow the seeds as soon as they arrive, and plunge the pots into a moderate hot-bed, observing to water them frequently; by this method most of the plants will come up in the same season; but these should be gradually inured to bear the open air, for if they are continued in the hot-bed, they will draw up weak. The plants in pots will require frequent waterings during the summer season; but those in the full ground will require much less, except in very dry seasons. In autumn, those in the pots should be placed under a hot-bed frame, to protect them from frost, for these young plants generally keep growing late in the summer, and the upper part of their shoots being tender, the early frost of the autumn often kills the end of them, if they are not protected, and this frequently occasions great part of the shoots decaying in winter; for which reason, those plants in the full ground should be covered with mats in autumn, on the first appearance of frost, for a small frost in autumn will do more mischief to these young shoots which are full of sap, than severe frost when the shoots are hardened. In the following spring these plants may be transplanted into nursery beds, at a foot distance row from row, and six inches asunder in the rows; but this should not be performed till April, after the danger of harder frost is over, for as the plants do not put out their leaves till very late, there will be no hazard in removing them any time before May. If the season should prove dry, they must be watered; and if the surface of the beds be covered with moss or mulch, to prevent the earth from drying, it will be of great service to the plants; which may remain two years in these beds, during which time they must be constantly kept clean from weeds, and in the winter there should be some rotten tan or other mulch spread over the surface of the

ground to keep out the frost. If the plants thrive well, they will be fit to transplant to the places where they are to remain after two years' growth, for they do not bear removing when large; the best season for transplanting these trees is late in the spring; they thrive best in a deep light soil, for in strong shallow ground they become mossy, and never grow large; they should also have a sheltered situation, for when much exposed to winds, the branches are frequently broken, when fully clothed with the leaves, which do not appear till June. As this is an elegant tree, it should appear singly in the openings of plantations, wherever it can be well sheltered from cold winds.

2. Gleditsia Monosperma; *Swamp Locust Tree.* Branches somewhat thorny; little leaves ovate-oblong, sharp; pods containing only one seed. It flowers in July, and is a native of Carolina and Florida. This plant is only considered by Miller, a variety of the first species; but being fully satisfied, with Fred. Pursh, that it is entirely distinct from Gleditsia Triacanthos, we have copied his specific description.

Glinus; a genus of the class Dodecandria, order Pentagynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, concave, coloured within, permanent. *Corolla:* none; nectaries often five, flat, resembling petals, narrow, shorter than the calix, unequally bifid or trifid. *Stamina:* filamenta about fifteen, (Gærtner says, fifteen to twenty,) subulate, flat, the length of the calix; antheræ erect, upright, compressed, twin. *Pistil:* germen superior, five-cornered; styles five, short, (Gærtner says one, five-cleft;) stigmas simple. *Pericarp:* capsule ovate, five-celled, five-cornered, five-valved. *Seeds:* very many, roundish, in a single row under the valves, tubercled, affixed at the base to a small swelling membrane. *Observe:* The nectaries of Linneus are what Gærtner calls the petals. Essential Character. *Calix:* five-leaved. *Corolla:* none; nectaries cloven bristles. *Capsule:* five-cornered, five-celled, five-valved, containing numerous seeds.——The species are,

1. Glinus Lotoides; *Hairy Glinus.* Stems procumbent, jointed, hairy; leaves obovate; root annual; flowers nearly sessile, crowded together; capsule ovate-pyramidal, thin, pustuled by the protuberating seeds; partitions inserted in the middle of the valves.—Native of the south of Europe, and the Levant.

2. Glinus Dictamnoides. Stem frutescent, prostrate; leaves orbicular, tomentose, flat; calicine leaflets lanceolate; branches alternate; both they and the stems tomentose at top, but with hairs less distinct than in the first species; peduncles at the joints aggregate, short.—Native of the East Indies.

3. Glinus Setiflorous. Stem shrubby; leaves obovate, plaited; calicine leaflets ovate. The whole plant is hoary, with very close hairs, longer than in the first species; flowers axillar, several; peduncles very short; spinules rigid, minute, from the base of the peduncles, permanent.—Native of inundated woods, in Arabia Felix, during the rainy season.

Globba; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth superior, one-leafed, cylindric, with a trifid mouth, permanent. *Corolla:* monopetalous, cylindric, with a trifid equal mouth. *Stamina:* filamenta two, filiform, middling in length; antheræ fastened longitudinally to the filamenta. *Pistil:* germen inferior; style bristle-shaped, of a middling length; stigma sharp. *Pericarp:* capsule roundish, three-celled, three-valved. *Seeds:* very many. Essential Character. *Calix:* superior, trifid. *Corolla:* equal, trifid. *Capsule:* three-celled. *Seeds:* very many.——The species are,

1. Globba Marantina. Spike terminating, erect; stem simple, herbaceous, about two feet high; flowers remote, each involved in an ovate bracte, longer than the flower.—Native of the East Indies.

2. Globba Nutans. Spike terminating, pendulous. Rumphius makes two varieties of this, the great and the small: the first has a very straight firm stem, from fourteen to eighteen feet in height, two inches in diameter at bottom, naked for six feet from the root, and stout enough for walking-canes; the upper part is soft, and is eaten in some places; leaves three feet long, and more than two hands broad, thin, smooth, with many parallel transverse veins, bending upwards near the edge, forming slight ridges on the upper, and furrows on the lower surface; fruit the size of a pigeon's egg, red. The leaves of the smaller sort are more wandering, narrower, and draw more to a point at the base; the primary stem is two or three feet in length, and leafless, producing abundance of oblong flowers in bunches, like the Hyacinth.—Native of the East Indies.

3. Globba Uviformis. Spike lateral; stem from seven or eight to twelve or fourteen feet high, the thickness of a finger; leaves from fourteen to sixteen inches long, and from four to six fingers broad, smooth, and dark green above, pale green and lanuginose beneath: the fructification issues from the side of the stem, eighteen inches or two feet above the root, in a spathed bunch or spike a hand in length, containing many white flowers, which are succeeded by fruit resembling grapes, but larger, white, becoming black, or of the colour of smoke, and are sometimes eaten.—Native of the East Indies.

4. Globba Japonica. Raceme terminating, drooping; leaves sword-shaped, entire; the stem is sheathed with leaves, simple, round, streaked, smooth, upright, two feet high or more; flowers many; rachis flexuose, a hand in length; peduncle scarcely a line long, nodding a little, one-flowered; style filiform; seeds surrounded by a white connecting membrane, angular, smooth, brown; capsule ovate.—Native of Japan, where the fruit ripens in December and January.

Globe Amaranth. See *Gomphrena.*

Globe Flower. See *Trollius.*

Globe Thistle. See *Echinops.*

Globularia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* common perianth, imbricate with scales the length of the disk, and equal; proper one-leafed, tubular, five-cleft, sharp, permanent, (four or five toothed, the teeth bristle-shaped and acuminate, according to Gærtner.) *Corolla:* universal, nearly equal; proper monopetalous, tubular at the base; border five-parted; upper lip very narrow, two-parted, shorter, lower of three larger equal segments. *Stamina:* filamenta four, simple, the length of the corollule; antheræ distinct, incumbent. *Pistil:* germen ovate, superior; style simple, the length of the stamina; stigma obtuse. *Pericarp:* none; proper calix converging, inclosing the seed. *Seed:* solitary, ovate. *Receptacle:* common, oblong, separated by chaffs. Essential Character. *Calix:* common imbricate; proper tubular, inferior; corollets the upper lip two-parted, lower three-parted. *Receptacle:* chaffy.——The species are,

1. Globularia Longifolia; *Long-leaved Globularia.* Stem shrubby; all the leaves linear-lanceolate, quite entire; heads axillary. This rises much higher than the next species, having a hard white wood, with a large pith, and a scabrous light brown or gray bark; the branches towards their ends very thick set with leaves, without any order, they are two inches long, and a third part of an inch broad in the middle; the nerves yellowish green; flowers small, blue, in round heads.—It flowers in July and August, and is a native of Madeira. This, and the eighth species, are somewhat

tender, and should be sheltered from the frost in winter under a frame, but in summer should be exposed with other hardy exotic plants, and will require to be frequently watered in dry weather. These may be propagated by seeds, or by parting their roots, as is directed for the fourth sort.

2. Globularia Alypum; *Three-tooth-leaved Globularia.* Stem shrubby; leaves lanceolate, three-toothed, and entire; heads terminating. This has a hard woody stem, about two feet high, with many woody branches, beset with leaves like those of the Myrtle; the flowers are produced on the tops of the branches in a ball, and are of a blue colour. It flowers from August to November.—Native of the south of Europe, and of Barbary. From the violent purging quality of this shrub, it acquired the name of *herba terribilis*, in English, *herb terrible;* but, in the abundance of purging medicines that we possess, this is seldom if ever used. This plant may be propagated by cuttings, which should be cut off in April, just before they begin to make new shoots: the cuttings should be planted into pots filled with light fresh earth, and then placed in a very moderate hot-bed, observing to water and shade them until they have taken root, when they may be taken out of the bed, and inured to bear the open air by degrees. In summer these plants may be exposed with other hardy exotic plants, and in winter they should be placed under a hot-bed frame, where they may enjoy the free air in mild weather, but should be screened from hard frost, which will destroy them if they are exposed thereto, but in mild winters they will live in the open air. It never produces good seeds in this country.

3. Globularia Bisnagarica. Stem shrubby; root-leaves wedge-shaped, retuse; stem-leaves lanceolate, flowers in a blue terminal head.—Native of woods in India.

4. Globularia Vulgaris; *Common Globularia*, or *Blue Daisy.* Stem herbaceous, a span high; stem-leaves lanceolate; root-leaves three-toothed, numerous, like those of the Daisy, but thicker, petioled, placed in a ring, ovate-obtuse, quite entire, emarginate; the nerve produced into a small awn or point; corollets of a fine blue; germen villose. It varies with a white flower, and with a leafless stalk. It usually flowers in May and June.—Native of many parts of Europe, as Sweden, the south of France, Germany, Switzerland, Austria, Carniola, Hungary, Savoy, Italy, and Spain. This, together with the fifth, sixth, and seventh species, may be propagated by parting the roots, after the manner of Daisies. The best season for parting and transplanting of the plants is in September, that they may take new root before the severe weather comes on. They should be planted in a shady situation, and require a moist loamy soil, in which they will thrive much better than in a light ground and an open situation; but the plants should not be removed oftener than every other year, if required to flower strong.

5. Globularia Spinosa; *Prickly-leaved Globularia.* Root-leaves crenate, prickly; stem-leaves quite entire, mucronate; stem a hand in height, dark green, with oblong narrow leaves at the base, not notched, but ending in prickles; heads of flowers longer than in the preceding species.—It flowers in May, and is a native of Spain.

6. Globularia Cordifolia; *Wedge-leaved Globularia.* Stem almost naked; leaves wedge-shaped, three-cusped, the middle cusp least; root large, woody, producing many tufts of leaves.—It flowers in June and July, and is a native of Switzerland, Austria, Carniola, Hungary, Piedmont, and Arragon.

7. Globularia Nudicaulis; *Naked-stalked Globularia.* Stem naked; leaves quite entire, lanceolate; flowers usually trifid, but sometimes quadrifid.—It flowers in July, and is a native of Switzerland, Austria, Carniola, Savoy, and Piedmont.

8. Globularia Orientalis. Stem almost naked; heads of flowers alternate, sessile, from seven to ten, at the summit of the stem; leaves lanceolate-ovate, entire; root perennial.—Native of Natolia.

Gloriosa; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong-lanceolate, waved, very long, wholly reflex. *Stamina:* filamenta six, subulate, shorter than the corolla, from straight patulous; antheræ incumbent. *Pistil:* germen globular; style filiform, longer than the stamina, inclined; stigma triple, obtuse. *Pericarp:* capsule superior, oval, three-lobed, three-celled, three-valved. *Seeds:* several, globular, berried, in two rows. *Observe.* This beautiful genus is nearly allied to Erythronium. Essential Character. *Corolla:* six-petalled, waved, reflex. *Style:* oblique.——The species are,

1. Gloriosa Superba; *Superb Lily.* Leaves alternate, smooth, each ending in a tendril. This has a long fleshy root, of a whitish colour, and a nauseous bitter taste, from the middle of which rises a round weak stem, requiring support, and with that growing to the height of eight or ten feet; flowers at the upper part of the stem, from the side, on slender peduncles, hanging down, at first of an herbaceous colour, but changing to a beautiful flame colour. It flowers in June and July, but seldom perfects seeds in this country. The stalks decay in autumn; the roots remain inactive all the winter, and new stalks appear in March. The roots and every part of the plant are poisonous.—Native of Malabar and Guinea. As neither this nor the second species are often known to produce seeds in this country, they are generally propagated by their roots; those of the first sort creep and multiply pretty fast. The roots may be taken out of the ground when their stalks are decayed, and preserved in sand during winter; but they must be kept in a stove or a warm room, where they can receive no injury from the cold; and in the spring, they must be planted in pots filled with light earth, and plunged into the tan-bed in the stove: but others choose to let the roots continue in the ground all the winter, keeping the pots in the tan-bed. Towards the latter end of March, or the beginning of April, their stalks will appear; and some tall sticks should be put down to support them, otherwise they will trail over the neighbouring plants, and the first species will fasten to the plants by the tendrils. The stalks of this species will rise ten or twelve feet high, if the roots be strong; and some of them will produce two or three flowers, which make a fine appearance during their continuance, but seldom last more than ten days or a fortnight. In summer, while growing, they will frequently require to be watered, but must only have small quantities, as they are always liable to rot. Those roots which are not taken out of the pots in winter, should be transplanted, and parted in the beginning of March, before they put out new fibres or stalks, for they must not be removed when they are in a growing state. The pots should not be over large, for unless the plants be rather confined, they will not put out strong stalks; the largest roots may be planted in two-penny pots, but the smaller will only require pots that are five or six inches wide at top. A great degree of heat is necessary to make the first species flower.

2. Gloriosa Simplex. Leaves acuminate, smooth, about three inches long and two broad, but having no tendrils; they have a strong disagreeable scent when handled, and the flower is said to be blue.—The seeds were sent to Mr. Miller by the gardener to the French king at Trianon, and were brought from Senegal. This plant has not yet appeared in any of the gardens either in France or England.

Glossoma; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, turbinate, four-toothed, superior, permanent. *Corolla:* petals four, lanceolate, acute, bowed back; nectary a rim round the base of the atyle. *Stamina:* filamenta four, very short; antheræ oblong, almost united into a cylinder, prolonged at the tip into a membranaceous strap or scale, gaping on the inside. *Pistil:* germen inferior; style filiform, the length of the stamina; stigmas four, acute. *Pericarp:* drupe spear-shaped, one-celled, crowned with the calix. *Seed:* single, ovate, streaked. Essential Character. *Calix:* turbinate, four-toothed, superior. *Corolla:* four-petalled. *Antheræ:* almost united, with a membranaceous scale at the end. *Stigmas:* four.——The only known species is,

1. Glossoma Guianensis. This is a middling-sized shrub, five or six feet high; the bark brown; the wood yellow, hard, and compact; branches jointed, and four-cornered; leaves opposite, cruciate, six inches and a half long, and two and a half wide, entire, smooth, thick, elliptic, acuminate, on very short petioles; stipules short, acute, at the base of the petioles deciduous; peduncles axillary, bearing two, three, or four flowers, each on its proper pedicel, bracted at the base; corolla white.—It flowers in September, and is a native of Guiana, where *Vitomita* is the vernacular name.

Glossopetalum; a genus of the class Pentandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, very small, five-toothed, permanent. *Corolla:* petals five, lanceolate, spreading, acute; at the tip of each a linear-lanceolate truncate strap, nearly the length of the petal, and lying in it. *Stamina:* filamenta five, very short; antheræ roundish. *Pistil:* germen roundish, surrounded by a gland, bearing the petals and stamina; style none; stigmas five, acute. *Pericarp:* roundish, five-grooved, one-celled. *Seeds:* five, angular. Essential Character. *Calix:* very small, five-toothed. *Petals:* five, with a strap at the tip of each.——The species are,

1. Glossopetalum Glabrum. Leaves smooth. This is a tree, the trunk of which rises to the height of sixty feet or more, and is from two to three feet in diameter. The bark is smooth and gray; the wood white, and of a loose texture. The petiole is short, and has two small, narrow, deciduous stipules at the base; peduncles solitary, axillary, two inches long, bearing many flowers in a spherical head; corolla yellow; berry black.—Native of Guiana, where it flowers in November. The natives make canoes of the trunk.

2. Glossopetalum Hirsutum. Leaves hairy. The trunk of this species is only from twenty to twenty-five feet in height. The bark is wrinkled, blackish, marked with white; the leaves are covered with short hairs on both sides: the juice is used against inflammations in the eyes; they are bitter, and so also is the bark.—Native of Guiana and Cayenne, where its vernacular name is *Goupi.*

Gloxinia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth superior, five-leaved; leaflets equal, lanceolate, serrulate at the tip; the three upper ones nerved, the two lower bent down with the nectary, permanent. *Corolla:* monopetalous, irregularly campanulate; tube scarcely any; border oblique, five-cleft; segments roundish, the four upper spreading and entire, the lowest straight, concave, toothed. *Stamina:* filamenta four, with the rudiment of a fifth, two scarcely shorter, inserted into the receptacle, fastened to the lower margin of the corolla, sickled, pubescent, converging laterally above; antheræ ovate, two-celled, peltate, united within the opening of the corolla. *Pistil:* germen inferior, turbinate, striated; style filiform, the length of the stamina; stigma capitate, the length of the antheræ. *Pericarp:* capsule one-celled, or half-celled; receptacles two, opposite, two-parted, fastened to the sides of the capsule by the partition. *Seeds:* very numerous, inserted into the receptacles. *Observe.* L'Heritier remarks, that it is distinct from *Martynia,* by its inferior germen; from *Gesneria,* by its bell-shaped corolla, with the upper segment bent back; and from *Cyrilla,* by its bell-shaped corolla, without the tricallous mouth. Essential Character. *Calix:* superior, five-leaved. *Corolla:* bell-shaped, with the border oblique; filamenta, with the rudimentum of a fifth, inserted into the receptacle.——The only known species is,

1. Gloxinia Maculata; *Spotted Gloxinia,* Root perennial, thick, fleshy, divided into knots, which are scaly, somewhat like those of toothwort; stems several, about a foot high, thick, succulent, purplish, terminated by a short spike of blue flowers, or rather an erect raceme, leafy or bracted, in which the flowers are axillary, solitary, peduncled, bright blue, and sweet-scented; corolla hirsute on the outside, inserted into the receptacle, larger than the calix; the base is gibbous in front, very large, melliferous within, and dark purple.—Native of South America. This plant must be constantly preserved in the stove, and plunged into the bark-bed. During the winter season, much water will rot the roots. In the middle of March, just before it begins to shoot, the roots may be parted, and transplanted into middling-sized pots, filled with light rich earth, and plunged into the bark-bed, which should then be renewed with fresh tan. When the plants come up, they must be frequently refreshed with water in small quantities; and as the season becomes warmer, a large share of fresh air should be admitted. They should not be placed where they are shaded or overhung by other plants; nor should they be shifted or transplanted when they are in leaf, for that will prevent their flowering. As this increases very fast by the roots, there is no necessity for using other methods to propagate it.

Gluta; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very thinly membranaceous, bell-shaped, obtuse, shorter than the germen, deciduous. *Corolla:* petals five, lanceolate, longer than the calix, spreading at top, but below, as far the middle, glued to the column of the germen. *Stamina:* filamenta five, bristle-shaped, of a middling length, inserted into the tip of the column; antheræ versatile, roundish. *Pistil:* germen obovate, sitting on an oblong column; style filiform, of a middling length; stigma obtuse. Essential Character. *Calix:* bell-shaped, deciduous; petals five, glued at bottom to the column of the germen; filamenta inserted into the tip of the column; germen sitting on an oblong column.——The only known species is,

1. Gluta Benghas. A tree, with branches leafy at the end; leaves alternate, sessile, broad-lanceolate, about a foot in length, veined, naked, on the flowering branches only a hand long, more obtuse, and crowded; panicle terminating, peduncled, with flowers the size of those of cabbage; fructification singular; and, if we were to suppose the petals to be separated from the column, the situation of the stamina would be as in Passiflora.—Native of Java.

Glycine; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, compressed; mouth two-lipped; upper lip emarginate, obtuse; lower longer, trifid, acute; the middle tooth more produced. *Corolla:* papilionaceous; banner obcordate, the sides bent down, the back gibbous, the tip emarginate, straight, repelled from the keel; wings oblong, towards the

tip ovate, small, bent downwards; keel linear, sickle-shaped, bent upwards; at the tip pressing the banner upwards, obtuse, towards the tip broader. *Stamina:* filamenta diadelphous, (simple, and nine-cleft,) only a little divided at the tip, rolled back; antheræ simple. *Pistil:* germen oblong; style cylindric, rolled back in a spiral; stigma obtuse. *Pericarp:* legume oblong. *Seeds:* kidney-form. ESSENTIAL CHARACTER. *Calix:* two-lipped. *Corolla:* the keel turning back the banner at the tip.——The species are,

1. Glycine Subterranea. *Procumbent Glycine.* Leaves ternate, radical; stalks procumbent, flexuose; peduncles two-flowered; root annual; stalks several, a span in length, very rigid, close to the ground, or descending to it, round, hairy, unbranched; stipules two, lateral, permanent, very shortly peltate, ovate, quite entire, very small, hairy, flat; partial stipules to each lateral leaflet, solitary; to the middle one, two oblong, smooth, sessile, upright, concave; flowers upright; corolla pale yellow; banner obovate, streaked, upright; wings very blunt, as long as the banner, spread out; keel as long as the wings, blunt. As soon as this plant is out of flower, the peduncle perforates the earth, like the *Trifolium Subterraneum*, and *Arachis Hypogæa*, and the seeds ripen under ground.—It is a native of Brazil and Surinam, and is common on the coast of Africa. In Surinam, it is called *gobbe-gobbe*, and being planted in a sandy soil, with the addition of a little clay, bears abundance of fruit, which is a welcome repast to the inhabitants, who boil it before it becomes ripe, like green peas.

2. Glycine Monoica; *Pale-flowered Glycine.* Leaves ternate, almost naked; stalks hairy; racemes pendulous; fruit-bearing flowers apetalous; racemes many-flowered; flowers like those of *Vicia Cracca*, with the banner pale violet, the wings and keel white; they have the stamina and pistils, but the former being effete, they bear no fruit.—It flowers here in September, and is a native of North America.

3. Glycine Debilis; *Hairy Clycine.* Leaves ternate; leaflets oval, hairy underneath; legumes subsolitary, linear, many-seeded; style permanent, upright; root biennial.—It flowers in June and July, and is a native of the East Indies.

4. Glycine Caribbæa; *Trailing Glycine.* Leaves ternate, subvillose; leaflets rhomb-shaped; racemes patulous; stalk shrubby, twining; stems ash-coloured, the thickness of a quill, smooth; racemes axillary, lateral, slender, elongated, many-flowered; corolla yellow, the border variegated underneath with purple lines; legume hirsute, an inch long. It flowers in September and October.—Native of the West Indies.

5. Glycine Triloba; *Three-lobed Glycine.* Leaves ternate; leaflets lobed; stalk prostrate; peduncles two-flowered. The whole plant is prostrate, and does not climb. The root is annual. The flowers are yellow, smaller, and generally two together.—Native of the East Indies.

6. Glycine Villosa; *Villose Glycine.* Leaves ternate, three-lobed, villose; racemes axillary; stem filiform, angular, twining, flexuose, tomentose, as is also the whole plant; raceme peduncled, with two, four, or five flowers.—Native of Japan.

7. Glycine Javanica; *Java Glycine.* Leaves ternate; stalk villose; petioles rough-haired; bractes lanceolate, minute; stem twining, with yellow reflex hairs scattered over it; pedicels yellow, with close hairs; stipules to the petioles oval, long, to the peduncles lanceolate; peduncles the length of the leaves, terminated by an ovate-oblong close spike of nodding violet-coloured flowers, with very minute bractes between them.—Native of the East Indies, and near Nagasaki in Japan, where it is called *fajo mame*, and flowers in September and October.

8. Glycine Comosa; *Bearded Glycine.* Leaves ternate, hirsute; racemes lateral. This rises from two to three feet high, with slender herbaceous stalks; flowers axillary, lateral; the naked part of the peduncle is about two inches long; the spike is about the same length, and recurved; corolla small, of a fine blue colour.—Native of moist shady places in Virginia. This, and the tenth species, are hardy enough to endure the open air in England. They may be propagated by seeds, or by parting of the roots; the former is the best method, where good seeds can be obtained. They may be sown on a bed of light earth in the spring; and, if the season should prove dry, they must be frequently refreshed with water, otherwise they will remain long in the ground, without vegetating. When the plants come up, they must be kept clean from weeds in the summer; and in the autumn, when the stalks are decayed, if some rotten tanner's bark be spread over the surface of the ground, it will protect the roots from being injured by the frost. In the spring, the roots should be transplanted to the places where they are designed to remain, which must be in a warm sheltered situation, but not too much exposed to the sun, and in a light soil, where they will thrive, and produce flowers annually. If they be propagated by parting of the roots, it should be done in the spring, before the roots begin to shoot: but they should not be parted oftener than every third year; for when they are often removed, they will not flower so strong.

9. Glycine Phaseoloides; *Phaseolus Glycine.* Leaves ternate, villose underneath; racemes terminating; stem twining to a considerable height, and bearing many flowers towards the top. The legumes have two seeds, and are contracted in the middle.—Native of Jamaica and St. Domingo.

10. Glycine Tomentosa; *Downy Glycine.* Leaves ternate, tomentose; racemes very short, axillary; legumes two-seeded; root perennial; stalks twining, from a foot and a half to four feet in height, three-cornered, hairy. From the bosom of the leaves, three or four small flowers come out, on very short peduncles, of a pale yellow colour; the banner broadish, the wings narrow, and the keel compressed. The plant called *Dolichos Pubescens* by Linneus, is probably only a variety of this species.—Native of Virginia, where it is called *mountain pea.* It flowers from June to September, and ripens the early flowers in autumn. In addition to what is said under the eighth species, we have here to add, that as this is the tenderest of the two, the seeds may, for greater security, be sown in a hot-bed, and some of the plants kept in the green-house, or against a south wall, to be protected occasionally in severe weather, by putting dung to the roots.

11. Glycine Reticulata; *Netted-leaved Glycine.* Leaves ternate, oblong-lanceolate, pubescent, the veins like network underneath; racemes axillary, subsessile; legumes oblong, compressed; stem twining, angular, softly villose, subcanescent; pedicels solitary, distant; bractes ovate, attenuated, deciduous; seeds two.—Native of Jamaica.

12. Glycine Bituminosa; *Clammy Glycine.* Leaves ternate; flowers racemed; legumes tumid, villose; stem twining, obtuse, angled, pubescent; stipules ovate, acuminate, nerved; corollas yellow, streaked on the outside, and at the tip of the keel violet-coloured; seeds four, small, globular, a little flatted, black.—It flowers from April to September, and is a native of the Cape of Good Hope. This, together with the twenty-first, twenty-third, twenty-fourth, and twenty-fifth species, may all be raised from seed in the green-house or Cape stove.

13. Glycine Nummularia. Leaves ternate, very obtuse; racemes with flowers in pairs; legumes sessile, suborbiculate, compressed; stem herbaceous, twining, angular, pubescent;

petioles the length of the leaves; stipules ovate, deciduous; peduncles axillary, solitary, filiform, longer than the leaves, standing out undivided; flowers in three pairs, very remote, sessile, reflex, small.—Native of the East Indies.

14. Glycine Labialis; *Labiate Glycine.* Twining: leaves ternate, obovate, somewhat hoary; flowers axillary, heaped; corolla somewhat two-lipped; stalk twining, the thickness of a thread; stipules none; peduncles very short; calix tubular, five-toothed; the teeth nearly equal; style short; seed seven to nine, yellow.—Native of the East Indies.

15. Glycine Striata; *Striated Glycine.* Twining: leaves ternate, oblong, very softly hoary; racemes axillary, the length of the leaves; legumes extremely hirsute; stems woody, round, hirsute; petioles hirsute, round, not grooved or angular; all the stipules linear, and acuminate; calix hairy, one-third shorter than the petals; the tube bell-shaped and very short; the limb four-cleft; the clefts lanceolate and acuminate, the lowest a little longer, the uppermost broader, not emarginate; banner of the corolla striated, purple, green at the base, without any calluses; wings erect, narrower and shorter than the keel, purple; keel almost without colour, the length of the banner, cloven at the back almost to the top, emarginate in front at the tip; germen hairy, linear, compressed; style of the same length and in the same situation with the stamina, eading at top in a blunt dusky stigma, not bearded; seeds several, shining brown, variegated.—Native of South America.

16. Glycine Rosea; *Roscate Glycine.* Twining: leaves ternate; leaflets cordate-ovate, acute, quite entire; peduncles three-flowered; legumes compressed, keeled, one-seeded.—Native of the Society Islands in the South Seas.

17. Glycine Lucida; *Shining Glycine.* Twining: leaves ternate; leaflets ovate, acuminate, quite entire; racemes terminating, glandular; pedicels in threes; legumes inflated, containing two seeds.—Native also of the Society Islands.

18. Glycine Suaveolens; *Sweet-smelling Glycine.* Shrubby, upright, hoary; leaves ternate, ovate, acute; flowers axillary, solitary; legumes containing two seeds. The whole of this shrub is hoary, clammy, and sweet; peduncles upright, filiform, jointed, and bracted in the middle, one-flowered; bractes in pairs, subulate, caducous; seeds black, smooth, with a callous whitish heart.—Found by Kœnig, among rocks, near Madras, in the East Indies.

19. Glycine Apios; *Tuberous-rooted Glycine.* Leaves unequally pinnate, ovate-lanceolate, with seven leaflets. This has a tuberous root, from which, in the spring, come out sleader twining stalks, which rise the height of eight or ten feet. The flowers come out in short spikes from the sides of the stalks; they have little scent, appear in August, but do not produce seeds in England. Parkinson calls this plant *Virginia Earth-nuts.*—It is propagated by parting the roots, aad each of the tubers will grow: the best time for this, is at the end of March, or the beginning of April, before they put out shoots. The roots should be planted in a warm situation, and, in hard frost, covered with tan or mulch to protect them, otherwise they will not live abroad in this country; where they have been planted against a south wall, they have thriven and flowered extremely well, which they seldom do in any other situation; and those roots which are planted in pots rarely flower, nor do their stalks rise near so high as those which are planted in the full ground.

20. Glycine Frutescens; *Shrubby Glycine,* or *Carolina Kidney-bean Tree.* Leaves unequally pinnate; stalk perennial, woody, twisting themselves together, and twining round any trees that grow near, and will rise to the height of fifteen feet or more. The flowers are produced in clusters from the axils, and are of a purple colour. They appear from June to September.—It is increased by laying down the young branches in October, which will be well rooted in twelve months from that time, especially if they are duly watered in dry weather, and may then be transplanted, either into a nursery for a year to acquire strength, or to the place where they are to remain for good, which should be in a warm light soil, and a sheltered situation, where they will endure the cold of our ordinary winters very well; and, if their roots be covered with straw, fern, pease-haulm, or any other light covering, there will be no danger of their being destroyed by the frost.—Native of the Cape.

21. Glycine Monophylla: *Simple-leaved Glycine.* Leaves simple, cordate; stalk pubescent, three-cornered, the thickness of a thread, prostrate; stipules in pairs; peduncles axillary, solitary, one-flowered, capillary, longer than the petioles; germen villose.—Native of the Cape of Good Hope. It flowers in August.

22. Glycine Picta; *Painted Glycine.* Leaves ternate, lanceolate, villose; racemes axillary, peduncled; stem erect, shrubby; branches angular, striated, subtomentose, with purplish hairs; petiole very short; stipule opposite to the leaf, subbifid; the segments awl-shaped; pedicels short; flowers spreading, approximating; calix hoary, two-lipped.—Found in Guiana, and in the islaad of Trinidad. It requires the protection of the bark-stove.

23. Glycine Bimaculata; *Two-spotted Glycine.* Stem twining, smooth, and even; leaves simple, cordate-oblong; racemes many-flowered. This plant rises up with a twining shrubby stalk, to the height of six or eight feet or more; multiplying greatly by age, it becomes loaded with a profusion of purple flowers, growing in racemes; the richness of the corolla is enlivened by two green spots at the base of the banner. In England, the flowers generally fade, without producing any seed-vessels; though perfect seeds have been ripened, from which a plant was produced, that bore flowers in the garden of John Ord, Esq. at Walham Green. It begins to flower in February, and continues during the summer. This is one of the first Botany Bay plants that flowered in this country, and is one of the most ornamental. Mr. Curtis thinks, that both this and the next species may probably succeed in the open air, in warm sheltered situations, especially if a little protected in severe weather.

24. Glycine Rubicunda; *Red Glycine.* Stem perennial, twining; leaves ternate; leaflets suboval, quite entire; peduncles subtriflorous. Almost the whole plant is covered with hairs, pressed close; corolla scarlet, mixed with dull purple; banner bent back, so as to lie on the calix, and cover it, scarlet on the ends and on the sides, purple in the middle, except towards the base, where it is whitish; stamina very manifestly diadelphous.—It flowers from April to June, and is a native of New South Wales.

25. Glycine Coccinea; *Scarlet Glycine.* Leaves ternate; leaflets roundish, waved. Shrubby, climbing, growing many feet high when supported, and producing a great number of flowers on its pendent branches; flowers generally in pairs, of a glowing scarlet colour, rather inclined to purple at the base of the keel; the bottom of the banner is decorated with a large yellow spot, verging to green.—It flowers from April to June, and was introduced from New South Wales.

Glycyrrhiza; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed; tubular, two-lipped, permanent; upper lip three-parted; the lateral segment linear, the middle one broader,

bifid, the lower entirely simple, linear. *Corolla:* papilionaceous; banner ovate-lanceolate, straight, longer; wings oblong, very like the keel, but a little larger; keel two-petalled, acute, with a claw the length of the calix. *Stamina:* filamenta diadelphous, (simple and nine-cleft,) straight; antheræ simple, roundish. *Pistil:* germen shorter than the calix; style subulate, the length of the stamina; stigma obtuse, ascending. *Pericarp:* legume ovate or oblong, compressed, acute, one-celled. *Seeds:* very few, kidney-form. ESSENTIAL CHARACTER. *Calix:* two-lipped; upper lip three-parted, lower undivided. *Legume:* ovate, compressed.—The species are,

1. Glycyrrhiza Echinata; *Prickly-headed Liquorice.* Legumes prickly; leaves stipuled, with the terminating leaflets sessile. The stems are two or three feet high, nearly simple, leafy, round, and striated. The flowers appear in a roundish head: they are produced in shorter spikes than those of the second species, their colour a dull purple; the pods are very short, and broad at their base, ending in acute points, and armed with sharp prickles. The whole plant is somewhat clammy to the touch. It flowers from April to June, and in warm seasons will perfect seeds in England.—Native of Monte Gargano, in Apulia; the north of China; and of Tartary.

2. Glycyrrhiza Glaora; *Common Liquorice.* Legumes smooth; no stipules; the terminating leaflet petioled. The roots run very deeply into the ground, and also creep to a considerable distance, especially where they stand long unremoved. From these arise strong herbaceous stalks, four or five feet high; leaves composed of four or five pairs of ovate leaflets, terminated by an odd one; these and the stalks are clammy, and of a dark green; flowers in axillary spikes, standing erect, and of a pale blue colour; pods short, containing two or three seeds.—Native of the south of Europe, France, Spain, Italy, also of China, where it is cultivated, as well as in Germany and England; with us at Pontefract in Yorkshire, Worksop in Nottinghamshire, Godalmin in Surry, and, of late years, in the gardens near London. It appears from Turner's Herbal, that it was cultivated in England in 1562; and Stow expressly says, "the planting and growing of licorish begun about the first year of Queen Elisabeth," (1558.) Gerarde, in 1597, says, that he has plenty in his garden; and the poor people of the north parts of England manured it with great diligence, whereby they obtained great plenty. Ray asserts the English liquorice to be superior to the foreign. The quantity now imported from Spain is said to be annually not less than 4000 quintals, or nearly 250 tons; a considerable part of which is supposed to be used by the porter-brewers of London. Liquorice-root contains a great quantity of saccharine matter, with some portion of mucilage. Lightly boiled in a little water, it gives out nearly all its sweetness: the decoction, pressed through a strainer, and inspissated with a gentle heat till it will no longer stick to the fingers, affords a better extract than that brought from abroad, under the name of *Spanish-juice*, and will often amount in quantity to nearly half the weight of the root. Large quantities of extract of liquorice have been annually imported from Spain, but the shops seldom afford any that is perfectly genuine; the makers, both foreign and domestic, being either very slovenly in the preparation, or else they designedly mix it with sand, and other impurities. When carefully extracted, it is exceedingly sweet, more agreeably tasted than the root itself, and of a pleasant smell. It dissolves in boiling water, without leaving any sediment. Rectified spirit takes up the sweet matter of the liquorice, equally with water; and as it dissolves much less of the insipid mucilage, the spirituous tincture and extract are sweeter than the watery. Before the roots are boiled, it is best to cut them into small pieces, that they may more readily give out their virtues; for if the boiling be too long continued, the rich sweet taste, for which the extract is so justly esteemed, will be greatly injured. For the same reason, the quantity of water ought not to be more than is absolutely necessary to extract the virtues of the root. A quart, or at most three pints, will be found a sufficient quantity for a pound of liquorice. It would be of considerable advantage to the preparation, and probably less expensive to the preparers, to use the juice of the roots, which might be obtained by pressing them between iron rollers, in the manner practised in the West Indies, for obtaining the juice of the sugar-cane, instead of the above process of decoction. Both the extract and the fresh root, in substance, are excellent for coughs, hoarseness, shortness of breath, and other disorders occasioned by an acrimonious state of the humours. They promote expectoration, thicken the juices, increase the urinary discharge, and are serviceable in the gravel, and similar disorders. It was prescribed by the first practitioners in physic, in dropsies, to prevent thirst, for which it is indeed an excellent thing, though probably the only one of the sweet class that does so; sugar, and other substances of a like nature, generally increasing, rather than alleviating that sensation. The infusion is also a commodious vehicle for other medicines.—*Culture.* Most plants thrive best in a rich soil, but Liquorice will not grow in any other; and to have it in any degree of perfection, the soil must not only be rich, but deep, as the thriving of it depends entirely on those two circumstances. We expect to see the roots of this plant a yard or more in length; and it must have a free passage, otherwise they will not be straight, which regularity of form is not only more pleasing to the eye, but a real advantage, for the crooked ones are never so tender or full of juice as the other, nor do they attain their due degree of growth in so short a time. The proper ground then for producing Liquorice in perfection, should have a coat of mellow black mould, at least three feet deep, without any great mixture of other matter in the way. This is the best natural soil for this valuable plant, and where it can be procured should always be preferred. But there are other soils, which, though not quite so well adapted by nature for the culture of Liquorice, may be so prepared by art and industry, as very well to answer the purpose. The best of these are, first, a rich loam, without much clay in its composition; and, secondly, a deep, warm, sandy soil, that is not barren, but, together with its lightness and dryness, has some richness. In all these soils, the depth must be at least a yard, before there is any hard bottom; and that must be examined, for if it should turn out a clay, the Liquorice will never thrive, because of the coldness and moisture with which such an under stratum is always attended; the wet lodging upon it, and starving the whole soil. To ensure success in the planting of Liquorice, the soil should possess the four following properties: depth, that it may penetrate and attain its full growth; lightness, that it may make its way easily; warmth, to promote its growth; and richness, to afford it nourishment. Liquorice, though raised in the field, requires a kind of garden culture, and the spade is a much more proper instrument to prepare the land with for its reception than the plough, for it requires to be broke, and made fine to a depth which the latter can never reach. There is one comfort, however, arises to the husbandman, which is, that if the land requires an expensive tillage, only a small quantity is required, as a few acres will yield an amazing produce of this root; and the price it will bear is so

much greater than that of most other things he can raise on it, that there is no room left for him to repine at the charges. Having therefore made choice of a proper piece of land for the purpose, let it be thoroughly dunged with good rotten dung, and after being ploughed up in the latter end of the summer, and laying all the winter to mellow, in the spring let it be dug in the following manner. In the middle of February, let the labourers be sent in, and properly looked over, to see that they do not perform their work slightly. They must dig every part of the earth thoroughly to the depth of three feet, and take care to break every lump they meet with, though but small, in order that the ground may lie smooth, with a level surface, and be nearly as fine as sand all the depth. The expense of doing this is very considerable, but it is absolutely necessary; the profit will be answerable; and the husbandman may rest assured, that by every shilling he would save in not having this work well performed, he would lose ten at least in the crop. When the whole piece of ground intended for the plantation is thus prepared, the sets are to be put in, and the same care and attention are requisite here, as in the other parts of the business, for the least omission or neglect is sure to be attended with loss. The first thing to be regarded in this respect, is the choice of the plants or sets; and the second is, placing them properly in the ground. Choice should be made of such only as are in good condition, and have, as the planters call it, a good eye or bud. They are either raised from seeds, or procured from the heads of the old roots, most commonly the latter, and should be about a foot in length, sound, fresh, and clear on the surface. About the beginning of March, when the sets are chosen, and the ground is perfectly prepared, is the season for planting, which should be performed in the following manner. Let there be got in readiness a gardener's line, of such a length as to extend from one side of the ground to the other, if it be but small; but if larger, it may be removed from place to place occasionally. A couple of sticks sharpened at the end, and a ball of cord, is all that is necessary for this purpose. Besides the line, the planter must be furnished with a setting-stick, which may be of any convenient length; but the best way is to have it of a certain dimension, that it may serve for a measure; and for this purpose, it should be just a foot and a half long, with a handle or crutch at the top like a spade, and a point made of a square piece of iron in form of a very large spike, and hollowed at the upper end to receive the wood. All things being in readiness, let the line be drawn at about the distance of a foot from the outside of the prepared ground. The planter then taking his sets in his apron, or a basket, and the setting-stick in his hand, may begin to plant, placing the first set at about half the stick's length from the end of the line. When he has done this, let him measure from it along the line the length of his setting-stick, and at that distance plant another, and so on for the whole length. The manner of putting in the sets is this: let the end of the setting-stick, which is pointed with iron, be thrust into the ground till the handle almost touches the surface, and then being gently drawn out again, there will remain a hole about sixteen inches deep, into which is to be put a set of the Liquorice, carefully and evenly thrusting it down till the head of it, where the bud or eye is, be one inch or a little more below the surface; the other end will then about reach the bottom of the hole, and a little mould being drawn over the top, the set will be completely well planted. The remaining part of the row is to be planted exactly in the same manner; and when that is completed, a second is to be begun at the distance of two feet and a half from it. But in planting this, it will be best not to place the plants exactly opposite to those in the last row, but in the middle between them. The second row being put in, the line is to be drawn for a third, and the plants in this should be set opposite to those in the first row, which being done, every fourth plant of the first and third row will have one plant of the second row in their centre. This method is to be followed throughout the whole field, and is called the quincunx manner of planting; the effect of which is, that look whichever way you will at the plantation, when the stems are risen, they will appear in regular rows the whole extent of the ground. The whole being planted, the earth is to be finely raked, and the surface made perfectly level. Thus it is to be left for the present; and the advantages of so regular a piece of husbandry will sufficiently recompense the planter's trouble. The heads of the young plants will quickly appear, and weeds of the annual kinds will spring up in abundance along with them; these may be easily and expeditiously destroyed by going over them with the hand-hoe. This hoeing must be occasionally repeated during the summer; the expense attending it will be but small, and all the care requisite in performing it is, to avoid cutting or wounding the young plantation. The ground being thus kept clear during the summer, it will be well worth while to turn the whole over, one spit deep between the rows, as soon as the leaves begin to decay: and a month or two after, let a small quantity of very rotten dung be scattered all over the surface; this will cover the crowns of the young plants, and defend them from the severity of the winter's frost, and when those are past, the rains will in a manner dissolve the very substance of the dung, and convey its richness into the heart of this fine loose earth, for the better nourishment of the plants. In the spring, what remains will be dug in by turning the spaces between the rows over again, where, by mixing and fermenting with the mould, it will break and divide the soil, as well as enrich it farther. All that remains to be done the second summer, is to keep the plants free from weeds; and at the end of the third, they will be ready to take up for use.

3. Glycyrrhiza Hirsuta; *Hairy Liquorice.* Legumes hirsute; the terminating leaflet petioled. This strongly resembles the two preceding species; but the pods are hairy and longer.—Native of the Levant.

4. Glycyrrhiza Asperima; *Rough Liquorice.* Legumes smooth; leaflets elliptic, cusped; stalk hispid, scabrous; roots slender and very long, extremely sweet, especially in the spring. The flower pale violet colour.—Found between the Wolga and the Jaick.

Gmelina; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, very small, subglobular, four-toothed, permanent. *Corolla:* one-petalled, bell-shaped, patulous; the border four-cleft; the upper segments wider and vaulted; the lower and lateral segments obtuse, smaller, spreading, rounded. *Stamina:* filamenta four, two of which are thicker, and two bowed in and ascending; antheræ, two thicker, parted, two smaller, simple. *Pistil:* germen roundish; style the length of the smaller stamina; stigma simple. *Pericarp:* drupe ovate, one-celled. *Seed:* nut ovate, smooth and even, two-celled; Gærtner says three-celled, with the lowest cell barren. Essential Character. *Calix:* slightly four-toothed. *Corolla:* four-cleft, bell-shaped. *Antheræ:* two-parted, two simple. *Drupe:* with a two or three celled nut.——The species are,

1. Gmelina Asiatica. A tree, with round, stiff, upright branches; leaves opposite, petioled, ovate, tomentose underneath, having frequently a shorter sharp lobe on each side; spines axillary, opposite, horizontal, pubescent at the tip,

the length of the petioles; flowers from the end of the tender twigs, on peduncles; the fruit a berried drupe, the size of jujubes, black and smooth; the shell bony, thick at top, with two small lateral lobes, remarkably acuminate at bottom.

Gnaphalium; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common rounded, imbricate, with the marginal scales rounded, scariose, coloured. *Corolla:* compound; corollets hermaphrodite, tubular, with apetalous females sometimes intermixed; hermaphrodites funnel-form, with a five-cleft reflex border. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; anthera cylindric, tubulous. *Pistil:* germen ovate; style filiform, the length of the stamina; stigma bifid; in the females reflex. *Pericarp:* none; the calix permanent, shining. *Seeds:* solitary, oblong, small, crowned with a capillary or feathered down. *Receptacle:* naked. Essential Character. *Calix:* imbricate, with the marginal scales rounded, scariose, coloured. *Down:* feathered, or simple. *Receptacle:* naked.—The numerous species of this genus are either undershrubs or herbs; the leaves are placed alternately, and are for the most part hoary: the flowers usually terminate the stem and branches in globes or corymbs: the calix is permanent, with yellow or white scales. The first twelve species, and most of the others, may be increased by slipping off the heads, or by cuttings, during any of the summer months; they should be planted in a bed of light earth, or in pots in a gentle hotbed, and covered with hand-glasses, or shaded with mats, observing to refresh them frequently with water in small quantities; these cuttings will put out roots in six or eight weeks, and must then be planted in pots filled with light earth, and placed in a shady situation till they have taken new root, when they may be removed to an open one, and placed among other hardy exotics, till the middle or end of October; at which time they should be placed under a common frame, where they may be protected from frost, but in mild weather they should be exposed to the open air.——The species are,

* *Shrubby, with white Flowers.*

1. Gnaphalium Eximium; *Choice Gnaphalium.* Leaves sessile, ovate, crowded, upright, tomentose; corymb sessile. Stem the thickness of a finger, and tomentose; flowers globular, with the calices as large as the outer joint of a finger, consisting of imbricate, roundish, scariose, concave, obtuse, smooth, purplish scales.—Native of the Cape.

2. Gnaphalium Arboreum; *Tree Everlasting.* Leaves sessile, linear, smooth on the upper surface, rolled back along the edge; flowers in a kind of head, on elongate peduncles. This is a shrub the height of a man, determinately branched; the leaves resemble those of Rosemary, crowded; corymb very much crowded. It flowers during most part of the year.—Native of the Cape.

3. Gnaphalium Grandiflorum; *Great-flowered Everlasting.* Leaves stem-clasping, ovate, three-nerved, lanuginous on both sides. Branches round, simple, tomentose; flowers large, roundish, snow-white, in roundish, heaped, solitary cymes, on long tomentose scaly peduncles.—Native of the Cape.

4. Gnaphalium Fruticans; *Fruting Gnaphalium.* Leaves ovate, stem-clasping; stem rigid; cyme sessile. Stem the thickness of a finger, determinately branched, villose; flowers terminating, and heaped into a sessile head; calix yellow on the outside, but white within.—Native of the Cape.

5. Gnaphalium Crispum; *Crisped Gnaphalium.* Leaves tomentose underneath, scabrous above; root-leaves petioled, oblong; stem-leaves embracing, waved. Peduncle elongated, tomentose, terminated by a compound many-flowered cyme; flowers small; outer calices red, inner yellow.—Native of the Cape.

6. Gnaphalium Appendiculatum; *Appendiculated Gnaphalium.* Leaves sessile, imbricate, lanceolate, woolly, appendicled at the tip with a scariose membrane. Stem clothed with leaves up to the cyme. It is remarkable for a little, lanceolate, scariose membrane, terminating the leaf.—Native of the Cape.

7. Gnaphalium Coronatum; *Crowned Gnaphalium.* Leaves sessile, lanceolate; corymbs compound, sessile; peduncles leafless; calices crowned. Stems woody, with villose branches.—Native of the Cape.

8. Gnaphalium Discolorum; *Coloured Gnaphalium.* Leaves sessile, lanceolate; calices white; lower scales flesh-coloured. Stems under-shrubby; common peduncles elongated.—Native of the Cape.

9. Gnaphalium Muricatum; *Prickly Gnaphalium.* Leaves subulate, mucronate; umbel compound; calices cylindric, containing about three flowers. Stem erect, round, pubescent; branches patulous, simple, alternate, or somewhat heaped, lightly tomentose. This varies with leaves sharp or prickly, like those of juniper.—Native of the Cape.

10. Gnaphalium Ericoides; *Heath-leaved Everlasting.* Leaves sessile, linear; outer calices rude, inner flesh-coloured. The branches are wand-like, rigid, unequal.—Native of the Cape.

11. Gnaphalium Teretifolium; *Crowded Everlasting.* Leaves crowded, almost columnar; corymbs branched; calices ferruginous on the outside. Stem ash-coloured, round, subtomentose; branches leafy, white, tomentose; branchlets determinate, umbelled, erect, each loaded in the middle with other short aggregate branchlets.—Native of the Cape.

** *Shrubby, with yellow Flowers.*

12. Gnaphalium Mucronatum; *Pointed Everlasting.* Leaves subulate, mucronate; calicine scales roundish. Branches a span long, erect, simple, round, slightly tomentose, ash-coloured; flowers six, large, in panicles, terminating, contracted, on one-flowered tomentose peduncles.—Native of the Cape.

13. Gnaphalium Stoechas; *Common Shrubby Everlasting.* Leaves linear; corymb compound; branches wand-like. Stem about three feet high, with long slender irregular branches, the lower ones having blunt leaves two inches and a half long, and an eighth of an inch broad at the end; those on the flower-stalks are very narrow, and end in acute points. The whole plant is very woolly; flowers terminating in a compound corymb; calices at first silvery, but turning to a yellow sulphur. If gathered before the flowers are much opened, the heads will continue in beauty many years, if kept from air and dust. The flowers are androgynous; and have been formerly recommended as attenuants, discutients, and diaphoretics, but are not used in common practice.—Native of Germany, France, Spain, and Italy. This, together with the thirteenth, fourteenth, twenty-fifth, and thirty-sixth species, is so hardy, as, in very mild winters, to live abroad in warm borders near walls, with little shelter.

14. Gnaphalium Ignescens; *Red-flowered Everlasting.* Leaves sublanceolate, tomentose, sessile; corymbs alternate, conglobate; flowers globular. Stem and leaves woolly; the former a foot high, sending out a few side-branches, terminated by a compound corymb, the heads of which are small, of a gold colour, changing to a red as they fade.—Native place unknown.

15. Gnaphalium Dentatum; *Toothed Everlasting.* Leaves wedge-shaped, toothed, sessile; corymb simple. The whole

plant is hoary; branches scarcely a span long, and round; flowers at the ends of the branchlets few, small, shining, in oblong heads.—Native of the Cape.

16. Gnaphalium Serratum; *Serrated Everlasting.* Leaves stem-clasping, lanceolate, serrate, naked on the upper surface. This is an elegant plant, suffruticose, soft and silky, yellow, much branched, with procumbent, simple, pubescent runners; flowers terminating, very many, in a close compact head, each on short pedicels.—Native of the Cape.

17. Gnaphalium Patulum; *Spreading Everlasting.* Leaves stem-clasping, spatulate; corymbs aggregate; branches spreading. Branches filiform, a foot or more in length, round, white, tomentose, patulous, somewhat branched; cymes terminating, loose, on long peduncles, tomentose, leafless; flowers large, pedunculed. It flowers from August to January.—Native of the Cape.

18. Gnaphalium Petiolatum; *Petioled Everlasting.* Leaves ovate, quite entire, petioled; flowers crowded, terminating. Nearly related to the foregoing species.—Native of the Cape.

19. Gnaphalium Crassifolium; *Thick-leaved Everlasting.* Leaves broad-lanceolate, subpetioled, leathery, tomentose; corymb compound; stalk proliferous. Stem a foot high, proliferous, branched, perennial, except the proliferous branch; flowers numerous; calices pale yellow; corollas of a deep purple. The florets before they open appear white. It flowers from July to September.—Native of Majorca and Minorca.

20. Gnaphalium Maritimum; *Sea Everlasting.* Very much branched; leaves lanceolate, sessile, sharpish; inmost calicine scales gold-coloured. This shrub is four feet high, with pubescent branches: corymbs terminating, close, roundish, on very short peduncles; flowers gold-coloured.—Native of the Cape.

21. Gnaphalium Repens; *Creeping Everlasting.* Leaves linear; stem creeping, straight; branches upright, very simple. The stem is perennial, perfectly simple, filiform, angular, four feet high; branches alternate, two inches in length, bearing both leaves and flowers; flowers yellowish, the size of hemp seed.—Native of the Cape.

22. Gnaphalium Umbellatum; *Umbellated Everlasting.* Leaves in bunches, subulate, twisted; umbels simple, terminating, sessile. The herb of this plant bears a strong resemblance to the ninth species, but it differs in having a regular umbel, larger flowers, and the scales of the calix are of a beautiful red, in which last circumstance it resembles a Xeranthemum.—Native of the Cape.

23. Gnaphalium Hispidum; *Hispid Everlasting.* Leaves linear, semicylindric, grooved, hispid, patulous; heads terminating, simple. This species is easily known by the stiff bristles on its acerose leaves, and by its aggregate flowers.—Native of the Cape.

**** Herbaceous, with yellow Flowers.*

24. Gnaphalium Cylindricum; *Cylindrical Everlasting.* Leaves sessile, oblong, tomentose; corymbs unequal; calices smooth, cylindric, sessile. Herb branched, diffuse, a span in length, tomentose all over; calices very long, imbricated with equal, ovate, bluntish scales.—Native of the Cape.

25. Gnaphalium Orientale; *Eastern Everlasting.* Leaves linear-lanceolate, sessile; corymb compound; peduncles elongated. Stem seldom rising more than three or four inches high, and putting out many heads; flower-stems eight or ten inches high, with narrow hoary leaves all the way, terminated by a compound corymb of bright yellow flowers in large heads, coming out in May, and continuing in succession most part of the summer. It has been long in Portugal, where, in the winter season, they ornament the churches with the flowers. Of this species there are two kinds, the Broad-leaved, and the Narrow-leaved. The shrubby or narrow-leaved variety grows naturally at the Cape: it differs from the other in rising with stalks four or five feet high, dividing into many branches, having long narrow leaves placed alternately; the corymbs loose, and the flowers on long pedicels.

26. Gnaphalium Arenarium; *Sandy Everlasting.* Leaves lanceolate, the lower ones obtuse; corymb compound; stalks quite simple. This is an annual hoary plant, with an oblong root; stem upright, a foot or more in height, white with down. The shining yellow heads of flowers are two lines in length and breadth; the calicine scales are ovate, blunt, and lemon-coloured, as are also the corollets. It is supposed to preserve woollen clothes from the moth; and was formerly much recommended in dysenteries, but is now disused.—Native of Scania, Denmark, and Germany, where it is found in dry sandy pastures and hills, flowering from July to September; also of Japan, where it is used for moxa, and as tobacco, and is found by way-sides, and in ditches, flowering from December to April.—This, with the rest of the European sorts, if the seeds are permitted to scatter, will come up with greater certainty than if they were sown; but they are rather regarded as weeds, than as garden plants.

27. Gnaphalium Rutilans; *Shining-flowered Everlasting.* Leaves lanceolate; corymb decompound; stalk branched at bottom. Stem slender, sending out many lateral branches below, with narrow leaves, hoary on their under side. The flowers are produced in a compound corymb at the ends of the branches; at their first appearance they are of a pale red, but afterwards change to a gold colour; the calices are small and dry, like the other species of Everlasting.—Native of the Cape; flowering from the end of June till August.

28. Gnaphalium Milleflorum; *Many-flowered Everlasting.* Flowers corymbed, fastigiate, reddish-white; calices cubcylindric. Stalk a foot high, tomentose; corymb terminating, with above fifty flowers in it; corollas yellow.—Native of the Cape.

29. Gnaphalium Imbricatum; *Imbricated Everlasting.* Leaves lanceolate, tomentose; calicine scales reflex; stalk branched. Stem ash-coloured, tomentose, diffused, erect, scarcely a foot high; branches alternate, wand-like, simple, tomentose, erect.—Native of the Cape.

30. Gnaphalium Cymosum; *Branching Everlasting.* Leaves lanceolate, three-nerved, smooth on the upper surface; raceme terminating; stalk branched at bottom. Perennial; about eighteen inches high; stalks woody, cylindric. The flowers are entirely of a gold colour, and smooth, with blunt scales; they are very numerous, small, and oblong, and, like the leaves, emit, when rubbed, an odour like that of southernwood.—It flowers from April to August, and is a native of the Cape.

31. Gnaphalium Nudifolium; *Naked-leaved Everlasting.* Leaves lanceolate, three-nerved, naked, with netted veins; root-leaves lanceolate-ovate, by no means tomentose, scabrous about the edges. Stalk simple, a foot high, having smaller leaves of a more lanceolate shape at bottom, and naked at top; flowers golden, in a compound corymb. Perennial.—Native of the Cape.

32. Gnaphalium Luteo-album; *Jersey Everlasting*, or *Cudweed.* Leaves half stem-clasping, sword-shaped, repand, obtuse, pubescent on both sides; flowers conglomerate. This is an annual plant, and very woolly; stalks many, upright, a foot or eighteen inches in height. It flowers from July till September. There is a variety with narrow leaves, higher, and more branched stalks; the flowers in close bunches on the tops of the stalks, of a pale yellow colour.—Native of the

south of France, Spain, Portugal, Switzerland, Germany, the island of Jersey, the sea-coast of Wales, the west of England, and near Bosnor rocks in Sussex; in sandy grounds, or on dry banks and walls; found also in New Caledonia. This will come up better from scattered seeds, than when they are sown by art; but if the seeds be sown, it must be soon after they are ripe. The plants require only to be kept clean from weeds, and to be thinned where they are too close.

33. Gnaphalium Albescens; *Whitish Everlasting.* Snowy tomentose; leaves linear-lanceolate; stalk upright, undivided at bottom; branches terminating, fastigiate; flowers crowded, conical. Shrubby.—Native of Jamaica.

34. Gnaphalium Pedunculare; *Peduncled Everlasting.* Leaves spatulate, somewhat stem-clasping, tomentose underneath; calicine scales sharpish. Stalk herbaceous, a foot and a half in height, branched, diffused, with elongated branches.—Native of the Cape.

35. Gnaphalium Odoratissimum; *Sweet-scented Everlasting.* Leaves decurrent, mucronate, tomentose on both sides, flat. Stems about three feet high, dividing into many irregular branches, terminated by a compound corymb of flowers, closely joined, of a bright gold colour, but small, and changing to a darker colour as they fade.—Native of the Cape.

**** *Herbaceous, with white Flowers.*

36. Gnaphalium Sanguineum; *Bloody Gnaphalium.* Leaves decurrent, lanceolate, tomentose, flat, with a little naked point at the end. Stems about six inches high, with lanceolate-acute leaves, woolly, terminated by a large corymb of flowers, sitting very close, and of a fine red colour.—Native of Egypt and Palestine.

37. Gnaphalium Fœtidum; *Strong-scented Everlasting.* Leaves stem-clasping, quite entire, acute, tomentose underneath; stalk branched. This is an annual plant, sending out many oblong blunt leaves near the root; stems a foot and half high, terminated by a corymb of flowers, which have large silvery calices, that will retain their beauty several years. It varies with golden calices.—Native of the Cape.

38. Gnaphalium Undulatum; *Waved Everlasting.* Leaves subdecurrent, lanceolate, waved, acute, tomentose underneath; stalk branched. Annual; stems about a foot high. The flowers are in a terminating corymb; they are white, and appear in July. The whole plant has a disagreeable odour.—Native of the Cape.

39. Gnaphalium Americanum; *West-Indian Everlasting.* Root-leaves lingulate-lanceolate, snow-white beneath; stalk simple, upright, tomentose; flowers spiked, and lateral, sessile, crowded. It is annual, and seldom rises above six or nine inches in height. Flowers yellowish, and dispersed pretty thick about the top of the stalk, which puts on the appearance of a shorter spike.—Native of Jamaica, in the coldest mountains of Liguanea.

40. Gnaphalium Crispum; *Curled Everlasting.* Leaves stem-clasping, spatulate, tomentose; calices very obtuse, plaited, and waved, tomentose at the base. Stalks simple, hardish, tomentose, throwing out small branches from the axils, which, as well as the whole plant, are very white. The corymbs are leafless.—Native of the Cape.

41. Gnaphalium Helianthemifolium; *Dwarf-Cistus-leaved Everlasting.* Leaves somewhat stem-clasping, lanceolate; corymbs compound; calicine scales somewhat plaited. Stalks wand-like, branched, tomentose.—Native of the Cape.

42. Gnaphalium Squarrosum; *Square Everlasting.* Leaves sessile, tongue-shaped, tomentose; the inner calicine scales subulate, and bowed back. Stalks ascending, simple, scarcely a foot high, very tomentose; flowers terminating, crowded.—Native of the Cape.

43. Gnaphalium Stellatum; *Starry Everlasting.* Leaves sessile, lanceolate, villose; calices acute, flesh-coloured on the outside. Stalks several, half a foot high; flowers glomerate.—Native of the Cape.

44. Gnaphalium Obtusifolium, or Polycephalum; *Blunt-leaved Everlasting.* Leaves lanceolate; stalk tomentose, panicled; flowers glomerate, conical, terminating. Stems single, about nine inches high; flowers in spikes from the side of the stalks, of a dirty white colour. Annual.—Native of Virginia, Pennsylvania, and New England.

45. Gnaphalium Margaritaceum; *American Everlasting*, or *Cudweed.* Leaves linear-lanceolate, acuminate, alternate; stalk branched at top; corymbs fastigiate. Root perennial, creeping, and spreading far, so as to become a troublesome weed; stalks extremely downy, white. The flowering branches form a broad flat bunch; each branch contains numerous crowded heads, on short, branched, downy peduncles, but the middle ones sessile; scales of the calix bluntly ovate, white, not downy. A decoction of the flowers and stalks is used in America, to foment the limbs for pains and bruises. It flowers from July to September.—Native of North America, where it grows in vast quantities in uncultivated fields, glades, and hills, and is called *life everlasting*, because the silvery heads, properly dried, will keep their beauty long without changing. It is found also in Kamtschatka; and has been long known in the English gardens, though none of our old herbalists mention its being found wild in this island. It has been observed near Bocking in Essex, and in various parts of Wales. Both it and the next species will thrive almost any where, and are easily propagated by their creeping roots.

46. Gnaphalium Plantagineum; *Plantain-leaved Everlasting.* Runners procumbent; stalk very simple; root-leaves ovate, very large. Perennial. From the main stalk come out runners, which take root in the ground; stem-leaves narrow, woolly, alternate; flowers in a terminating corymb, white, and small, appearing in June and July.—Native of North America. See the preceding species.

47. Gnaphalium Dioicum; *Mountain Everlasting, Cudweed*, or *Cat's-foot.* Runners procumbent; stalk quite simple; corymb simple; flowers divided. Root woody, brown, strikes deep, throwing out a few fibres; stems erect, simple, from two or three to six or seven inches high, white, downy. The root-leaves form a thick tuft, and are oval at the extremity, tapering into a long footstalk; they are green, and slightly hairy above, beneath white, with a thick down; flowering-heads three to eight crown the stem in a close bunch, on short peduncles. It rarely happens that any ripe seed is produced, indeed plants that creep by the root are often sterile. It flowers in May and June.—Native of open downs in most parts of Europe. In England it is found on Newmarket heath, and Gogmagog hills; on Canham heath, near Bury; Swaffham and Stratton heaths in Norfolk; in Cornwall, and Wales; on Bernack and Wittering heaths, in the northern counties; and in Scotland.

48. Gnaphalium Alpinum; *Alpine Everlasting.* Runners procumbent; stalk quite simple; heads leafless; flowers oblong. Root perennial; stalks simple, hardly a finger's length; root-leaves lanceolate, wedge-shaped, the upper surface green, smooth, and even, the under white, with a streaked nap, so that the edge, even of the upper surface, appears white.—Native of the Lapland Alps, and of Switzerland.

49. Gnaphalium Indicum; *Indian Everlasting.* Leaves lanceolate; stalk very much branched, diffused; corymbs unequal; calices coloured within. Perennial: flowers small; calicine scales ovate, brown, those surrounding the disk

dilated, round, and white, so that the heads are brown, with a white crown.—Native of the East Indies and Cochin-china.

50. Gnaphalium Purpureum; *Purple Everlasting.* Leaves lanceolate, naked; stalk erect, quite simple; flowers in lateral sessile spikes. They appear in summer and autumn.—It is an annual plant, and a native of Carolina and Virginia.

51. Gnaphalium Denudatum; *Bare Everlasting.* Leaves spatulate, underneath snowy-white tomentose, smooth and even above. Stalks prostrate, filiform, hardish, with alternate upright branches; corymb or umbel terminating, and very short; flowers peduncled; calix green, with a short white ray.—Native of the Cape.

***** *Resembling Filago, herbaceous.*

52. Gnaphalium Sylvaticum; *Wood Everlasting, English* or *Upright Cudweed.* Stalk quite simple, upright; flowers scattered. This is a biennial plant. In woods, one stem, from twelve to eighteen inches high, generally grows from the root. In open ground, the root-leaves form a thick tuft, and from among them arise several shorter stems, sometimes not more than three inches high, at first often declining, but very soon ascending. The leaves are green and hairy above, white and thickly downy beneath; flowers in a long spike, composed of very short branches, bearing from one to five or more flowers; scales of the calix bluntly oval, greenish at the base, yellowish-brown upwards, smooth, with shining margins.—It flowers in August, and is a native of most parts of Europe. In Great Britain, it has been remarked at Norwood in Surry; on Hampstead heath, and in the woods adjoining; near Charlton; about Harefield; in Gambingay park, Cambridgeshire; in Armingdale wood near Norwich; on Naseby-field and Thorp Malsor in Northamptonshire; in rough pastures near Fladbury in Worcestershire; on a sandy heath, a mile from Shiffnal, on the road to Wolverhampton; on the banks of the canal, in the parish of Cosely in Warwickshire; on the great island in Winandermere, and on the Highlands of Scotland, and in some parts of South Wales.

53. Gnaphalium Spicatum; *Spiked Everlasting.* Stems herbaceous, quite simple; flowers in whorls; leaves in bundles, linear, revolute; calicine scales scariose, ferruginous, shining, ovate, lanceolate.—Native of Egypt.

54. Gnaphalium Verticillatum; *Whorled Everlasting.* Stalk quite simple; flowers in whorls; leaves linear. The whole plant, and even the flowers, are ash-coloured.—Native of the Cape.

55. Gnaphalium Oculus Cati; *Cat's-eye Everlasting.* Stalk prostrate; leaves ovate; flowers glomerate, terminating, extremely villose; calix concealed by a very thick white nap; corollas small, surrounded by nap.—Native of the Cape.

56. Gnaphalium Pilosellum; *Bald Everlasting.* Leaves lanceolate, five-nerved, tomentose underneath; stalk naked; flowers in heads. Scape twice as long as the leaves, hairy.—Native of the Cape.

57. Gnaphalium Declinatum; *Creeping Everlasting.* Leaves linear-lanceolate; the calices with a white lanceolate ray. Stalks prostrate, filiform; flowers in a terminating, fastigiate, leafless corymb; florets many, in a small calix.—Native of the Cape.

58. Gnaphalium Coronatum; *Rayed Everlasting.* Leaves lanceolate; calices with a manifold roundish ray; flowers in corymbs, heaped; peduncles leafy.—Native of the Cape.

59. Gnaphalium Supinum; *Dwarf Everlasting,* or *Cudweed.* Stalk simple, procumbent; flowers scattered. Perennial. Root-leaves in tufts, half or three-quarters of an inch long, narrow, linear-lanceolate, slightly hairy above, downy beneath, but greenish; stem two or three inches high, with two or three longer and sessile leaves. It flowers in July and August, and is a native of the Swiss and Italian Alps, and the tops of the Highland mountains in Scotland.

60. Gnaphalium Uliginosum; *Marsh Everlasting,* or *Cudweed.* Stalk branched, diffused; flowers crowded, terminating. Stem from three to seven inches or more high, upright, covered with thick down, and much branched; leaves elliptical, tapering into a long footstalk, slightly downy and greenish above, more so and whitish beneath. The ends of the branches are crowded with numerous heads of nearly sessile flowers, which appear in August.—Native of marshy places in most parts of Europe.

61. Gnaphalium Glomeratum; *Cluster-flowered Everlasting.* Stalk diffused; inner scales of the calices subulate and naked; leaves somewhat stem-clasping. Annual; heads leafy; branches higher than the stalks.—Native of the Cape.

* *New Species.*

62. Gnaphalium Japonicum. Herbaceous; upright leaves linear-sword-shaped, snowy-white underneath; heads terminating. Root fascicled, with small fibres, annual; stalks one or two, simple, naked at top, white with down, a span and a half in height; flowers on the stalk terminating, glomerate, sessile, purplish; the heads the size of a large pea.—It flowers in August, and is a native of Japan.

63. Gnaphalium Trinerve. Shrubby: leaves sessile, lanceolate, three-nerved, silvery-white underneath; heads terminating.—Native of New Zealand.

64. Gnaphalium Lanatum. Herbaceous, woolly; leaves linear-oblong, callous-mucronate at the tip; corymb contracted; stalk very simple.—Native of New Zealand.

65. Gnaphalium Involucratum. Herbaceous: leaves linear, elongate, mucronate, tomentose underneath; head terminating, leafy.—Native of New Zealand.

66. Gnaphalium Sinuatum. Herbaceous: branches assurgent; leaves ovate-lanceolate, sinuate, toothed, hairy on both sides. Stem four feet high, simple, erect; leaves large, alternate; flowers yellow, in terminating erect panicles; the marginal scales of the calix being red, and membranaceous.—Native of Cochin-china.

Gnetum; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Ament of whorls,* remote, callous, thickened, propped underneath with a partial calicle: this is peltate, orbicular, flat, quite entire, and contains sessile floscules; the males at bottom, the females above in the same whorl. *Males. Calix:* scale ovate, minute, coloured. *Corolla:* none. *Stamina:* filamentum single, filiform, longer than the scale; antheræ double, connected. *Female. Calix:* scale torn, rude. *Corolla:* none. *Pistil:* germen ovate, immersed in the receptacle of the whorl, the length of the stamina; style conic, short; stigma trifid, acute. *Pericarp:* drupe ovate, one-celled. *Seed:* nut oblong, streaked. Essential Character. *Male.* An *ament* with scales. *Corolla:* none. *Filamenta:* one, with two antheræ. *Female.* An *ament* with scales. *Corolla:* none. *Style:* with a bifid stigma. *Drupe:* with one seed.——The only known species is,

1. Gnetum Gnemon. Branches stiff-jointed, broader below the joints; leaves opposite, petioled, lanceolate, ovate, quite entire, smooth, and even; aments axillary, peduncled, in pairs from each axil, in small whorls, from an orbicular, perfoliate, entire bracte, callous above, in which the floscules are immersed; the females above, or towards the rachis, usually six or seven in number; the males towards the edge, or below. *Gnemon* is the vernacular name in Ternate, &c.—It is a native of the East Indies, where the leaves, male catkins, and fruit, are eaten, though not in a raw state.

Gnidia; a genus of the class Octandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, funnel-form, coloured; tube filiform, very long; border four-parted, flat. *Corolla:* petals four, sessile, flat, shorter than the calix, and inserted into it. *Stamina:* filamenta eight, bristle-shaped, erect, almost the length of the flower; antheræ simple. *Pistil:* germen ovate; style filiform, inserted into the side of the germen, the length of the stamina; stigma capitate, hispid. *Pericarp:* none; fruit in the bottom of the calix. *Seed:* single, ovate, obliquely acute. Essential Character. *Calix:* funnel-form, four-cleft. *Petals:* four, inserted into the calix. *Seed:* one, somewhat berried.—These are shrubby plants, except the last; and are usually increased by cuttings, planted during the summer months in pots filled with light earth, plunged into a very moderate hot-bed, covering the pots closely with bell or hand glasses, to exclude the air, and shade them during the day: they will put out roots in six weeks, when they should be gradually inured to the open air. In winter, place them in a dry airy glass-case, where they may enjoy free air in mild weather, and be protected from frost and damp air.—— The species are,

1. Gnidia Pinifolia; *Pine-leaved Gnidia.* Leaves scattered, linear; floral-leaves in whorls. Stem three or four feet high, with a few side-branches; the flowers come out almost in whorls from between the leaves, at the extremities of the branches, on short pedunceles; calix and petals white. It varies with blue flowers.—Native of the Cape.

2. Gnidia Radiata; *Radiated Gnidia.* Leaves subulate, three-sided, erect; heads terminating, sessile, radiate; bractes lanceolate. This is a rough proliferous shrub; flowers somewhat villose on the outside.—Native of the Cape.

3. Gnidia Simplex; *Flax-leaved Gnidia.* All the leaves linear, acute; flowers terminating, sessile. Stems half a foot high, unequal, roughened with the tubercles from leaves that are fallen; the floral-leaves are not broader than the rest; petals oblong, acuminate.—Native of the Cape.

4. Gnidia Tomentosa; *Rough Gnidia.* Leaves scattered, ovate-oblong, smooth, scabrous about the edge; petals small, emarginate.—Native of the Cape.

5. Gnidia Sericea; *Silky Gnidia.* Leaves ovate, tomentose; floral-leaves in fours. Throat of the corolla crowned with eight coloured threads, the same length with the corolla itself, on the outside of the petals.—Native of the Cape.

6. Gnidia Oppositifolia; *Opposite-leaved Gnidia.* Leaves opposite, lanceolate. The uppermost leaves are blood-red at the extremity.—Native of the Cape.

7. Gnidia Capitata. Leaves scattered, lanceolate, smooth; flowers in heads, fortified with bractes; peduncles naked. Stem shrubby, with upright round purplish branches; flowers aggregate, peduncled.—Native of the Cape.

8. Gnidia Filamentosa. Leaves elliptically ovate, very smooth, approximating; flowers in heads; filamenta capillary. This is a very smooth shrub, tubercled with the scars of fallen leaves.—Native of the Cape.

9. Gnidia Imbricata. Leaves oblong, imbricated in four rows, silky; flowers terminating in the axils of the leaves.—Native of the Cape.

10. Gnidia Sparrmanni. Leaves linear, subulate, flat above, sharp; flowers in pairs, axillary. Branches smooth and even, not tomentose.—Native of the Cape.

11. Gnidia Daphnæfolia. Decandrous: leaves oblong, flat, quite entire; head terminating, peduncled, involucred; flowers five-cleft. The leaves are alternate.—Native of the island of Madagascar.

Goat's Beard. See *Tragopogon.*

Goat's Rue. See *Galega.*

Goat's Thorn. See *Astragalus.*

Golden Flower. See *Chrysanthemum.*

Golden Rod. See *Solidago.*

Golden Rod Tree. See *Bosea.*

Goldilocks, Goldylocks. See *Chrysocoma.*

Gold of Pleasure. See *Myagrum.*

Gomphia; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, sharpish, nerved, coloured, deciduous; two with a membrane on both sides, one with a membrane on one side only, and two without any. *Corolla:* petals five, spreading longer than the calix, somewhat unequal; claws shorter than the calix, widening gradually into roundish, flat, entire laminas. *Stamina:* filamenta ten, thick, angular, very short; antheræ upright, parallelopiped, drawn to a point at top, gaping at the tip on the outside, with a double hole, shorter than the calix. *Pistil:* germen sitting on a short, fleshy, angular receptacle, five-cornered, and five-cleft; style longer than the stamina, five-furrowed; stigma sharp. *Pericarp:* berries from one to five, generally two, ovate, obliquely attenuated at the base, somewhat compressed, obtuse, upright, sitting on a very large globular receptacle, for receiving a single berry, or lobed for several berries, which are each fixed to a lobe. *Seed:* solitary, ovate. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Berries:* one to five, on a large receptacle. *Seed:* solitary. ——The species are,

1. Gomphia Angustifolia. Leaves lanceolate, serrate on the outside; panicle terminating; petals longer than the calix. This tree is only about twelve feet high, with a slender trunk; the bark is brownish red; the wood whitish, with a greenish heart; the flowers are yellow, and have no scent.—Native of the East Indies.

2. Gomphia Nitida. Leaves ovate-lanceolate, acuminate, serrate; panicles terminating; calices equal to the corolla. Branches alternate, flexuose at the top, covered with a brown bark, round, smooth, as is the whole plant; flowers before their evolution ovate, obtuse; petals yellow.—Native of the West Indies.

3. Gomphia Lævigata. Leaves lanceolate, very obtuse, quite entire, emarginate; panicle terminating. This is also a smooth plant; the branches are alternate, and covered with an ash-coloured bark; petiole very short, thickened at the insertion; calicine leaflets lanceolate.—Native of the East Indies.

Gomphrena (Globe Amaranth); a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth coloured, outer three-leaved; leaflets two, converging, keeled. *Corolla:* five-petalled, upright; petals subulate, permanent, rude, villose; nectary a cylindric tube, the length of the corolla, with a five-toothed patulous mouth. *Stamina:* filamenta five, scarcely observable, within the mouth of the nectary; antheræ upright, closing the mouth of the nectary. *Pistil:* germen ovate, with a point; style cloven half way, filiform; stigmas simple, the length of the stamina. *Pericarp:* capsule roundish, circumcised. *Seed:* single, large, roundish, with an oblique tip. *Observe:* What is here called the corolla, is rather the calix. Essential Character. *Calix:* coloured, outer three-leaved; leaflets two, converging, keeled. *Petals:* rude, villose. *Nectary:* cylindric, five-toothed. *Style:* cloven half way. *Capsule:* one-seeded. ——The species are,

1. Gomphrena Globosa; *Annual Globe Amaranth.* Stem upright; leaves ovate-lanceolate; heads solitary; peduncles two-leaved. This is an annual plant, rising with an upright

branching stalk, about two feet high; leaves opposite, sessile, quite entire, hispid; branches and peduncles also opposite, the latter axillary, long, and naked, except that there are two short leaves close under each head of flowers; these heads, at their first appearance, are globular, but as they increase in size become oval.—Native of India. The flowering heads are beautiful, and if gathered before they be too far advanced, will retain their beauty for several years: the seeds ripen late in autumn, and the plant decays soon after. There are two varieties: one has fine bright purple, another white or silvery heads. They never alter from seeds, so that they are permanent varieties, although in other respects they do not differ; there is also one with mixed colours, but whether it was accidentally produced from the seeds of the former, it is difficult to determine. There are also two other varieties, which grow naturally in the West Indies, one with purple and the other with white heads, which are much smaller and rounder than those before mentioned. The plants grow much larger, and spread more into branches, and they are later before they flower, so that in cold seasons the seeds rarely ripen in England: these are called *bachelor's buttons* by the inhabitants of America. Loureiro also mentions a variety found in Cochin-china, with white ovate heads, in which all the florets are fertile, whereas in the purple variety most of them are barren.—*Propagation and Culture.* This species is a very ornamental plant in gardens, and is now very commonly cultivated in those of Great Britain. In Portugal, and other warm countries, it is cultivated to adorn their churches in the winter, for if the flowers be gathered when they are fully grown, and dried in the shade, they will retain their beauty a long time, especially if they are not exposed to the air. This plant is annual, and can only be propagated by seeds, which should be sown on a good hot-bed in the beginning of March; but unless the seeds be previously taken out of their chaffy covering, it will be proper to soak them in water for twelve hours before they are sown, which will greatly facilitate their growing. When the plants are come up half an inch high, they should be transplanted on a fresh hot-bed, at about four inches' distance, observing to shade them until they have taken root; then they should have fresh air admitted to them every day, in proportion to the warmth of the season; they will also require to be frequently refreshed with water. In about a month's time, if the hot-bed be of a proper warmth, the plants will have grown so large as nearly to meet, and will require more room, to prevent them from being drawn up weak; a fresh hot-bed should then be prepared, into which a sufficient number of three-farthing pots should be plunged, filled with light rich earth, and when the bed is in a proper temperature of warmth, the plants should be carefully taken up with balls of earth to their roots, and each planted into a separate pot, observing to shade them until they have taken new root; and afterwards treat them in the same manner as other tender exotic plants. When the plants have filled these pots with their roots, they should be shaken out of the pots, and their roots on the outside of the ball of earth must be carefully pared off; then they should be put into pots a size larger, and, when there is a conveniency of a deep frame to plunge the pots into another gentle hot-bed, it will bring the plants early to flower, and cause them to grow much larger than those which are placed abroad. In July the plants should be gradually inured to bear the open air, into which they may be removed about the middle of that month, and intermixed with other annual plants to adorn the pleasure-garden; but it will be prudent to keep a plant or two of each sort in shelter for seeds, because when the autumn proves cold or wet, those plants which are exposed abroad seldom produce good seeds.

2. Gomphrena Perennis; *Perennial Globe Amaranth.* Leaves lanceolate; heads two-leaved; florets separated by a proper perianth. Stems upright, hairy, slender; heads of flowers terminating, small, spreading, so that the calices appear distinct; they are of a pale straw colour, and appear in July.—Native of South America.

3. Gomphrena Hispida; *Hairy Globe Amaranth.* Stem upright; heads two-leaved; leaves crenate. It is a cubit and a half high; the heads of flowers rounded, oblong, at first white, but becoming blue.—Native of Malabar.

4. Gomphrena Brasiliensis; *Brasilian Globe Amaranth.* Leaves ovate-oblong; stem upright; heads peduncled, globular, leafless. This is rather taller than the first sort; the heads are white, smaller, and composed of smaller calices, without any leaves at the base.—Native of Brazil.

5. Gomphrena Serrata; *Serrated Globe Amaranth.* Stem upright, brachiate; heads solitary, terminating, sessile; calices serrate. Stems more slender and tall than those of the first species, and growing irregularly; leaves smaller, but of the same shape; flowers in spikes at the ends of the branches, broken or divided into three or four parts, small, and of a pale purple colour.—The seeds of this species were imported from Campeachy. Cultivated like the first species. The plants will live two or three years in a stove, and the seeds will sometimes ripen in England.

6. Gomphrena Interrupta; *Interrupted Globe Amaranth.* Stem almost upright; spike interrupted. Root annual; stem shrubby at the bottom, from one to two feet high; leaves at the root aggregate, sessile, above opposite, lanceolate, obtuse, tomentose, beneath white, lanuginous, soft; flowering-stems leafless, stiff, whitish, except that they are often purple towards the end; flowers in spikes, aggregate, sessile, interrupted, lanuginose.—Native of dry sandy fields in the southern parts of Jamaica.

7. Gomphrena Flava; *Yellow Globe Amaranth.* Peduncles opposite, bifid, three-headed, middle head sessile. At each joint of the stem two opposite peduncles are produced, longer than the leaves, trifid at top, with one globular head of flowers at each division, having no leaves immediately under them.—Native of La Vera Cruz.

8. Gomphrena Arborescens. Arborescent, hairy, somewhat twining. Stem round, simple, hairy; leaves opposite, in short petioles, oval, obtuse, leathery, quite entire, having hairs scattered over them. Several bractes under each flower, sharper than the leaves, and of the same length with the flower; flowers aggregate, terminating, the size of a walnut.—Found in New Granada, by Mutis.

9. Gomphrena Angustifolia. Leaves linear-lanceolate, smooth; heads terminating, oblong, subtriphyllous. Stem herbaceous, erect, four-cornered, with short hairs pressed close; branches opposite, quite simple, higher than the stem, subfiliform, two-leaved; peduncles terminating the branches, elongated. It has the habit of a Gomphrena, but differs in having a single style.—Native of the East Indies.

Gonatocarpus; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* four-cleft, permanent. *Stamina:* filamenta four, inserted into the corolla. *Pistil:* germen inferior; style single. *Pericarp:* drupe subglobular, eight-cornered, crowned with the permanent corolla, one-celled. *Seed:* single. Essential Character. *Corolla:* four-cleft. *Drupe:* eight-cornered, one-seeded.——The only known species is,

1. Gonatocarpus Micranthus. Root fibrous, annual; stem one or more, four-cornered, decumbent at the base, branched

at top, scarcely a span in height; leaves opposite, on very short petioles, ovate, acute, serrate, smooth, spreading a line in length; flowers on the branches in spikes, remote, mostly on one side, drooping, minute. It flowers in August.—Found in abundance about Nagasaki.

Goodenia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets equal, awl-shaped, erect, permanent. *Corolla:* one-petalled, superior; tube cloven on the upper side, from top to bottom; limb five-cleft; segments equal, obovate, directed forwards. *Stamina:* filamenta five, shorter than the tube, and projecting through its fissure; antheræ linear, vertical, two-celled. *Pistil:* germen inferior, five-angled; style simple, longer than the stamina, and standing out with them; stigma cup-shaped, ciliated. *Pericarp:* capsule two-celled, two-valved, bursting at top, and becoming revolute; the partition, which is parallel to them, remaining erect. *Seeds:* several in each cell, imbricated, lenticular. Essential Character. *Corolla:* longitudinally cloven on the upper side, exposing the organs of fructification; border five-cleft, leaning one way; antheræ linear. *Stigma:* cup-shaped, ciliated. *Capsule:* two-celled, two-valved, with a parallel partition. *Seeds:* many, imbricated.—The plants belonging to this genus must be raised from seeds brought from their native country; when once obtained, they may be readily increased from cuttings. They are not very tender, but may be preserved in the dry-stove, or a good glass-case.——The species are,

1. Goodenia Ovata; *Ovate Yellow Goodenia.* Leaves ovate, toothletted-serrate, both they and the corollas smooth; fruit linear. Stem shrubby, erect, angular, branched, leafy; flowers yellow, from three to five in a dichotomous panicle, arising solitary from each axil of the uppermost leaves, and about half as long as the corresponding leaf; peduncles somewhat angular, smooth, with two awl-shaped bractes at each subdivision; calicine leaflets smooth; corolla tubular; tube smooth, greenish, and striated externally; border yellow, membranous, with a thick greenish plait running from the tube to the point of each segment behind.—Native of Port Jackson, New South Wales.

2. Goodenia Albida; *White-flowered Goodenia.* Leaves obovate, toothed, both they and the corollas smooth; style and stem hairy.—Native of New South Wales.

3. Goodenia Paniculata; *Panicled Yellow Goodenia.* Leaves obovate-lanceolate, toothed, both they and the corollas hairy; stem almost naked, panicled.—Native of Port Jackson, New South Wales.

4. Goodenia Bellidifolia; *Daisy-leaved Yellow Goodenia.* Leaves obovate, toothletted, fleshy; stem almost naked, spiked; corolla hirsute on the outside; fruit four-valved.—Native of Port Jackson, New South Wales.

5. Goodenia Stricta; *Rigid Blue Goodenia.* Leaves lanceolate, entire or toothed, fleshy, smooth; corolla hirsute on the outside; stigma contracted at the mouth. It flowers in October, and is a native of Port Jackson, New South Wales, in marshy ground.

6. Goodenia Ramosissima; *Branching Blue Goodenia.* Leaves linear-lanceolate, somewhat toothed, both they and the stem hispid; style very hirsute at top; corolla hairy on the outside. Stem herbaceous, two or three feet high, much branched and straggling, round, rough with short stiff hairs, as are also the leaves; flowers solitary, terminating the branches, and appearing in October; the plaits of the corolla are externally hairy; the antheræ are very minutely bearded.—Found at Port Jackson, in New South Wales.

7. Goodenia Heterophylla; *Various-leaved Goodenia* Leaves entire, toothed or lobed, hairy; fruit roundish; corolla almost naked.—Native of New South Wales.

8. Goodenia Hederacea; *Trailing Goodenia.* Leaves roundish, entire, or five-lobed; corolla woolly on the outside; stem prostrate.—Native of New South Wales.

9. Goodenia Lævigata; *Smooth Goodenia.* Leaves ovate-lanceolate, toothed, smooth. Stems round, smooth, green below, purplish above; flowers axillary, forming a thin spike, sessile, pale violet, having a peculiar and rather unpleasant smell; at the side of each flower, are two long narrow bractes; calicine leaflets short, ovate, appearing edged with hairs when magnified; germen oblong, usually abortive with us. It flowers from July to October.—Native of Botany Bay.

Gooseberry. See *Ribes.*

Goose-foot. See *Chenopodium.*

Goose-grass. See *Galium Aparine.*

Goose-grass, Great. See *Asperugo.*

Goose-tongue. See *Achillea.*

Gordonia; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth outer four-leaved, deciduous; inner five-leaved; leaflets roundish, concave, permanent. *Corolla:* petals five, obovate, concave, large, united at the base. *Stamina:* filamenta numerous, filiform, coalescing at the base into an obtuse body; antheræ oval, upright. *Pistil:* germen ovate; style short, five-cornered; stigmas five, sharp, horizontal. *Pericarp:* capsule ovate, sharp, five-celled; cells bifid half way, five-valved. *Seeds:* two, with a leafy wing on one side. Essential Character. *Calix:* five-leaved. *Petals:* five, united at the base by means of the nectary. *Filamenta:* inserted into the nectary. *Capsule:* superior, five-celled. *Seeds:* winged. ——The species are,

1. Gordonia Lasianthus; *Smooth Loblolly Bay.* Leaves leathery, smooth on both sides; flowers peduncled. The stem is five or six feet high, and branched; the leaves four inches long, and one inch and a half broad in the middle, slightly indented on their edges, and of a thick consistence: the flowers axillary, on very long peduncles; the petals are yellow and thick; the stamina are joined at their base to the style, and form a short column, but spread open at the top, filling the mouth of the tube.—Native of North America. As this plant grows naturally in water, it is not kept alive in this country without difficulty. Mr. Miller raised several plants, which continued till winter, but not one of them survived, though he placed some of them in the stove, and supplied them with an abundance of water.

2. Gordonia Pubescens; *Pubescent Loblolly Bay.* Leaves pubescent beneath; flowers subsessile. Branches subpubescent; flowers axillary, sessile towards the tops of the branches; leaflets of the outer calix subovate, acuminate at the tip, tomentose, as are also those of the inner. It has been long in the open air in the garden at Trianon in France; but, like the rest of the trees and shrubs from South Carolina, is not very capable of enduring cold. The flowers are white; but they come out so late, that the frost destroys them before they expand.—Native of South Carolina.

3. Gordonia Franklinia; *Franklin's Gordonia.* Leaves smooth; flowers sessile; fruits globular. This beautiful tree-like shrub rises with an erect trunk, to the height of about twenty feet, with alternate branches; leaves oblong, narrowed towards the base, serrate, sessile or subsessile; flowers towards the extremity of the branches, solitary, sitting close in the bosom of the leaves, often five inches in diameter when fully expanded; petals snow-white, the lower one hollow, formed like a cap or helmet, entirely excluding the other four, until the moment of expansion; its exterior surface is

covered with a short silky hair; the borders of the petals are curled or plaited. Fruit a large round, dry, woody pericarp, opening at each end by five alternate fissures, containing ten cells, each filled with dry woody cuneiform seeds. The flowers have the fragrance of a China orange.—Discovered on the banks of the Altamaha river in Georgia.

Gorteria; a genus of the class Syngenesia, order Polygamia Frustranea.—Generic Character. *Calix*: common one-leafed, imbricate with spiny scales; the inner ones gradually longer, straight, bristle-shaped, rigid. *Corolla*: compound, radiate; corollets hermaphrodite, several in the disk; female fewer in the ray; proper of the hermaphrodite funnel-form, five-cleft; of the female ligulate, lanceolate. *Stamina*: in the hermaphrodites, filamenta five, short; antheræ cylindric, tubular. *Pistil*: of the hermaphrodites, germen villose; style filiform, the length of the corollet; stigma bifid: of the females, germen obsolete; style none; stigma none. *Pericarp*: calix unchanged, deciduous. *Seeds*: in the hermaphrodites solitary, roundish; down simple, woolly; in the females none. *Receptacle*: naked, yet not so in every species. Essential Character. *Calix*: imbricate with spiny scales. *Corolla*: of the ray ligulate. *Down*: woolly. *Receptacle*: naked.—Most of these plants may be increased by cuttings, planted in a shady border during any of the summer months; afterwards they may be treated like other plants from the Cape. See *Arctotis*.——The species are,

1. Gorteria Personata; *Annual Gorteria.* Leaves lanceolate, entire, and sinuate; stem upright; flowers peduncled. Stems a span high, little branched, roundish, hairy. The receptacle is bristly, rough in the middle, excavated in the circumference; florets in the centre male, in the disk androgynous, and of these not more than five fertile; in the ray, female or neuter, and barren; seeds woolly, but without down or feather. When the flower comes to maturity, the aperture of the calix being very narrow, the seeds do not fall out, but the whole drops together. Hence, when one of them germinates, the radical not only perforates the bottom of the calix, but is so firmly united to it, that the young plant bears the maternal calix, permanent above the root. There is no other instance of this economy, except in Neurada. It flowers in July and August, and being annual, can only be raised from seeds.—Native of the Cape.

2. Gorteria Rigens; *Great-flowered Gorteria.* Leaves lanceolate, pinnatifid; stem depressed; scapes one-flowered. This is a low spreading plant, with woody stalks, six or eight inches long, trailing on the ground, having two or three side-branches, each terminating in a close head of leaves, which are narrow, green on their upper, but silvery on their under surface, and cut into three or five segments at the end. The peduncles arise from these heads, are six inches long, naked, and support one large orange-coloured flower; each floret in the ray has a dark mark towards the base, with white intermixed. The green-house can scarcely boast a more showy plant: the flowers will only expand in the heat of the sun, but, when expanded, exhibit an unrivalled brilliancy of appearance.—It flowers in May and June, and was brought from Holland.

3. Gorteria Echinata; *Prickly Gorteria.* Leaves oblong, sinuate-gashed, with small thorns; stems ascending; receptacles chaffy. Stem a foot high, angular, red, commonly smooth, but sometimes lanuginous here and there. Flowers terminating, solitary; outer scales of the calix short, palmate, spinous; inner longer, lanceolate, ending in a thorn, and armed with spinules at the base on each side; corollets of the ray wholly barren; the petal four-cleft at the end, an inch long, spreading, yellow, but near the tip underneath of a dirty purple colour. It flowers in July, is annual, and can only be propagated by seeds.—Native of the Cape.

4. Gorteria Squarrosa; *Cobweb Gorteria.* Leaves lanceolate, decurrent, adnate, ciliate-spinulous; flowers sessile. Stem proliferous, villose; branches from the base of the stalk; calix terminating, squarrose, with leaflets bowed back, like those on the stem; ray of the flowers yellow.—It flowers from June to August.

5. Gorteria Setosa; *Bristly Gorteria.* Leaves lanceolate, decurrent, adnate, ciliate-spinous; flowers terminating. Stem five feet high, upright, very much branched; branches alternate; colour of the flowers yellow, the ray violet-coloured underneath. It differs from the preceding species, in the stem being neither villose nor proliferous; the leaves not imbricate, downwards, but broader, shorter, with yellow bristles standing out on the edge; the flowers peduncled, not sessile; and finally, in the colour of the ray beneath.—Native of the Cape.

6. Gorteria Ciliaris; *Ciliate Gorteria.* Leaves imbricate, ciliate, in two rows; the outer cilias, and the terminating spine, reflex. The leaves are imbricated, and pressed to the stalks, so as to cover them in an extraordinary manner. It flowers in May and June.—Native of the Cape.

7. Gorteria Fruticosa; *Shrubby Gorteria.* Leaves lanceolate, entire, tooth-spinous, tomentose beneath; stem shrubby, slender, three feet high, sending out a few weak branches, which are tomentose and white; flowers terminating, subsolitary, peduncled, the peduncle longer than the flower; corolla yellow, radiate. The ray has many flowers, and is twice the length of the calix; the disk is convex; the segments of the florets linear; seeds villose; crown of the seeds star-form, with many leaflets. It flowers in August and September.—Native of the Cape. This species is increased by planting the small heads at the ends of the branches in June and July. They must be closely covered with either bell or hand glasses, and carefully screened from the sun. When they are well rooted, they should be put each into a small pot, and, in winter, placed in an airy glass-case, secure from damp. The same treatment will be proper for any other sorts, and indeed for most shrubby plants that will not take from cuttings in the ordinary way.

8. Gorteria Herbacea; *Herbaceous Gorteria.* Stem-leaves clasping, ciliate; root-leaves unarmed, villose underneath. Stem scarcely a foot high, herbaceous, smooth, very little branched; root-leaves broad-lanceolate, petiolate, quite entire, bluntish; stem-leaves alternate, cordate, acute, the upper ones gradually shorter; flowers terminating, sessile; calix like that of an artichoke, but scarcely bigger than a plum.—Found by Thunberg at the Cape.

9. Gorteria Hispida; *Hairy Gorteria.* Leaves oblong, ciliate-spinous, upright, smooth; calices entire, ending in a thorn. It is a large shrubby plant.—Native of the Cape.

10. Gorteria Spinosa; *Thorny Gorteria.* Leaves oblong, sessile, tooth-spinous, spreading, smooth; calices ciliate-spinous; flowers upright.—Native of the Cape.

11. Gorteria Cernua; *Drooping Gorteria.* Leaves oblong, clasping, tooth-spinous, spreading, smooth; calices ciliate-serrate; flowers drooping. The base of the calix is singular, with ripe seeds, and resembles the fruit of Medicago. It flowers in May.—Native of the Cape.

12. Gorteria Uniflora; *One-flowered Gorteria.* Leaves lanceolate, undivided, tomentose underneath; stems one-flowered, depressed, a span high, simple, herbaceous, leafy on all sides; ray of the flower yellow. It has the appearance of the second species, and is suspected to be a variety of it.—Native of the Cape.

13. Gorteria Barbata; *Bearded Gorteria.* Leaves ellip-

tic-lanceolate, tooth awned; calices peduncled, ciliate-setaceous. Stems diffused, simple, white, tomentose; peduncle terminating, very long, leafless, putting off a white nap, one-flowered. The outer order of leaflets in the calix is of the same form with the leaves; the inner is coloured, more copious, narrower, and ends in abundance of bristles, that are twice as long as the flower.—Native of the Cape.

Gorz. See *Ulex.*

Gossypium; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth double; outer one-leafed, trifid, flat, larger; inner one-leafed, bluntly emarginate, in five rows, cup-form. *Corolla:* petals five, obcordate, flat, spreading, fastened by their base to the tube of the stamina. *Stamina:* filamenta numerous, uniting at bottom into a tube, separate at, and below the tip, lax, inserted into the corolla; antheræ kidney-form. *Pistil:* germen roundish; style columnar, the length of the stamina; stigmas three or four, thickish. *Pericarp:* capsule roundish, acuminate, three or four-celled; partitions contrary. *Seeds:* very many, oval, involved in cotton. Essential Character. *Calix:* double; outer trifid. *Capsule:* four-celled. *Seeds:* wrapped in cotton.—All the species of cotton plants are very tender, and will not endure the open air in England.——The species are,

1. Gossypium Herbaceum; *Common Cotton.* Leaves five-lobed, without glands underneath; stem herbaceous. Root tapering, woody, with numerous fibres, annual; seed-lobes two, kidney-form, terminating gradually in a long petiole, with the figure of a halved funnel. Stem three feet high, upright, round, pubescent, as is the whole of the herb, at the bottom brown, with light chinks at the top spotted with black; branches axillary, scarcely longer than the leaf at their origin; leaves alternate, only half the length of the petiole, tomentose, odorous when young; calix outer, when closed three-cornered, when open, three-parted almost to the base; segments heart-shaped, gashed, shorter by half than the corolla, dotted with black; inner cylindrical, only one-third of the other's length, upright, five-parted, with short blunt segments, dotted like the inner; corolla monopetalous, with a very short tube, and a five-parted spreading border; the segments blunt, crenate at the side, pale yellow, with five red spots at bottom, and deciduous; filamenta coalescing into a pyramid; germen superior, ovate; style filiform; stigma four-fold; capsule bluntly three-cornered, three-valved, three-celled; seeds ovate, about three in each cell, convex on one side, more flat on the other, immersed in fine cotton.—This is the common Levant cotton, which is cultivated also in several islands of the Archipelago; and in Malta, Sicily, and the kingdom of Naples; as well as in most parts of Asia. Few plants are more useful, since it furnishes materials for clothing in the four quarters of the world, particularly to the Asiatics. The seeds also are an article of food, and esteemed wholesome.—*Propagation and Culture.* Both this and the third species will ripen their seeds in England, if they be sown upon a good hot-bed early in the spring. When the plants come up, they must be removed into separate pots, and plunged into the bark-bed to bring them forward: when they are too tall to remain under the frames, remove them into the tan-bed in the stove; and when the roots have filled the pots, remove them into larger. With this management, the flowers will appear in July, and the seeds ripen towards the end of September. Cotton is propagated in the West Indies by the seed, which is set in rows, about five feet asunder, at the end of September, or beginning of October; at first but slightly covered; but after it is grown up, the root is well moulded. The seed is subject to decay when it is set too deep, especially in wet weather. The soil should not be stiff, nor shallow, because this plant has a tap-root. The ground is hoed frequently, and kept very clean about the young plants, until they rise to a moderate height, otherwise they are liable to be destroyed by caterpillars. It grows from four to six feet high, and produces two crops annually; the first in eight months from the time of sowing the seed; the second within four months after the first; and the produce of each plant is reckoned about one pound weight. The branches are pruned or trimmed after the first gathering; and if the growth be over luxuriant, this should be done sooner. When great part of the pods are expanded, the wool is picked, and afterwards cleared from the seeds by a machine, called a gin, composed of two or three smooth wooden rollers, of about one inch diameter, ranged horizontally, close, and parallel to each other, in a frame; at each extremity, they are toothed or channelled longitudinally, corresponding one with the other; and the central roller being moved with a treadle or foot-lath, resembling that of a knife-grinder, makes the other two revolve in contrary directions. The cotton is laid, in small quantities at a time, upon these rollers, whilst they are in motion; and readily passing between them, drops into a sack, placed underneath to receive it, leaving the seeds, which are too large to pass with it, behind. The cotton, thus discharged from the seeds, is afterwards hand-picked, and cleansed thoroughly from any little particles of the pods or other substances, which may be adhering to it. It is then stowed in large bags, where it is well trod down, that it may lie close and compact; and the better to answer this purpose, some water is every now and then sprinkled upon the outside of the bag; the marketable weight of which is usually three hundred pounds. An acre may be expected to produce from two hundred and forty pounds, to that quantity; or two hundred and seventy pounds on an average. The shrub cotton will rise from seeds very easily, if sown on a good hot-bed early in the spring; if they be brought forward in the same manner as directed for the others, the plants will be five or six feet high in the same summer; but it is difficult to preserve them through the winter, unless they are hardened gradually during the warm weather; for when they are forced on at that time, they will become so tender, as to be incapable of resisting the least injury. In autumn, they must be placed in the bark-stove, and kept in the first class of heat, otherwise they will not live through the winter in England.

2. Gossypium Arboreum; *Tree Cotton.* Leaves palmate, with lanceolate lobes; stem shrubby, eight feet high, the thickness of the human leg, with a rugged brown bark, and long, diffused, twisted branches; flowers entirely yellow, terminating, solitary; outer calix three-leaved, large, gashed, erect; the inner calix five-notched; capsule commonly three-cornered, three-valved, three-celled, subovate, acuminate, rugged.—Native of the East Indies, and the Eastern coast of Africa.

3. Gossypium Hirsutum; *Rough Cotton.* Leaves five-lobed with one gland underneath; the twigs and petioles pubescent. Stem shrubby, a fathom in height, erect, striated; branches hirsute; petioles round, striated, dotted with black, hirsute. There is a single glandular pore on the midrib underneath, and sometimes two or three on the next nerves; peduncles three times shorter than the petioles, stiff, thick, hirsute, dotted with black; outer calix three or five cleft; the segments ovate, acute, rough with hairs; the inner truncate, with three blunt teeth; petals rounded, retuse, entire, yellow at the base, purple at the tip, pubescent on the outside; germen ovate, acuminate, dotted with black; style longer

than the stamina, three or five-cleft at top, inclined. This species, says Browne, is in a few gardens in Jamaica, but is not much cultivated; for the cotton is not thought to be so good; and the seeds are so small, that it is a difficult matter to separate them from the cotton. It grows, however, more luxuriant than the common sort, and rises generally from seven to nine feet high, bearing a great number of seed-vessels on all the branches. Swartz mentions a variety of this species, which is called *cotonier de soie*, the cotton of which is better than any of the rest.

4. Gossypium Religiosum; *Spotted-bark Cotton Tree.* Leaves three-lobed, acute, with one gland underneath; twigs spotted with black. According to Swartz, the stem is a fathom in height, biennial, roundish, rugged; branches spreading very much, angular, striated; upper leaves three-lobed, lower five-lobed; lobes ovate, entire, nerved, pubescent, with three glandular pores underneath on the mid-ribs of the leaves; petioles long, round, patulous, hirsute, with black atoms scattered over them; flowers opposite to the petioles, large, fulvous, on dotted peduncles; outer calix subtriphyllous, pubescent, dotted; the segments large, deeply and unequally toothed; the inner is very short, and five-lobed, in waves; capsule leathery, thickish, three-celled, three-valved; the partitions inserted in the middle of the valves, which are wrinkled within, and the edges turn back after they are open. There is no receptacle, but the seeds are fixed in a double row to the central angle of the cells; seeds about six in each cell, ovate, tapering towards the umbilicus, convex on one side, angular on the other, and white. It flowers in July.—Native of India, China, and the Society Isles. In China it is cultivated for the purpose of making the cloth usually called Nankeens in Europe, the down having a yellow tinge, which it preserves when spun and woven into cloth.

5. Gossypium Latifolium; *Broad-leaved Cotton.* Leaves acute, the lowest undivided, the rest three-lobed, with one gland underneath. Stem four or five feet high, perpendicular, round, straighter at the base, the thickness of a swan's quill; above flexuose and thicker, somewhat angular, swelling at the origin of the branches, green, rugged, pubescent, branched; flowers solitary, commonly one only on each branch; peduncle short, three-sided, opposite to the leaf. The stem, branches, petioles, peduncles, young leaves, and smaller veins of those which are more advanced, are dotted with black. The calix also is dotted; the outer three-leaved, and also three-sided; the leaflets cordate, laciniated; the segments lanceolate, converging; the inner only one-third of the length, urceolate, striated, five-parted, with short acuminate segments; corolla as large as that of the Hollyhock, white, turning red as it withers, without any spots at the base, where it is hirsute; pistil longer than the stamina; seeds in each cell four to six or more, in a double row, involved in very white cotton.—Cultivated in the West Indies.

6. Gossypium Barbadense; *Burbadoes Cotton Tree.* Leaves three-lobed, quite entire, with three glands underneath. Stem from six to fifteen feet in height, suffruticose, biennial, smooth; branches almost erect, round and smooth, or pubescent; petioles five or six inches long, roundish, patulous, smooth, or sometimes pubescent, one-flowered; flowers large, yellow, finally turning red; outer calix half five-cleft; segments acute, smooth, or pubescent, or having black atoms scattered over them; inner having three or five minute blunt teeth; petals having a purple spot at the base, and smooth on the outside; filamenta shorter than the petals; antheræ yellow or fulvous; germen roundish, acuminate; style three or five cleft at top; capsule ovate, roundish, smooth, sometimes dotted with black, three-celled, three-valved; seeds oblong, eight to twelve, black, easily separated from the cotton. Swartz informs us, that this, and the third and fourth species, are not easily distinguished; for they vary in the size of the parts, the division and pubescence of the leaves, the colour, adherence, and tenacity of the cotton, and the number of glands at the back of the leaves; so that it is difficult to ascertain which are species, and which are varieties. This is the species which is so much cultivated in the West Indies, and forms a considerable branch of their exports. An emulsion of the seeds of this plant is recommended in the bloody flux; and an oil is obtained from them by expression, which supplies the boiling-house lamps in some plantations.—See the description of the method of cultivation under the first species.

Gouania; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodites. Calix:* perianth one-leafed, superior, funnel-form, five-cleft; tube permanent; segments ovate, acute, spreading, deciduous. *Corolla:* none. *Stamina:* filamenta five, subulate, length of the calix, and alternate with the segments; antheræ roundish, incumbent, veiled; veil like a cowl, elastic. *Pistil:* germen inferior; style subulate, half three-cleft; stigmas obtuse. *Pericarp:* fruit dry, three-sided, divisible into three seeds. *Seeds:* three parts of the fruit roundish, inclined to three-sided, two-winged. *Males,* on the same plant. *Calix, Corolla,* and *Stamina:* as in the hermaphrodites. *Pistil:* germen none; style as in the hermaphrodites; stigmas obscure, or none. Essential Character. *Hermaphrodites. Calix:* five-cleft. *Corolla:* none. *Antheræ:* five, under a veil. *Style:* three-cleft; fruit inferior, tripartile. *Male:* similar, but without germen and stigma.——The only known species is,

1. Gouania Domingensis; *Chaw Stick.* Stem shrubby, and climbing like hops by axillary tendrils; leaves ovate or oblong-ovate, acuminate, or blunt with a point unequally serrate-toothed, or slightly crenate only, smooth, deep green, alternate, petioled, two inches long; racemes furnished with one or two leaflets. The male flowers have no pistil whatsoever; but there are three or four flowers in a hundred, that have a style without any germen.—Native of woods in St. Domingo. Sow the seeds on a hot-bed, early in the spring; and when the plants are strong enough, transplant each into a small pot filled with light rich earth, and plunge the pots into a moderate hot-bed of tanners' bark, watering and shading the plants until they have taken new root. In winter, plunge them into the bark-bed in the stove, and water them frequently. The stems must be supported, and they seldom produce flowers before the third summer.

Gourd. See *Cucurbita.*

Gourd, Bitter. See *Cucumis.*

Gourd, Sour. See *Adansonia.*

Grafting, is the taking a shoot from one tree and inserting it into another, in such a manner, as that both may unite closely, and become one tree; this is called, by the ancient writers in husbandry and gardening, *incision,* to distinguish it from inoculating or budding, which they call *inserere oculos.* The peculiar advantage of grafting is, that it enables us to propagate any curious sorts of fruit, so as to be certain of the kinds, which cannot be done by any other method; for as all the good fruits have been accidentally obtained from seeds, so the seeds of these, when sown, will many of them degenerate, and produce such fruit as are not worth cultivating; but when shoots are taken from such trees as produce good fruit, these will never alter from their kind, whatever be the stock or tree on which they are grafted, for

though the grafts receive their nourishment from the stocks, yet their varieties are never altered by them, but continue to produce the same kind of fruit as the tree from which they were taken; the only alteration is, that when the stocks on which they are grafted do not grow so fast, and afford a sufficient supply of nourishment to the grafts, they will not make half so much progress as they otherwise would have done, nor will the fruit they produce be so fair, and sometimes not so well flavoured. The shoots are termed *cions* or *grafts*, and in the choice of them the following directions should be carefully observed: 1. That they are shoots of the preceding year, for when older they never succeed well. 2. Always take them from healthy and fruitful trees, for if the trees from whence they are taken be sickly, the grafts very often partake so much of the parent distemper, as rarely to get the better of it, at least for some years; and when they are taken from young luxuriant trees, whose vessels are generally large, they will continue to produce luxuriant shoots, but are seldom so productive as those taken from fruitful trees, whose shoots are more compact, and the joints closer together: it will always be some years before the luxuriant grafts begin to produce fruit, even when managed with the greatest skill. 3. Prefer those grafts which are taken from the lateral or horizontal branches, to those from the strong perpendicular shoots, for the reasons before given. These grafts or cions should be cut off from the trees before the buds begin to swell, which is generally three weeks or a month before the season for grafting; therefore when they are cut off, they should be laid in the ground with the cut downwards, burying them half their length, and covering their tops with litter, to prevent their drying: if a small joint of the former year's wood be cut off the cion, it will preserve it the better, and when they are grafted, this may be cut off; for at the same time, the cions must be cut to a proper length before they are inserted in the stocks; but, till then, the shoots should remain in their full length, as they were taken from the tree, which better preserves them from shrinking. If these cions are to be carried to a considerable distance, it will be proper to put their ends into a lump of clay, and to wrap them up in moss, which will preserve them fresh for a month or longer, but these should be cut off earlier from the trees, than those which are to be grafted near the place where the trees are growing.—Having given directions for the cions and grafts, we next come to that of the *stock*, which is a term applied to the trees intended for grafting; these are either such old ones as are already growing in the places where they are to remain, whose fruit is intended to be changed, or young trees, which have been raised in a nursery for a supply to the garden; in the former case, there is no other choice but that of the branches, which should be such as are young, healthy, well-situated, and have a smooth bark: if these trees are growing against walls, or espaliers, it will be proper to graft six, eight, or ten branches, according to the size of the tree, by which they will be much sooner furnished with branches again, than when a less number of cions are put in; but in standard trees, four, or at most six cions, will be sufficient. In the choice of young stocks for grafting, you should always prefer such as have been raised from the seed, and that have been once or twice transplanted: next to these, are those stocks which have been raised from cuttings or layers; but those which are suckers from the roots of other trees should always be rejected, for these are never so well rooted as the others, and constantly put out a great number of suckers from their roots, whereby the borders and walks of the garden will be always pestered with them during the summer season, which is not only unsightly, but they also take off part of the nourishment from the trees. If these stocks have been allowed a proper distance in the nursery where they have grown, the wood will be better ripened and more compact than those which have grown close, and have been thereby drawn up to a greater height; the wood of these will be soft, and their vessels large, so that the cions grafted into them will shoot very strong, but they will be less disposed to produce fruit than the others; and when trees acquire an ill habit at first, it will be very difficult to reclaim them afterwards.—Having directed the choice of cions and stocks, we have now to describe the *operation;* in order to which, the operator must be provided with the following tools: 1. a neat small hand-saw, to cut off the heads of large stocks; 2. a good strong knife with a thick back, to make clefts in the stocks; 3. a sharp penknife, to cut the grafts; 4. a grafting chisel, and a small mallet; 5. a wedge, to keep open the clefts in large stocks till the insertion of the graft; 6. bass strings, or woollen yarn, to tie the grafts with, and such other instruments and materials as will be necessary and suitable to the kind of grafting to be performed; 7. a quantity of clay, which should be prepared a month before it is used, and kept turned and mixed like mortar every other day; this is to be made after the following manner: Procure a quantity of strong fat loam; then take some new well-fed horse-dung, and break it in amongst the loam, and if you cut a little straw or hay very small, and mix amongst it, the loam will bold together the better; and if there be a quantity of salt added, it will prevent the clay from dividing in dry weather; these must be well stirred together, with the addition of water, as in making mortar. The whole mass should be hollowed like a dish, and filled with water, and kept every other day stirred; but it ought to be remembered, that it should not be exposed to the frost or drying winds, and the oftener it is stirred and wrought the better. Of late years, some persons have made use of another composition for grafting, which they have found more effectually to exclude the air than the clay just described: this is composed of turpentine, bees' wax, and resin, melted together, which, when of a proper consistence, may be put on the stock round the graft, in the same manner as the clay is usually applied, and though it be not above a quarter of an inch thick, yet it will keep out the air more effectually than the clay; and as cold will harden this, there is no danger of its being hurt by frost, which is very apt to cause the clay to leave, and sometimes fall of; and when the heat of summer comes on, this mixture will melt, and fall off without any trouble. In order to use this, there should be a tin or copper pot, with a conveniency under it to keep a very gentle fire with small coal, otherwise the cold will soon condense the mixture; but you must be careful not to apply it too hot, lest the heat should injure the graft.—There are various ways of grafting; we shall enumerate five of the principal. 1. *Grafting in the rind*, called also shoulder-grafting, which is only proper for large trees; this is termed crown-grafting, because the grafts are set in the form of a circle or crown, and is generally performed about the latter end of March, or the beginning of April. 2. *Cleft Grafting*, which is also called stock or slit-grafting; this is proper for trees or stocks of a lesser size, from an inch to two inches or more in diameter; this grafting is to be performed in the months of February or March, and supplies the failure of the escutcheon-way, which is practised in June, July, and August. 3. *Whip Grafting*, which is also called tongue-grafting; this is proper for small stocks of an inch, half an inch, or less diameter; this is the most effectual way of any, and which is most in use. 4. *Grafting by approach*, or *ablactation*. This is to be performed when the stock you would

graft on, and the tree from which you take your grafts, stand so near together, that they may be joined; this is to be performed in the month of April, and is also called inarching, and is chiefly used for Jasmines, Oranges, and other tender exotic trees. 5. *Grafting in the root;* which is of later invention than any of the former ways, and in many circumstances may be an improvement of them all.—The season for grafting must be regulated by the weather: our climate is so uncertain in the spring, that it is better to defer it till the circulation of the sap is brisk, and the buds of the stocks are beginning to break into leaves, observing only, that the weak shoots of tender trees will not admit of being so long cut as the more hardy: it is indispensably necessary never to graft while it actually freezes or rains.—We come next to the manner of performing the several ways of grafting: The first method, which is termed rind or shoulder grafting, is seldom practised, except upon large trees, where either the heads or the large branches are cut off horizontally, and two or four cions put in, according to the size of the branch or stem; in doing this, the cions are cut flat on one side, with a shoulder to rest upon the crown of the stock, then the rind of the stock must be raised up, to admit the cion between the wood and the bark of the stock, which must be inserted about two inches, so as the shoulder of the cion may meet, and closely join the crown of the stock; and after the number of cions are inserted, the whole crown of the stock should be well clayed over, leaving two eyes of the cions uncovered therewith, which will be sufficient for shooting: this method of grafting was much more in practice formerly than at present; the discontinuance of it was occasioned by the ill success it was attended with, for as these cions were placed between the rind of the stock and the wood, they were frequently blown out by strong winds, after they had made large shoots, which has sometimes happened after five or six years' growth, so that whenever this method is practised, there should be some stakes fastened to support the cions, until they have almost covered the stock.—The next method is termed cleft or stock grafting; this is practised upon stocks, trees, or branches, of a smaller size, as from one to two inches in diameter, and may be used with success where the rind of the stock is not too thick, which would prevent the inner bark of the cion from joining that of the stock. The head of the stock or branch may be cut off with a slope, and a slit made the contrary way, in the top of the slope, deep enough to receive the cion, which should be cut sloping like a wedge, so as to fit the slit made in the stock, being careful to leave that side of the wedge which is to be placed outward much thicker than the other: in putting the cion into the slit of the stock, there must be great care to join the rind of the cion to that of the stock, for if these do not unite, the grafts will not succeed: when this method of grafting is used to stocks which are not strong, it will be proper to make a ligature of bass, to prevent the slit of the stock from opening; then the whole should be clayed over, to prevent the air from penetrating the slit, so as to destroy the grafts, only leaving two eyes of the cions above the clay for shooting.—The third method is termed whip or tongue grafting; which is the most commonly practised by the nursery-men, especially for small stocks, or branches of an inch, half an inch, or less, because the cions much sooner cover the stocks in this method than in any other. This is performed by cutting off the head of the stocks sloping; then there must be a notch made in the slope towards the upper part downwards, a little more than half an inch deep, to receive the cion, which must be cut with a slope upward, and a slit made in this slope like a tongue, which which tongue must be inserted into the slit made in the slope of the stock, and the cion must be placed on one side of the stock, so as that the two rinds of both cion and stock may be equal, and join together exactly; then there should be a ligature of bass to fasten the cion so as that it may not be easily displaced; it should lastly be clayed over, as in the former methods.—The fourth sort of grafting, termed inarching, grafting by approach, or ablactation, is only to be performed when the stocks, which are designed to be grafted, and the tree from which the graft is to be taken, stand so near together, or may be brought so near together, as that their branches may be bent and united; this method of grafting is commonly practised on tender exotic plants, and some other sorts, which do not succeed by any of the former methods. In performing this operation, a part of the stock or branch must be slit off about two inches in length, observing always to choose a smooth part of the stock; then a small notch should be made down in this slit of the stock, in the same manner as has been directed for whip-grafting; then the branch of the tree designed to be inarched, should have a part slit off in like manner as the stock, and a slit made upward in this, so as to leave a tongue, which tongue should be inserted into the slit of the stock, observing to join their rinds equally, that they may unite well together; then make a ligature of bass, to keep them exactly in their situation, and afterward clay this part of the stock over well, to keep out the air. In this mode of grafting, the cion is not separated from the tree until it is firmly united to the stock, nor is the head of the stock or branch, which is grafted, cut off till this time, and only half the wood pared off with a slope, about three inches in length, and the same of the cion or graft. This method of grafting is performed later in the season that the others; it is generally undertaken in the month of April, when the sap is flowing, at which time the cion and stock will join together, and unite much sooner than at any other season. The Walnut, Fig, and Mulberry, will take by this method of grafting, and will not succeed by any other: there are also several sorts of Evergreens, which may be propagated by this method of grafting; but all the trees which are grafted in this way are weaker, and never grow to the size of those which are grafted in the other methods; therefore this is rarely practised, but on those trees which will not take by any other method.—The fifth mode, root-grafting, is performed by cutting the clean smooth roots of the stocks in pieces five or six inches long, and as large or a little larger than the graft; let them be whip-grafted, and tied together very close, so as to prevent the wet from affecting the wounded parts; and plant them so deep, that the graft, which should be four or five inches long, may be about half buried. By this method the grafts themselves will root, and preserve a nearer similitude of the tree from whence they were taken; and after two or three years the stock may be cut quite away, and the graft left to maintain itself. In practising this method, the grafts may be an inch or two longer than is directed for the others.—The next thing necessary to be known by those who would practise this art, is, what trees will take and thrive by being grafted upon each other. No correct directions have hitherto been given by any of the numerous writers upon this subject, whose works strangely abound with radical mistakes; but as it would swell this interesting article beyond all bounds, were all the sorts of trees which will take upon each other by grafting to be here enumerated; we shall only give such general rules as will be sufficient to ensure the success of those persons who observe them. All trees of the same genus, that is, which agree in their flower and fruit, will take

upon each other; for instance, all the Nut-bearing trees may be safely grafted on each other, as may all the Plum-trees, including also the Almond, Peach, Nectarine, Apricot, &c. which agree exactly in their general characters, by which they are distinguished from all other trees; but as many of these are very subject to emit large quantities of gum from those parts which are deeply cut or wounded, (for the tender trees of this kind, such as Peaches and Nectarines, are most subject to these gummy exudations,) it is found to be the safest way to have recourse to budding or inoculation: see *Inoculation*. All such trees as bear cones will do well upon each other, though they may differ as to one being evergreen, and the other shedding its leaves in winter, as is observable in the cedar of Libanus, and the Larch-tree, which are found to succeed very well upon each other; but these must be grafted by approach, for they abound with a great quantity of resin, which is apt to evaporate from the graft, if separated from the tree before it is joined with the stock, by which they are often destroyed. The Laurel likewise on the Cherry, and *vicè versâ*. All the mast-bearing trees will also take upon each other, and those which have a tender soft wood will do well if grafted in the common way; but those that are of a firm contexture, and are slow growers, should always be grafted by approach. By strictly adhering to these rules, the operation will seldom miscarry when rightly performed at a proper season, unless the weather should prove very bad, as it sometimes happens, whereby whole quarters of fruit-trees miscarry. And it is by this method that many kinds of exotic trees are not only propagated, but also rendered hardy enough to endure the cold of our climate in the open air; for, being grafted upon stocks of the same sort which are hardy, the grafts are rendered more capable to endure the cold, as has been experienced by most of our valuable fruits now in England, which were formerly transplanted here from more southerly climates, and were at first too impatient of our cold to succeed well abroad, but have been, by budding or grafting upon more hardy trees, rendered capable of resisting our severest cold.

Grain, Oily. See *Sesamum.*

Grain, Scarlet. See *Quercus Rubra.*

Grains of Paradise. See *Amomum.*

Gramen. See *Grass.*

Grape. See *Vitis.*

Grape Hyacinth. See *Hyacinthus.*

Grape, Sea. See *Ephedra.*

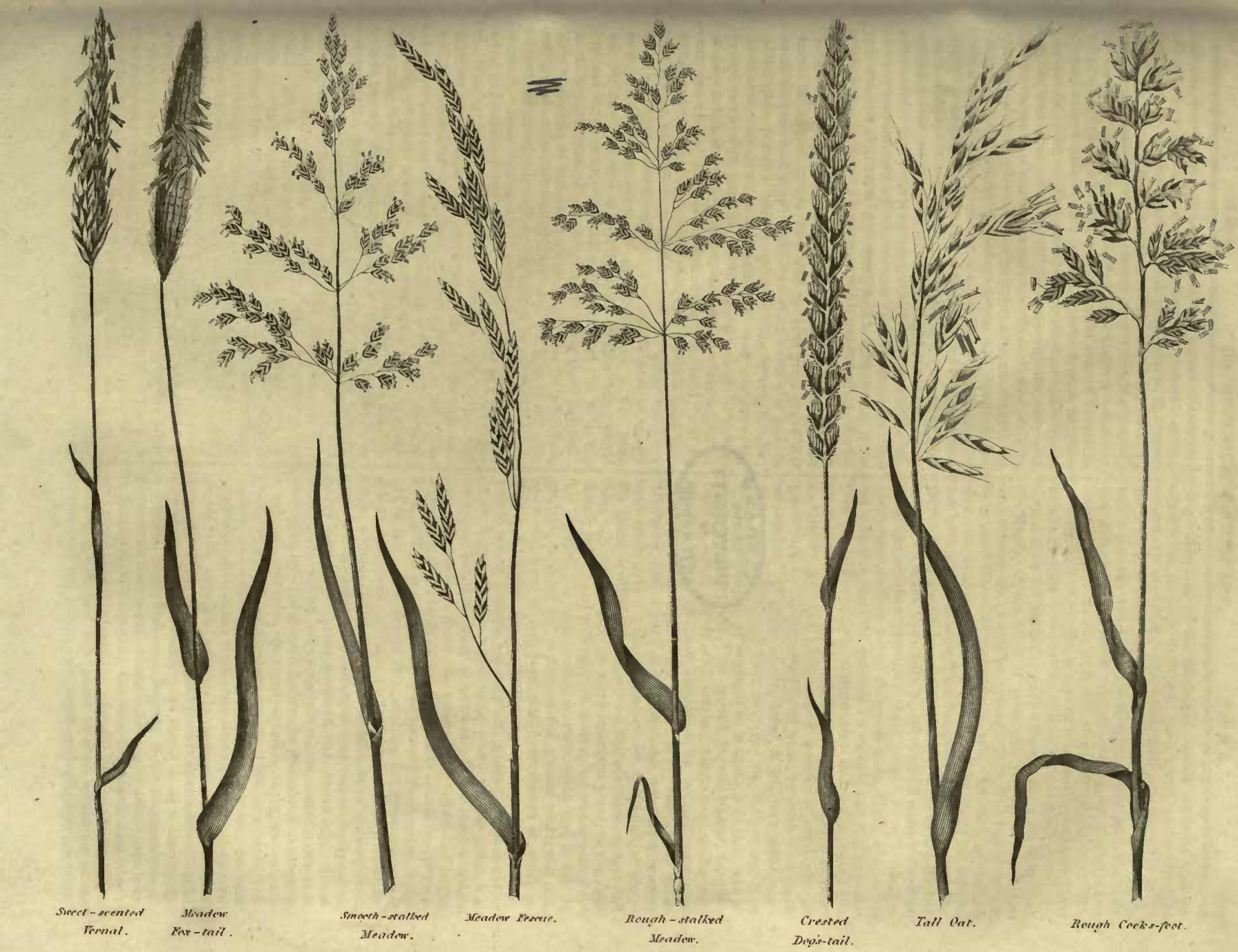
Grape, Sea-side. See *Coccoloba.*

Grass, is a general name applied to those herbaceous plants that are employed in the feeding and fattening of cows, sheep, &c. It has been long since observed, in an able treatise on the grasses of this country, that much of our meadow and pasture land may be rendered infinitely more valuable than it is at present, by the introduction of some of the best Grasses we possess. This opinion prevails among the more enlightened agriculturists of the present age, some of whom have endeavoured to excite the husbandman to collect and cultivate seeds of this sort, by writings fraught with the soundest reasonings; while others have endeavoured to attract him by the offers of well-directed premiums. Hitherto, however, neither the able arguments of the one, nor the liberal rewards of the other, have been found sufficient to induce the husbandman to deviate from the beaten track; and Mr. Stillingfleet, the author above alluded to, sensibly adds, "It is wonderful to see how long mankind has neglected to make a proper advantage of plants of such importance, and which, in almost every country, are the chief food of cattle. The farmer, neglecting to distinguish and select grasses for feed, fills his pastures either with weeds, or bad and improper grasses; when, by making an easy experiment, he might, after some trials, ensure the introduction of the best and most productive grasses that his land would bear. At present, if a farmer wants to lay down his land to grass, what does he do? he either takes his seed indiscriminately from his own foul hay-rick, or sends to his next neighbour for a supply: by this means, besides a certain mixture of all sorts of rubbish, (which must necessarily happen,) if he chance to have a large proportion of good seeds, it is not unlikely but that what he intends for dry land may come from moist, where it grew naturally; and from the contrary. This is such a slovenly method of proceeding, that one can hardly believe it to be universal; yet it generally prevails with respect to all grasses, except the Darnel-grass, and what in some few counties is known by the name of Suffolk-grass; and this latter instance is owing, it is believed, more to the soil than any care of the husbandman. Now, (continues he,) would the farmer be at the pains of separating, *once in his life*, half a pint or a pint of the different kinds of grass seeds, and take care to sow them separately; in a very little time he would have wherewithal to stock his farm properly, according to the nature of each soil, and might at the same time spread these seeds separately over the nation, by supplying the seed-shops." The number of grasses fit for the farmer, probably does not exceed half a score: and how small would be the trouble, and how great the reward, of such a task! Would not any one be looked upon as almost insane, who should sow wheat, oats, rye, peas, beans, vetches, buck-wheat, turnips, and seeds of all sorts, together? Yet this is perpetually done with respect to grasses, although it is both unprofitable and absurd.—It is also asserted by Mr. Kent, that meadow and pasture land is oftener neglected than ploughed land, notwithstanding it generally admits of a much greater proportion of improvement. The best grasses cannot be collected at too great an expense; for he has seen a small spot of land in the middle of a large piece, which was laid down twelve or fourteen years since, upon an estate in Hertfordshire, with some choice seeds, at the same time when the remainder of the field was laid down with common seeds; and this spot is considerably better than the rest. From these experiments, and his own observations, he is clearly of opinion, that any person who has land calculated for grass, may improve it by this method of laying it down, to a much greater degree than he can in the common way. Dr. Anderson has likewise observed, in the second volume of his Essays, that although it is probable that none of the grasses that have been hitherto cultivated by the farmer, are of the most proper kind for pasturage; yet there is little reason to doubt, but that many of the most valuable kinds for this purpose would admit of being cultivated with the same ease as some of those are with which we are well acquainted, if they were properly separated from others, and cultivated with equal care. But so long as we shall remain ignorant of the peculiar properties of each kind of grass, so as not to be able to distinguish the good from the bad, it is not surprising that we should remain firmly persuaded that nature alone can provide valuable pastures, and that age is so essentially necessary for bringing them to their ultimate perfection: for if we allow our fields to remain uncultivated, without having sowed them with any kinds of grass seeds, it must ever happen that the seeds of such grasses as are brought by the wind or otherwise from the neighbouring fields, will there take root, and in time establish themselves. And as it may sometimes happen, that some of the most valuable pasture grasses may there abound; the field, in these cases, will become filled

with their seeds, and in due time may afford the most valuable pasture. But if bad kinds of grasses should abound in the neighbourhood more than the good, the field will naturally become filled with the seeds of these useless plants, many of which are hard and abiding; so that if the field be once filled with them, the pasture will of course be of little value, if it should be allowed to remain undisturbed for any length of time. Let the reader therefore consider, how numerous the circumstances are, that must accidentally concur together, before it is possible to receive a very fine field of pasture grass from the hands of nature alone; he will then perceive how improbable it is, that they should concur to produce their full effect in any one field whatever. There must be no roots of bad grasses, nor seeds of robust annuals, in the soil, when it is left out from tillage; and the seeds of the most valuable kinds of grasses must be in the neighbourhood, in such abundance as to fill the whole world sufficiently at once. Nor is this all, for as there is, no doubt, a considerable variety of valuable kinds of grass, some of which are naturally fitted to grow to perfection in one kind of soil, or upon that soil when in certain circumstances, while others would thrive best upon another soil, or upon that soil only in certain peculiar circumstances; it must so happen, that these very plants which are best adapted to the soil in the state it may be in at the time, should be found in abundance in the neighbourhood of the field. Neither must there be found near that any sort of robust quick-growing plant, the seeds of which, by being blown upon that field, might suddenly rush up and suffocate in their infancy these tender and valuable plants; nor must there be found any kinds of bad grass, that, by being established along with the good in any proportion, might tend to diminish the value of the pasture. Now let any one reflect on the infinite diversity these few particulars may admit of, and think how utterly impossible it is, that all the favourable circumstances, without any that are unfavourable, should concur in any one case; and he will acknowledge, that those who found their hope of obtaining the most valuable pastures only upon the fortuitous concurrence of all these circumstances, or who imagine that every pasture which is old must on that account of necessity be good, act in direct contradiction to the plainest dictates of reason and common sense. For although it should be allowed, that the grasses hitherto cultivated are not of the most proper sort for forming good pastures, and that therefore, on some occasions, much better natural pastures may be met with than could be formed by means of any of these; yet it by no means follows from thence, that if the farmer were perfectly acquainted with the value and distinguishing qualities of each kind of natural grass, and knew the soil and culture that best agreed with it, the most advantageous manner of rearing it, and every other particular relative to its respective economy, he might not perhaps have it in his power to form artificial pastures, as much excelling the natural, as these last at present usually exceed the former; for were he possessed of the knowledge above supposed, he could at once fill the soil with the seeds of those valuable grasses, which he knew were best adapted to it, and thus effectually exclude the admission of every useless plant, or pernicious kind of grass, that might be brought from the neighbouring fields by the wind, or by other accidental causes. Let us, therefore, instead of contenting ourselves on all occasions with such pastures or grass lands as nature may afford, rather study to improve those that are indifferent, by endeavouring to obtain a knowledge of such plants as might afford the most valuable pasture, and cultivating these with assiduity and care. The inattention of the improving farmers of Great Britain, to this subject, has been unaccountable. In order to prevent the public from being imposed upon by specious accounts of new grasses, it is necessary strenuously to endeavour to discover what are the particular purposes for which any one plant could be deemed valuable, and in what respects it ceases to be of any value at all: for as there is no plant that can be alike useful on all occasions, if we lose sight of this most necessary distinction, it may often lead us to rear a particular plant for purposes which it was never fitted to answer; and our failure may cause it to be rejected, where it might prove extremely proper and beneficial. It is stated, that Ray-grass continues to be the only grass, the seeds of which can be purchased, for the purpose of laying down meadow and pasture land: and every intelligent farmer knows how inadequate that grass is for such a purpose. Why, indeed, the Lolium Perenne, *Ray* or *Rye Grass*, should originally have been made use of in preference to all the other grasses, cannot perhaps be satisfactorily accounted for. It probably owes its introduction to accident, or to its being a common grass, the seeds of which were easily collected, rather than to its being preferred from any investigation of its merits, compared with the others. However this may be, there appears to be no reason for excluding the others; for it would appear exceedingly improbable, that of upwards of a hundred grasses, taking the word *grass* in its strict sense, that are growing wild in this country, the Author of nature should have created only one, as suitable to be cultivated for pasturage or fodder. Since this period, however, most of the natural grasses have been cultivated for the purpose of affording seed, which may be procured genuine from many seedsmen in most places. Taking it for granted then, that there are other grasses superior in many respects to the Ray-grass, this question naturally arises: How comes it, that they have not found their way into general use? To this it may be replied, that improvements in any science, especially in agriculture, are slow in their advances; and perhaps no class of men adheres more pertinaciously to old prejudices, than that respectable class of invaluable men, the farmers. The difficulty of distinguishing the grasses from each other, has, no doubt, been one grand obstacle: many of these plants are so much alike, that the most discriminating botanist is often at a loss to know some of them apart: there is also another cause, which may have operated against their introduction: grasses, as well as other plants, have been frequently recommended from a partial and limited observation of them, by persons who neither knew them well, as botanists or agriculturists, or who have recommended them merely to gain by the credulity of the public. But perhaps the chief reason has been, that persons, who might be expected to make the improvements, have not enjoyed the means of making the experiment, owing to the difficulty of obtaining such sorts of grass seeds as may be most suitable for the purpose. It appears, however, that in the herbage of good meadows or grass lands, there should be a combination of produce, bateableness or feeding, and early growth. The first is, in most cases, the grand object of the agriculturist, since it is the quantity chiefly which enables him to pay his rent, and support his cattle: to obtain this, the judicious husbandman spares no expense in labour or manure. But it does not follow, that produce is to be attended to solely, or that, for its sake, we are to cultivate rough Cock's-foot Grass, Meadow-sweet, and such coarse plants. Grasses which are recommended for being remarkably grateful to cattle, as the Sheep's Fescue-grass, or for the sweetness of their foliage merely, if found to be deficient in the grand article of produce, will never answer the farmer or grazier's purpose, since, to be a

good meadow, it must be productive. Cattle have undoubtedly their particular likings, with respect to food, in which, though we cannot properly judge of it, they should be sometimes indulged; but this practice must not be carried too far, for as the farmer cannot afford to feed his ploughmen on sucking pigs and poultry, neither can he generally indulge his cattle with the finer or more delicate hay or herbage. Besides, we do not know but that the most productive grasses may also be the most nutritious, or that cattle will not as eagerly eat the herbage or hay-may of the Meadow Fox-tail grass, as of the fine bent, *Agrostis Capillaris*, and Procumbent Trefoil, or *Trifolium Procumbens*. Moreover, cattle are frequently known to thrive on food to which they are habituated by necessity, though, at first, they could scarcely be prevailed on to touch it. Persons, in making experiments, are very apt to conclude too hastily from the appearance which a plant assumes, on its being first planted or sown: the most insignificant vegetable will often make a great show, when its fibres have fresh earth to shoot into; but the trial comes, when the object of our experiment has been in a meadow or pasture several years, when its fibres, from long growth, are matted together, and it meets with powerful neighbours to dispute every inch of ground with it: if it then continue to be productive, it must have merit. We see that Lucern, when left to itself, is soon overpowered; if we sow Broad-leaved Clover, which is most undoubtedly a perennial, the first year we shall have a great crop of Clover; let this field be left to itself, and the Clover, like the Lucern, will yearly diminish, not because it is a biennial, as some have supposed, but because plants, hardier or more congenial to the soil, usurp its place: this shews then, that at the same time we introduce a good plant, that plant must also be a powerful one, able to keep possession, and continue to be productive. With regard to the second quality, or that of the cattle's thriving on the food they eat; this is undoubtedly of great consequence, and it is to be regretted, that our knowledge of the most nutritive herb is so limited: of those plants which have been cultivated, we are able to speak with some certainty; it is well known, that Clover, Lucern, Saintfoin, Tares, and several other plants, have a tendency to fatten cattle; but what grasses, or other plants, which have not been subjected to a separate cultivation, have this particular tendency, remains to be ascertained by experiment. But as leguminous plants, in general, are found to agree with cattle, we may reasonably conclude, that a certain quantity of them must be proper in pastures. Certain pastures are found to be more bateable or feeding than others; but whether this arises from their situation, or their particular produce, remains also to be discovered by further observation. Respecting the third quality, or the early growth of plants, as the farmers and graziers unitedly complain of the want of early herbage in the spring; those plants, therefore, which are found to put forth early foliage, and to be grateful to cattle, are deserving of great attention. As far as grasses are concerned, the Sweet-scented Vernal, the Meadow Fox-tail, the Smooth and Rough-stalked Meadow Grass, will effect all that can be expected from those of British growth; much, very much, however, will depend on seasons: if the winter be very severe, or north-easterly winds prevail in the spring, grassy herbage will be backward: to counteract the effects of such seasons, our pastures should be warmly situated, not drenched with moisture, sheltered by thick hedges, and divided into small enclosures; in short, a set of enclosures should be formed for this very purpose, where there is a prospect of its answering the designs of the cultivator. But where early pasturage is the desideratum, other plants, as well as grasses, may deserve a place amongst them, as Rib-wort or Rib-grass, *Plantago Lanceolata*, Dandelion, *Leontodon Taraxacum*, Broad-leaved Clover, *Trifolium Prutense*, with many others of the same kind. And as an early herbage, though it be valuable for pasturage, is no less so for hay; by the middle of May at furthest, a meadow of this sort would be fit for mowing, and the second hay-making might commence by the time that hay-making usually takes place in the country. We have sometimes thought, but perhaps the idea is too speculative, that we ought to have two sorts of meadow, one for hay, the other for pasture; that our hay meadow should consist entirely of grasses, and chiefly for this reason, that the hay would thereby be much sooner made, which is an object of consequence at all times, but particularly when the process commences in May. In June and July, the more powerful heat of the sun is able to extricate the thick leaves and stalks of the more succulent plants; but in the necessary prolongation of this business, the grasses must materially suffer. But for the purpose of pasturage, the farmer should be chiefly directed to such sorts of grasses as have the propensity of running to leaves, in preference to such as abound more in flower-stalks or stems. Experiment has proved, that extraordinary fertility arises from unusual circumstances concurring and favouring, in an uncommon degree, the growth of various grasses; consequently, in the forming and improving of grass lands, the most certain plan will be to cultivate the seeds of such grasses as may be most adapted to them, and afterwards sow them at proper seasons upon the lands, when they have been put into a condition suitable for their reception.—The directions given for cultivating, and collecting the seeds of various grasses that have been found to be very productive, are as follows. If a piece of ground, which is neither very moist nor very dry, can be procured, it will answer for all the seeds; they may then be sown on one spot; but if such a piece cannot be obtained, they must be sown on separate spots, according to their respective qualities, no matter whether in a garden, a nursery, or a field, provided it be well secured and clean. Dig up the ground, level and rake it, then sow each kind of seeds thinly in a separate row, each row nine or twelve inches apart, and cover them over lightly with the earth; the latter end of August, or the beginning of September, will be the most proper time for this business. If the weather be not unusually dry, the seeds will soon vegetate; and the only attention they will require, will be careful weeding: in about a fortnight after their coming up, such of the plants as grow thickly together may be thinned, and those which are taken up transplanted, so as to make more rows of the same grass. If the winter should be very severe, though natives, yet as seedlings they may receive injury; therefore it will not be amiss to protect them with mats, fern, or by some other contrivance. Advantage should also be taken of the first dry weather in the spring, to roll or tread them down, in order to fasten their roots in the earth, which the frost generally loosens: care must still be taken to keep them perfectly clear from weeds. As the spring advances, many of them will throw up their flowering-stems, and some of them will continue to do so all the summer. As the seed in each spike or panicle ripens, it must be carefully gathered, and sown in the autumn; at which time, the roots of the original plants, which will now bear separating, should be divided and transplanted, so as to form more rows; the roots of the Smooth-stalked Meadow Grass, in particular, creeping like couch-grass, may readily be increased in this way; and thus, by degrees, a large plantation of these grasses may be formed, and much seed collected for the farmer's use. But a more

ready way, according to a late writer, is for the farmer to notice that species of grass most affected by his soil, and carefully to gather the seed from a piece of old meadow, purposely left three or four weeks longer than common, or at least long enough to become sufficiently ripe. He should not scruple the trouble of selecting the heads as they lie in the swathe; but they who desire not to be so particular, will thresh out the seed together, either in the field, or before it shall have been heated in the mow. Good seeds of different sorts of grasses may now also be procured from different seedsmen in large towns, and other places; but the collection, sold under the title of hay-seeds, should never be trusted to in any respect. Mr. Curtis, from the numerous applications that were made to him by gentlemen for grass-seeds, was induced to select such as appeared to him the most useful, and thereby render the public an essential service. He wished, at least, to put in their power to decide on a matter which had been long agitated, and which he was far from being the only one that entertained the sanguine hopes of its proving a great national advantage. The grasses he has recommended, will, he is confident, do all that our natural grasses can do: they are six of those which constitute the bulk of our best pastures; most of them are early, all of them are productive, and they are adapted to such soils and situations as are proper for meadows and pastures. They are, however, in common with other plants, liable to produce small or great crops, according to particular seasons, or to the fertility or barrenness of the soil on which they are sown and cultivated. The names of these grasses, with the order of their flowering, is as follows. 1. Sweet-scented Vernal: 2. Meadow Fox-tail: 3. Smooth-stalked Meadow: 4. Rough-stalked Meadow: 5. Meadow Fescue: 6. Crested Dog's-tail. The Meadow Fox-tail, and Rough-stalked Meadow Grass, are fittest for moist land; the Meadow Fescue, or Sweet-scented Vernal, are the most proper for land, either moist or moderately dry; and the Smooth-stalked Meadow Grass, and Crested Dog's-tail, are those that are best suited for dry pastures, and other similar lands. Mr. Curtis observes, that many more grasses might be deservedly added to the above list, but expresses his doubts, whether by recommending more, he might not increase the difficulty of introducing grass-seeds, without any adequate advantage in return. We shall, however, subjoin a list of other grasses, which may be useful to those agriculturists who wish to obtain all possible information upon the subject. 1. Avena elatior, or Tall Oat Grass. It is early, very productive, affording a plentiful aftermath; and, for its excellence, approaches to the Alopecurus Pratensis, for which it may prove a good substitute: 2. Avena flavescens, or Yellow Oat Grass; affecting dry soils; it is rather early, and tolerably productive: 3. Bromus mollis, or South Brome Grass; this, as an early grass, might probably be cultivated to advantage, but, like other grasses, it sheds the seeds, and withers before the whole is ready for mowing: 4. Cynosurus cœruleus, or Blue Dog's-tail Grass; this is the earliest of all our grasses, but is neither productive nor of a good quality: 5. Dactylis glomeratus, or Rough Cock's-foot Grass; a rough, coarse, but extremely hardy and productive grass, common in orchards and meadows, and appearing rather early: 6. Festuca ovina, Sheep's Fescue Grass; native of dry elevated heaths and commons, unproductive, with a hard and wiry foliage; it grows to be only a small plant, even in a rich moist soil: 7. Hordeum murinum, Wall Barley Grass, or Squirrel-tail Grass; common by walls, and the sides of paths. It is very injurious to horses, when mixed among their hay, by the awns or beards of the ears sticking in their mouths: 8. Hordeum pratense, or Meadow Barley Grass; taller and more delicate, sometimes forming great part of the crop in good meadows. It is neither very early, nor remarkably productive, and would probably be as injurious to horses as the preceding sort: 9. Holcus lanatus, or Meadow Soft Grass; hardy and productive, flowering a month later than the Anthoxanthum; foliage soft and woolly: 10. Holcus mollis, or Creeping Soft Grass; it grows well in sandy soils, and bears drought: 11. Lolium perenne, or Ray Grass; wiry, with little foliage in upland pastures, but in rich meadows its foliage is abundant, and of rapid growth: 12. Poa annua, or Dwarf Meadow Grass; perpetually flowering, and seeding most rapidly, unless prevented by cold, growing in almost any soil or situation, but never acquiring any great height; its foliage is tender, and grateful to cattle, but liable to be killed by winter's frost, and summer's drought: 13. Phleum pratense, or Meadow Cat's-tail Grass; imported from America, under the name of Timothy Grass. It is very productive in wet situations, but coarse in quality, and late in appearance, beside having no one excellence which Alopecurus pratensis does not possess in an equal or superior degree: 14. Triticum repens, Creeping Wheat Grass, Quick, or Couch Grass. Too well known to farmers and gardeners, as an early, but most troublesome weed.——*Grass for meadows and pastures.* The land on which grass-seed is intended to be sown, should be well ploughed, and cleared from the roots of noxious weeds, such as Couch Grass, Fern, Rushes, Heath, Gorse, Broom, Restharrow, &c. which, if left in the ground, will soon get the better of the grass, and overrun the land. Therefore, in such places where any of these weeds abound, it will be a good method to plough up the surface in April, and let it lie some time to dry; then harrow the roots into small heaps, and burn them. The ashes so produced, when spread on the land, will be a good manure for it; but where Couch Grass, Fern, or Restharrow, is in plenty, the land must be twice or thrice deeply ploughed in dry weather, and the roots carefully harrowed off after each ploughing, which is the surest means of destroying them: where the land is low, and of a stiff clayey nature, which holds water in winter, it will be of singular service to make some underground drains, to carry off the wet, which, if detained too long on the ground, will turn the grass sour. The method of making these drains is described under the article *Meadow*; which see. Before the seed is sown, the surface of the ground should be made level and fine, otherwise the seed will be buried unequally. When the seed is sown, it must be gently harrowed in, and the ground rolled with a wooden roller, which will smooth the surface, and prevent the seeds from being blown into patches. When the grass comes up, if there should be any bare spots where the seed has not grown, they may be sown again, and the ground rolled, which will fix the seeds, and the first kindly showers will bring up the grass, and make it very thick. Where the land is designed to continue in pasture, it should be sown with the best sorts of grass seeds, and white Dutch Clover, or what is commonly called Honeysuckle Grass in many parts of England; but there is a great difficulty of procuring good seeds, which can only be removed by selecting the best sorts in the manner already described; for in the all good pastures near London, which abound with the best sorts of grass, the hay is commonly cut before the seeds of the grass are ripe; so that those seeds which are procured from the stables where the horses are fed with the best sort of hay, are little more than chaff, or at best are only such as are of the early kinds of grass, with a great quantity of Plantain, and other weeds, which has discouraged many gentlemen from sowing them: and as it requires more time and attention to collect a sufficient quantity



Sweet-scented Vernal.

Meadow Fox-tail.

Smooth-stalked Meadow.

Meadow Fescue.

Rough-stalked Meadow.

Crested Dog's-tail.

Tall Oat.

Rough Cock's-foot.

Published by Henry Fisher, Caxton, London. 1823.

H. Frederick sc.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

of the purer sorts of grass-seeds, we would recommend those who will not, or cannot, make that profitable experiment, which we have endeavoured to describe in the former part of this article, to set some of those upland pastures, which are least infested with weeds, and afford the sweetest herbage, aside to stand for seeds; and although, by so doing, the hay will be less valuable, yet from the sale of the seeds, it may answer better to the possessor, than to mow it merely for the hay; for any gentleman, who has regard to the beauty of his land, had better pay six times the price for even such seeds as these, rather than purchase the ordinary sort; for the first cost of seeds is not to be put in competition with the beauty and advantage of having such as are good; which, when the land is brought to a good sward, which may be done in one year, where it is properly prepared and sown, may be easily kept in good order, and annually improved by good management, so as to last as long as that good management continues. Forty years ago, some land was sown in the following manner, and affords to this day the most excellent pasture. It abounded with many bad weeds, so that it became necessary to give a summer and winter's fallow; during which, it was five times ploughed, and ten times harrowed, to destroy the weeds, and make the surface of the ground fine. In August, it was sown with the best grass-seeds that could be procured, three bushels of which, with nine pounds of the white Dutch Clover-seeds, were allowed to each acre: as there happened rains soon after the seed was sown, the grass came up well, but mixed with a great number of weeds: it was afterwards rolled; and that summer, there was more than two tons of hay per acre mowed off the land; and by constant weeding twice a year, sweeping it with a bush harrow, rolling and dressing of the land, the grass has been since greatly improved, and is now as good a pasture as any in England. Large tracts of land laid down in the same manner have succeeded equally well; so that many years' experience, upon an extended scale, confirms this to be the surest means hitherto adopted, for obtaining good pastures. The generality of farmers, to whom this plan is proposed, will object to the first loss of their crop, and also to the after expense of weeding, rolling, &c. as too great for common practice. Long experience, however, on the contrary, testifies, that whoever will be at the expense, will find their account in it; for the crops of hay will be so much better, and the after-pasture also, that it will more than pay the expense; and the verdure of these pastures is delightful to all those who have any taste for natural beauties.—*Grass for gardens.* The English grass is of so good a quality for walks or grass-plats, that if they be kept in good order, they have that exquisite beauty, which exceeds those of France, or any other country. But green walks and green plats are not generally made by sowing the grass-seed, but by laying turfs; and indeed, the turfs from a fine common or down, are, for that purpose, much preferable to sown grass. In sowing a fine green plat, there is a difficulty in getting good seed; it ought not to be such as is taken out of the hay-loft without distinction; for that seed shooting too high, and making large stalks, the lower part will be naked and bare; and however frequently mowed, will come to nothing but tufts of weeds and quick-grass, very little better than that of the common fields. If walks or plats be made by sowing, the best way is to procure the seed from those pastures where the grass is naturally fine and clear, or else the trouble of keeping it from spiry and bent grass will be great, and it will hardly ever look handsome. In order to sow grass-seed, the ground must be first dug or broken up with a spade; and when it has been dressed and laid even, it must be very finely raked over, and all the clods and stones taken off, and covered over an inch thick with good mould, to facilitate the growth of the seed; this being done, the seed is to be thrown pretty thick, that it may come up close and short; and it must be raked over again, to bury and cover the seed, that if the weather should happen to be windy, it may not be blown away. As to the season of sowing grass, the middle or latter end of August is a good time, because the seed naturally requires nothing but moisture to make it grow; if it be not sown till the latter end of February, or the beginning of March, if the weather prove dry, it will not so soon make the walks or quarters green. It is also best to sow it in a mild day, and inclining to rain; for that, by sinking down the seed in the earth, will cause it to shoot the sooner. But where grass is sown in gardens, either for lawns or walks, there should always be a good quantity of the White Trefoil, or Dutch Clover, sown with it; for this will make a fine turf, much sooner than any other sown grass, and will retain a better verdure than any of the grass tribe. After the seed is well come up, and the grass is very thick, and of a beautiful green, it will require a constant care to keep in order: this consists in mowing the grass often, for the oftener it is mowed, the thicker and handsomer it grows; it must also be rolled with a cylinder, or roller of wood, to level it as much as possible. If grass be neglected, it will run into quick-grass and weeds, and then the only way to recover it, is either by sowing it, or laying it over again, and that once in every two years; but if the ground be well cleared from the roots of strong weeds, and the turf taken from a fine level common, it will continue handsome for several years, provided it be well kept. In order to keep grass-plats or walks handsome, and in good order in autumn, you may sow some fresh seeds over any places that are not well filled, or where the grass is dead, to renew and furnish them again; but there is nothing which so much improves grass, as the constantly rolling and polling it, to destroy worm-casts, and refine the turf. It is a general practice, when turf is laid in gardens, to cover the surface of the ground under the turf, either with sand or very poor earth; the design of which is, to keep the grass fine, by preventing its growing too rank. This is proper enough for very rich ground, but it is not so for such ground as is middling or poor; for the grass will soon wear out, and decay in patches. When turf is taken from a common or down, there should be regard had to the cleanliness of it; such as is full of weeds should be rejected, for it will be a very tedious task to weed them out after the turf is laid; and unless this be done, the grass will never appear handsome. Where turf is designed to remain for years, without renewing, there should be a dressing laid upon it every other year, either of very rotten dung, ashes, or, where it can be easily procured, very rotten tan. These dressings should be laid on early in winter, that the rain may wash them into the ground before the drought of the spring comes on; otherwise they will occasion the grass to turn when the warmth of summer begins. Where grass is well dressed, and kept well rolled and mowed, it may be kept very beautiful for many years; but where it is neither dressed nor fed with sheep, it will rarely continue handsome more than eight or ten years.——The grasses so extensively useful in rural economy, are chiefly to be found in the second order of the third class, *Triandria Digynia*, in the Linnean system. However numerous and distinct from each other they may be, they generally agree in the following particulars, which form, when taken together, the natural character of this tribe or family. The *calix* is a glume or chaff, in most species, composed of two valves, one larger and gibbous, the other

smaller and flat. The *corolla* is also a bivalve glume, and is accompanied by a very small, superior, two-leaved nectarium, of an oblong form. The *stamina* are three in number; the filamenta capillary; the antheræ oblong and bicapsular. There are two pistils, which are pubescent, reflex, or bent back from each other, and terminated by pubescent stigmas. One *seed* only, or grain, succeeds to each flower; it has no pericarp, but is covered by the calix, corolla, or both; it is of an oblong form, drawn to a point at both ends, and monocotyledonous, or composed of one lobe only. Besides this agreement in the fructification, although grasses are exceedingly difficult to distinguish from each other, they are known at first sight from all other plants, owing to their peculiar appearance or *habit*, as botanists have agreed to term it. Their stalk is simple or unbranched, straight, hollow, and jointed; their leaves are quite entire, of a long linear shape, acuminate, or drawing gradually to a point at the end, marked with lines parallel to the midrib or middle nerve; upon the culm or stalk there is only one of these leaves to each joint, arising from a sheath which invests the stalk, usually to a considerable distance. The seed, it is well known, is farinaceous, or abounding in meal, and is the principal food of many tribes of birds, as the seeds of the larger sorts, which we call corn, are of mankind. One genus of grass, the *Anthoxanthum*, differs from the rest, in having two stamina only; and there are several genera, which, having male flowers mixed with the hermaphrodites, are placed by Linneus in his class *Polygamia*.

Grass, Arrow-headed. See *Triglochin.*

Grass, Artificial. The grasses vulgarly called artificial, are mostly leguminous plants, totally different in every respect from grasses, except in being used as food for cattle; they belong to the class Diadelphia. See *Hedysarum*, for *Saintfoin; Medicago*, for *Lucern*; and *Trifolium*, for *Clover* and *Trefoil.*

Grass, Barley. See *Hordeum.*
Grass, Bent. See *Agrostis.*
Grass, Brome. See *Bromus.*
Grass, Canary. See *Phalaris.*
Grass, Cat's-tail. See *Phleum.*
Grass, Cock's-tail. See *Dactylis.*
Grass, Cotton. See *Eriophorum.*
Grass, Couch. See *Triticum Repens.*
Grass, Darnel. See *Lolium.*
Grass, Dog's. See *Triticum* and *Agrostis.*
Grass, Dog's-tail. See *Cynosurus.*
Grass, Feather. See *Stipa.*
Grass, Fescue. See *Festuca.*
Grass, Five-leaved. See *Potentilla Reptans.*
Grass, Foxtail. See *Alopecurus.*
Grass, Knot. See *Polygonum.*
Grass, Lyme. See *Elymus.*
Grass, Manna. See *Festuca Fluitans.*
Grass, Mat. See *Nardus.*
Grass, Meadow. See *Poa.*
Grass, Melic. See *Melica.*
Grass, Millet. See *Millium.*
Grass, Oat. See *Avena.*
Grass, Panic. See *Panicum.*
Grass, Pepper. See *Pilularia.*
Grass, Quaking. See *Briza.*
Grass, Quich, or *Quick.* See *Triticum.*
Grass, Rye or *Ray.* See *Lolium* and *Hordeum.*
Grass, Reed. See *Arundo.*
Grass, Scurvy. See *Cochlearia.*
Grass Soft. See *Holcus.*
Grass, Spiked. See *Triglochin.*
Grass, Spring. See *Anthoxanthum.*
Grass Timothy. See *Phleum Pratense.*
Grass, Vernal. See *Anthoxanthum.*
Grass, Vetch. See *Lathyrus Nissolia.*
Grass, Viper's. See *Scorzonera.*
Grass, Wheat. See *Triticum.*
Grass, Wrack. See *Zostera.*

Gratiola; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, upright; segments awl-shaped, permanent. *Corolla:* monopetalous, unequal; tube longer than the calix; border four-parted, small; the upper segment broader, emarginate, reflex, the rest straight, equal. *Stamina:* filamenta four, awl-shaped, shorter than the corolla, the two lower shorter than the others, and barren, the two upper fastened to the tube of the petal; antheræ roundish. *Pistil:* germen conic; style straight, awl-shaped; stigma two-lipped, after fecundation converging. *Pericarp:* capsule ovate-acuminate, two-celled, two-valved. *Seeds:* very many, small. *Observe:* The essence of the character consists in the two barren antheræ. Essential Character. *Calix:* seven-leaved, the two outer patulous. *Corolla:* irregular, reversed. *Stamina:* two, barren. *Capsule:* two-celled.——The species are,

1. Gratiola Officinalis; *Officinal Gratiola, Hedge-hyssop*, or *Water-hyssop.* Leaves lanceolate-serrate; flowers pedunculed. Root perennial, creeping, thick, fleshy, with many slender fibres; stalks several, upright, a foot or more in height, smooth, jointed; leaves opposite, sessile, pointed, bright green, smooth, two inches long, and about two lines broad; flowers solitary, axillary, upright, on peduncles half an inch long, appearing in June and July, and continuing to August; calix usually seven-cleft; corolla shaped like that of the Foxglove, but small, and of a pale yellowish colour, or pale purple, with red streaks, sometimes white; the throat is hairy. The whole plant is very bitter, and nearly resembles the Foxglove, both in external appearance and virtues. Taken in moderate doses it purges briskly, and in larger quantities also vomits, and by thus operating carries off watery humours, and removes obstructing matter in a very powerful degree. The juice is a rough but excellent medicine in dropsies, and a strong decoction or infusion soon cures the jaundice; the root dried and powdered is frequently given successfully in the sciatica and rheumatic complaints, and in small doses will effectually destroy worms in the stomach and intestines, and by its purging qualities carries off that mucous and slimy matter in which they are there bred and harboured. The root of this plant very much resembles Ipecacuanha in its nature and effects, and is equally to be depended on in purgings, the bloody flux, and agues. Cattle will not touch this plant on account of its extreme bitterness; so that Haller assures us, there are meadows about Yverdun, in France, entirely useless through the abundance of this plant.—Native of the South of Europe, generally found in moist pastures; common in many parts of Switzerland, Carniola, Austria, in the Palatinate, Silesia, France; about Turin, Padua, and other parts of Italy. This, together with the fifth species, are easily propagated by parting the roots in autumn, when the stalks decay: the plants should have a moist soil and a shady situation, for in dry ground they often decay in summer, unless plentifully watered.

2. Gratiola Monnieria; *Thyme-leaved Gratiola.* Leaves oval-oblong; peduncles one-flowered; stalks creeping. Root jointed, creeping, with small fibres; stalk herbaceous, inclined to be simple, round, leafy, smooth, somewhat erect,

declining at bottom; peduncles longer than the leaves, filiform, solitary, axillary, one-flowered; corolla blue, inclined to bell-shape, a little flatted, five-cleft; the divisions nearly equal, the three upper ovate, spreading, the two lower converging, somewhat bent down. This small creeping plant sticks very close to the ground, and casts a few slender fibres from every joint as it creeps; the whole plant seldom exceeds seven or eight inches in length, but it generally grows in beds, and spreads thick upon the ground, throwing out a few simple side-branches, which make it very remarkable, and give it a pretty appearance when it flowers, which is from July to September.—Native of low moist soils in the East and West Indies, and South Sea Islands.

3. Gratiola Repens; *Creeping Gratiola.* Leaves ovate; stem creeping; calix five-leaved; style bifid.—Native of Jamaica.

4. Gratiola Rotundifolia; *Round-leaved Gratiola.* Leaves ovate, three-nerved. Stems a finger high, quadrangular, smooth, creeping at the base; peduncles axillary, solitary, naked, alternate, one-flowered, longer than the leaves; stamina two, capsules compressed, roundish.—Native of sandy grounds in Malabar.

5. Gratiola Hyssopoides; *Hyssop-leaved Gratiola.* Leaves ovate-lanceolate, subserrate, much shorter than the internodes. Stem filiform, upright, smooth, a foot high; peduncles axillary, alternate, solitary, one-flowered, several times longer than the leaves; calix very small; corolla much larger than the leaves, ringent.—Native of the rice-grounds of Tranquebar, in the East Indies. See the first species.

6. Gratiola Virginica. Leaves lanceolate, obtuse, somewhat toothed. Stem procumbent, varying much in size; peduncles axillary, one-flowered. The corolla is white, and the flowers are not followed by seeds in England.—It grows naturally in moist places in North America, where it rises more than a foot high, but with us does not exceed eight inches: it is also a native of Malabar.

7. Gratiola Peruviana. Flowers subsessile. This plant has grown nine inches high, with a weak stalk, in our climate; leaves opposite, serrate, three-quarters of an inch long, and half an inch broad; the flowers come out single on each side of the stalk, they are white, and much smaller than the common sort.—Mr. Miller received the seeds from Carthagena, in New Spain, where it was found in places where there had been standing waters, which were then dried up.

8. Gratiola Lobelioides. Stem almost naked, stipuled; leaves oblong, quite entire; panicle dichotomous; capsules subglobular. Root numerous, in bundles, short, simple; stalk simple, upright, round, having an obscure broad furrow on each side, slightly streaked, smooth, with five stipuled joints, a foot high; panicle terminating, lax, thin, with peduncles mostly simple, alternate, remote, round, smooth, or sometimes with a few scattered hairs, slender, nearly equal, with bractes at the base, reddish green; flowers inferior; corolla tube streaked with a darker colour; border bell-shaped, the upper segment scarcely ascending, obcordate, flattish, shorter than the others, blue, the side ones straight, obliquely retuse at the ends, a little longer than the upper one, and of the same colour, the lower one spreading, obcordate, flattish, adorned with a white heart-shaped spot, and a few blue dots, and twice as large as the others; throat naked, a little flatted; germen superior, ovate, smooth, with a small furrow on each side.—Native of rice-fields in Tranquebar.

9. Gratiola Grandiflora; *Great-flowered Gratiola.* Stems decumbent; leaves ovate, serrate; peduncles opposite; capsules subulate. Stems angular, bifid, smooth; flowers large in proportion to the other parts; capsules long.—Native of Tranquebar, Madras, Siam, and Malacca, where it is found in moist fat soils.

10. Gratiola Veronicifolia; *Veronica-leaved Gratiola.* Stem creeping; leaves ovate-lanceolate, sharply serrate; flowers terminating, opposite. Stems angular, diffused, procumbent; flowers small, deep blue, bracted and peduncled; capsule five-cleft, linear.—Native of Tranquebar, Madras, &c.

11. Gratiola Oppositifolia. Stem ascending; leaves lanceolate-serrate; peduncles opposite to the leaves. Stems seldom upright, quadrangular, streaked.—Native of moist places and rice-grounds in Tranquebar.

12. Gratiola Stricta. Leaves ovate; spike long, terminating. Stem suffruticose; flowers white, dotted with red, sessile, in a simple erect spike; calix none, except a triple bracte under the flower.—Native of Cochin-china.

13. Gratiola Linifolia. Leaves linear, entire; flower-stalks axillary, the length of the leaves.—Native of Portugal.

14. Gratiola Latifolia. Smooth: leaves ovate, obtuse, obscurely crenate, or entire; flowers sessile.—Found near Port Jackson and Van Diemen's Land.

15. Gratiola Pubescens. Clothed with glandular hairs: leaves lanceolate, toothed; flowers nearly sessile.—Found in New Holland.

16. Gratiola Pedunculata. Clothed with powdery down: leaves lanceolate, toothed in their fore part, scarcely longer than the flower-stalk.—Native of Port Jackson, New South Wales.

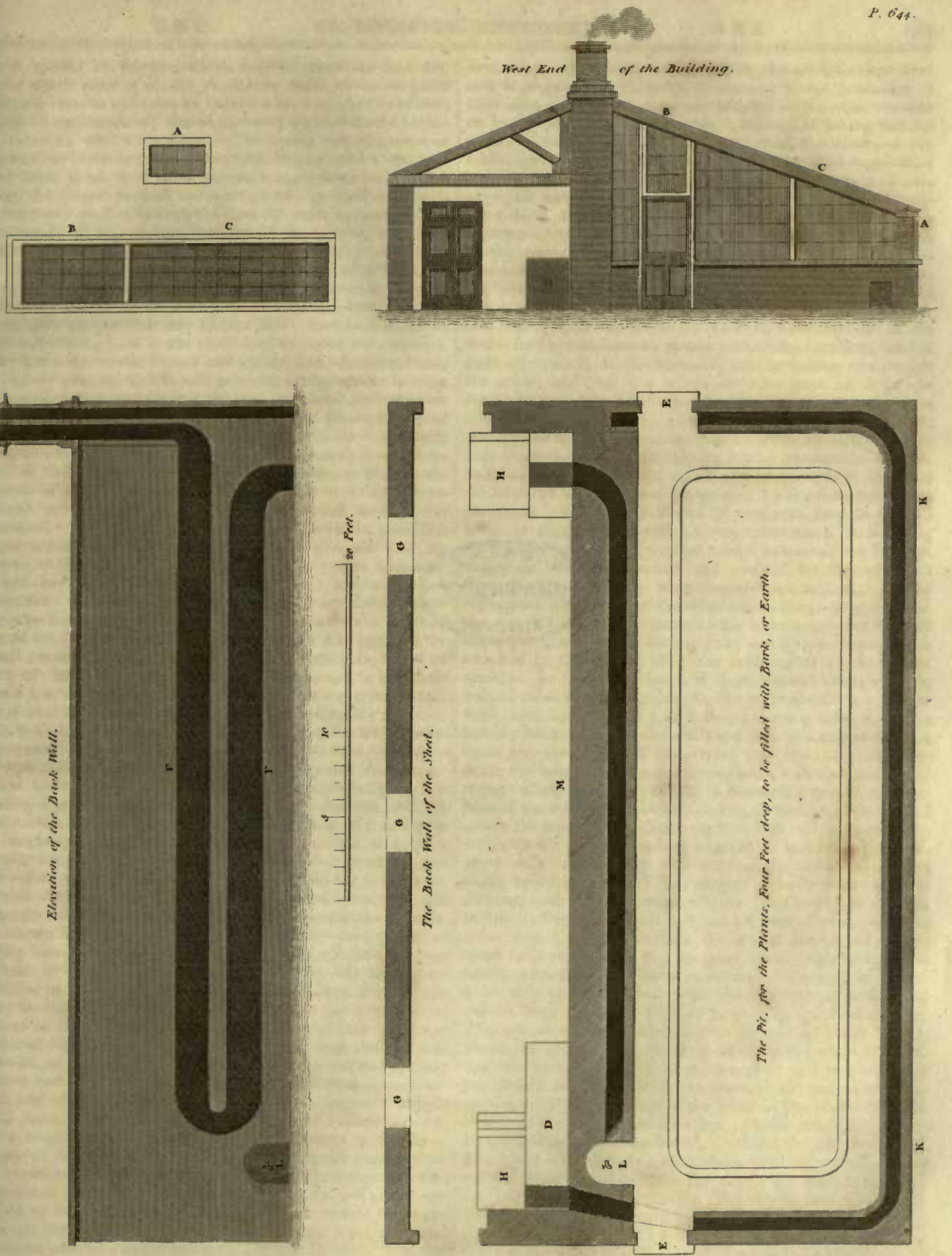
Gravel.—There are different sorts of gravel: that upon Blackheath is said to be the best in England; it consists of smooth even pebbles, which, when mixed with a due quantity of loam, will bind very close, and preserve a beautiful appearance longer than any other sort. Some recommend a soil of iron-mould gravel, or gravel with a little binding loam amongst it, than which nothing they say binds better, when it is dry, but in wet weather it is very liable to stick to the shoes, and will never appear handsome. Sometimes loam is mixed with gravel that is over sandy or sharp, which should be well blended together, and suffered to lie in heaps, after which it will bind like a rock. There are many kinds of gravel which do not bind, and thereby cause a continual trouble of rolling, to little or no purpose; as for such, if the gravel be loose or sandy, you should take one load of strong loam to two or three of gravel, and so cast them well together, and turn this mixture over three or four times, that they may be properly blended together: when this is properly done, it will bind well, and not stick to the feet in wet weather. There are many different opinions about the choice of gravel; some are for having it as white as possible, and in order to make the walks more so, they roll them well with stone rollers, which are often hewn by the masons, that they may add a whiteness to the wallks; but this renders it very troublesome to the eyes, by reflecting the rays of light so strongly, and on that account should be avoided. Such gravel as will lie smooth, and reflect the least, should be preferred. Some fall into the error of screening the gravel too fine; it should first be cast into a round heap, and will afterwards be the better for only having the great stones raked off. Others are apt to lay gravel-walks too round, but this is also an error, which makes the walks appear narrow; one inch rise is enough in the crown for a walk of five feet wide, and the same proportion will be sufficient for every other width. For the depth of gravel-walks a foot thickness will be quite sufficient, but then there should always be a depth of rubbish laid under the gravel, especially if the ground be wet, for then too much care cannot be taken to fill the bottom of the walks with large stones, flints, brick, rubbish,

chalk, or any other materials which can be best procured, which will drain off the moisture from the gravel, and prevent it from becoming poachy in wet weather; but as it may be difficult in some places to procure a sufficient quantity of these materials to lay in the bottom of the walks, there may be a bed of heath or furze, whichever can be procured at the least expense, laid under the gravel to keep it dry; and if either of these be used green, they will lie a long time, as they will be covered from the air, and these will prevent the gravel from getting down into the clay, and will always keep the gravel dry. In making of gravel-walks, there must be great regard had to the level of the ground, so as to lay the walks with easy descents towards the low parts of the ground, that the wet may be drained off easily; for if this be omitted, the water will remain upon the walks a considerable time after long rains, which will render them unfit for use, especially where the ground is naturally wet or strong: but where the ground is level, and there are no declivities to carry off the wet, it will be proper to have sink-stones laid by the sides of the walks, at convenient distances, to let off the wet, and where the ground is naturally dry, the water will soon soak away: the drains of the sink-stones may be contrived so as to convey the water into sess-pools, from which the accumulated water will gradually disappear in a short time; but in wet land there should be under-ground drains to convey the wet off, either into ponds, ditches, or the nearest place to receive it; for where this is not provided for, the walks will never be so handsome or useful. The month of March is the properest time for laying gravel; it is not prudent to perform it sooner, or to lay walks in any of the winter months: some persons indeed turn up gravel-walks in ridges in December, in order to kill the weeds; but this is very wrong, for besides that it deprives them of the benefit of them all the winter, it does not answer the end for which it is done, but rather the contrary; for though it does kill the weeds for the present, yet it adds a fertility to them, and ensures their future increase. If constantly rolling the ground after the rains and frost will not effectually kill the weeds and moss, turn the walks in March, and lay them down at the same time. In order to destroy worms, which spoil the beauty of both gravel and grass walks, some have recommended the watering them well with water in which walnut-tree leaves have been steeped, and made very bitter, especially those places most annoyed with them; but if in the first laying of the walks there is a good bed of lime-rubbish laid in the bottom, it is the most effectual method to keep out the worms, for they will never come near lime.—See vol. II. p. 786.

Greek Valerian. See *Polemonium.*

Greenhouse and *Conservatory.*—These are buildings erected on the best principles for protecting and preserving such sorts of plants as are too tender to live in the open air. The greenhouse was originally a room in a garden, not far from the house, facing the south, and having large windows from top to bottom, built for the reception of Oranges, Myrtles, and a few other plants which were brought from temperate climates. This building had no flues, or contrivances of any sort for increasing the natural heat, but the air of the room was warmed merely by the sun. A great variety of curious exotic plants having been introduced into the English gardens, soon after the middle, and towards the end, of the last century, flues were added to the greenhouse, and many other improvements and contrivances adopted into its structure. As to the length of the Greenhouse, says Mr. Miller, it must be proportioned to the number of plants it is to contain, or the fancy of the owner; but the depth should never be greater than the height in the clear, which in small or middling houses may be sixteen or eighteen feet, but in large ones from twenty to twenty-four feet is a good proportion; for if the greenhouse be long and too narrow, it will have a bad appearance from both within and without, nor will it contain so many plants, if proper room be allowed for passing in front and at the back of the stands on which the plants are placed; and, on the other hand, if the depth of the greenhouse be more than twenty-four feet, there must be more rows of plants placed to fill the house, than can with convenience be reached in watering and cleaning; nor are houses of too great depth so proper for keeping of plants as those of moderate size. The windows in front should extend from about one foot and a half above the pavement, to within the same distance of the ceiling, which will admit of a cornice round the building over the heads of the windows. As it is necessary to have these windows so long, it will be impossible to make them in proportion as to their breadth, for if the sashes be more than seven or seven feet and a half broad, they will be troublesome to move up and down, and their weight will cause them to decay very quickly. The piers between the windows should be as narrow as is consistent with their necessary strength to support the building, for which reason stone is preferable, or hard well-burnt bricks. If these piers be made of stone, they should be two feet and a half in diameter, worked as columns, cylindrical, whereby the rays of the sun will not be obstructed so much as if they were square; but if they be built of bricks, it will be proper to make them three feet in front, and they may be sloped off towards the inside to admit the sun. If a house foor tools, &c. be erected at the back of the greenhouse, the back wall need not be more than two bricks and a half in thickness; but if not, it must be three bricks or three bricks and a half thick to keep out the frost. The floors of the greenhouse may be laid with Bremen squares, Purbeck stone, or broad tiles, and must be raised two feet above the ground, where the soil is dry; but if the situation be moist and springy, the floor should be raised at least three feet above the surface, and if the whole be arched with low brick arches under the floor, it will tend to prevent the damps from rising in winter. These damps are often very hurtful to the plants, especially in great thaws, when the air is often too cold to be admitted into the house to remove the damps. Under the floor, about one foot from the front, a flue one foot in width, and two feet in depth, may be carried the whole length of the house, which may be returned against the back wall, and carried up in proper funnels adjoining to the hot-house, three times over each other, by which the smoke may pass off. The fire-place may be at one end of the house, and the door at which the fuel is put in, as well as the ashes-grate, may be contrived to open into the tool-house, so that it may be quite hid from sight, and kept dry. The fuel also may be laid in the same shed, and thus will always be ready for use. The wall on the back part of the house should be either laid over with stucco, or plastered with mortar, and white-washed, to keep out the frost, which will penetrate through the walls, especially when it is attended with a strong wind. To prevent frost from penetrating through the roof, reeds, heath, or furze, should be laid between the ceiling and the tiles; and care taken in framing the joints, that the weight may not lie upon the ceiling; for they should be laid a foot thick at least, as smooth as possible, and fastened down well with laths, and then covered over with a coat of lime and hair; which will keep out the air, and also prevent mice and other vermin from entering, which, if left uncovered, they would certainly do. In the Greenhouse

CONSERVATORY, OR GREENHOUSE.



A. *The Front Sash.*
B. *The Top Sash.*
C. *The Lower Sash.*
D. *The Cistern, over the Fire for airing the Water.*
E. *The Doors into the Conservatory.*
F. *The Back Flues, 5 Feet high.*
G. *The Back Shed Windows.*
H. *The Fire Grates, in the Shed.*
K. *The Front Wall and Flue.*
L. *The Cock for drawing Water from the Cistern.*
M. *The Back Wall and Flue.*

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

there should be tressels, which may be moved in and out, upon which rows of planks should be fixed, so as to place the pots or tubs of plants in regular rows one above another, whereby the heads of the plants may be so situated as not to interfere with each other. The lowest row of plants, or forwardest towards the windows, should be placed about four feet from them, that there may be a convenient breadth left next the glasses to walk in front; and the rows of plants should rise gradually from the first, in such a manner that the heads of the second row should be entirely advanced above the first, the stems only being hid; and at the back of the house there should be allowed a space of at least five feet, for the conveniency of watering the plants, and to admit a current of air round them, that the damps arising from their perspiration may be the more readily dissipated; which, by being pent in too closely, often occasions a mouldiness upon the tender shoots and leaves, and when the house is closely shut up, this rancid and stagnating vapour is often very destructive, and on this account the plants should never be crowded together, nor should succulent plants be placed among them. The plants are put into the Greenhouse in October, or as soon as the morning and evening frosts come on: in this situation they remain till the end of May or the middle of June, according to the season; when they are removed to the place where they are to stand through the summer. When first brought out, they should be placed in some sheltered sunny place, for a fortnight, till they are inured to the open air; then set them in any open exposure, where they are to remain for the summer; supplying them plentifully with water in hot dry weather, all the woody or shrubby kinds in particular. Before the plants are removed out of the Greenhouse, it is necessary to shift at least all the small plants; that is, to take them out of their pots, to cut off part of their roots round the ball of earth, and to put them again into the same pot, if the plant be in an unhealthy state; or, if healthy, into one a size larger, shortening the irregular side-branches as they may require, and tying them up neatly. The mould into which the plants are to be shifted, is of considerable importance; the best is to be obtained from commons where sheep and cattle pasture, particularly in low places, where the finest grass grows in the deepest soil. A foot of the top soil with the turf may be taken off; and if it be a sandy or hazel loam, it will do alone; but if it be a strong loam, some sand and black peaty or moorish soil should be added. Such soils, laid in a heap for at least six of the winter months, and frequently turned over, will suit most greenhouse plants. Aloes, Mesembryanthemums, Ixias, and such liliaceous plants in general as are inhabitants of exotic houses and glass-cases, require a soil which is a degree lighter, and which will not retain the water, but let it pass readily; and a little coal-ashes at the bottom of each pot may be very useful for this purpose. The great number of Ericas or Heaths, and other beautiful plants from the Cape of Good Hope, from America, and Botany Bay, delight and flourish in that sort of earth which comes nearest to their native soil. Thus the heaths like a black peat or moorish soil, and the others that which is made a degree stronger with loam.—*Conservatory.* Greenhouse and Conservatory have been generally considered as synonymous terms for a house of a certain construction, destined to the preservation of exotic plants throughout the winter. Their essential difference is this: In the Greenhouse, the trees and plants are either in tubs or pots, and are placed on stands or stages through the winter, till they are removed into some sheltered situation abroad for the summer. In the Conservatory, the ground plan is laid out in beds and borders, made up of the best compositions of soils that can be procured, three or four feet in depth. In these the trees and plants, taken out of their tubs or pots, are regularly planted in the same manner as hardy plants in the open air. Instead of taking out the plants in summer, as in the Greenhouse, the whole of the glass roof is taken off, and the plants are thus exposed to the open air; and at the approach of autumn frosts the lights are again put on, and remain so till the May or June following. It is evident that the building here called a Conservatory may also be used as a Greenhouse, at the discretion of the owner, by introducing stages instead of beds, and in that case the glass roof may be fixed. In Mr. Miller's plan, the Greenhouse or Conservatory is placed exactly fronting the south, one of the wings or stoves facing the south-east, and the other the south-west; so that from the time of the sun's first appearance upon any part of the building, until it goes off at night, it is constantly reflected from one part to the other, and the cold winds are also kept off from the front of the centre building. In the area many of the more tender exotic plants may be placed in the summer season; and in the spring, before the plants can be set out, the beds and borders of this area may be full of Anemonies, Ranunculuses, early Tulips, &c. which will be past flowering, and the roots fit to take out of the ground, by the time the plants are taken out. In the centre of this area, may be a small basin of water, which will be very convenient for watering the plants, not only on account of its nearness, but because the water will be softened and warmed by the reflection from the glasses. The wing facing the south-east should always be preferred for the warmest, or bark-stove, because the sun, at its first appearance in the morning, shines directly upon the glasses, and, warming the air of the house, gives new life to the plants, after the long nights of the winter season. In these buildings, if there are not sheds running behind them their whole length, the walls should not be less than three bricks thick, and if they are even more it will be better; because where the walls are thin and exposed to the open air, the cold will penetrate, and when the fires are made the heat will come out through the walls, so that it will require a larger quantity of fuel to maintain a proper temperature of warmth in the house, and in general the closer and better these houses are built, the less fuel will be required to warm them; so that the first expense in building them properly and substantially will be the cheapest.——Besides these buildings, it will be proper to have deep *Hot-bed Frames*, such as are commonly used to raise large annuals in the spring, into which may be set pots of such plants as come from Carolina, Virginia, &c. whilst the plants are too small to bear the open air; as also many other sorts from Spain, and other southern countries of Europe, which require only to be screened from the violence of frosts, and should have as much free air as possible in mild weather. This cannot be better effected than by one of these frames, where the glasses may be taken off every day when the weather will permit, and put on every night; and in hard frosts the glasses may be covered with mats, straw, pease-haulm, or similar materials, to preserve the roots of the plants from the frost. If these pits be sunk a foot or more below the surface of the ground, it will be better, provided the ground be dry. The sides of the frame should be built with brick, and a curb of wood laid round on the top of the wall, into which the gutters whereon the glasses slide may be laid. The back wall may be four feet high, and two bricks and a half thick; the front one a foot and a half; the width of the inside of the frame, about six feet; and the length in proportion to the number of plants to be contained in it.

Grewia; a genus (according to Linneus) of the class Gynandria, order Polyandria; removed by Schreber into the class Polyandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets lanceolate, upright, leathery, coloured within, spreading, deciduous. *Corolla:* petals five, the same form with the calix, often smaller, emarginate at the base; nectary, a scale inserted into each petal at the base, thickish, bent in, inclined to the rim, surrounding the style. *Stamina:* filamenta very numerous, the length of the petals, bristle-shaped, inserted into the base of the germen; antheræ roundish. *Pistil:* germen pedicelled, roundish, sitting on a columnar upright receptacle, surrounded by a five-cornered rim; style filiform, the length of the stamina; stigma obtuse, four-cleft. *Pericarp:* berry four-lobed, four-celled. *Seeds:* solitary, globular, usually two-celled. Essential Character. *Calix:* five-leaved, coloured within. *Petals:* five, with a nectareous scale at the base of each. *Berry:* four-celled.——The species are,

1. Grewia Occidentalis; *Elm-leaved Grewia.* Leaves subovate, bluntly serrated, smooth; flower-stalks solitary, club-shaped, single-flowered. This plant will grow to the height of ten or twelve feet, and has a stem and branches very like those of the small-leaved Elm, the bark being smooth, and of the same colour as that of Elm when young; the leaves are also very like those of the Elm, and fall off in winter; the flowers are produced singly along the young branches from the axils, and are of a bright purple colour; they appear towards the end of July, and continue through August to the beginning of September, but are never succeeded by fruit in this country.—Native of the Cape; and long cultivated in our greenhouses, flowering most part of the summer.—*Propagation and Culture.* The common Grewia may be propagated by cuttings or layers: the cuttings should be taken off and planted in April, before the buds swell, for they do not succeed well after; these cuttings should be planted in small pots filled with loamy earth, and the pots should be plunged into a moderate hot-bed of tanners' bark, where, if they are duly watered, and in the heat of the day sheltered from the sun, they will take good root in about two months, and may then be gradually inured to bear the open air, into which they should be removed in June, and placed in a sheltered situation, where they may remain till autumn, when they must be removed into the greenhouse. The best time to lay down the layers of this plant, is in the spring, before the buds come out, and these will be rooted by the same time the following year, when they may be cut off from the old plants, and planted each into a separate pot filled with a soft loamy soil. The best time to remove or transplant this plant is, either in the spring just before the buds begin to swell, or in autumn when the leaves begin to drop; for in summer, when the plants are in full leaf, it will be very improper to disturb them. In winter they should be placed in the greenhouse, for they are too tender to live abroad in England; but they should have as much free air as possible in mild weather, for they only require to be protected from frost, and after their leaves are fallen they will require very moderate watering; but in summer they should be watered three or four times a week in dry weather, and placed in a sheltered situation, with other hardy greenhouse plants, where they will add to the variety.—The other species of this genus will not live through an English winter, unless they are placed in a warm stove; nor do those plants thrive well which are placed on shelves in the dry-stove; therefore the only method to ensure their succeeding is, to place them in the bark-bed in the tan-stove. In summer these plants require a good share of free air to be admitted to them, and should have water three or four times a week in warm weather; but they must be kept warm in winter, and sparingly watered.

2. Grewia Populifolia; *Poplar-leaved Grewia.* Leaves orbiculate; peduncles solitary, one-flowered. This is a branching shrub; the branches are slender, smooth, and ash-coloured; leaves shorter and rounder than the first species, on longer and more slender stalks; bractes in pairs, on the middle of the peduncle, deciduous; calicine leaflets linear, obtuse, villose, smooth within, coloured; petals linear, shorter than the calix. It is allied to the first species, but of a looser habit.—Native of Arabia, where it is called *Chadâr,* or *Nabba;* also of the East Indies.

3. Grewia Orientalis; *Oriental Grewia.* Leaves sublanceolate; flowers solitary. This is a middling sized tree. Peduncles from the axils tomentose, trifid, three-flowered. Berry subglobular, depressed, becoming obtusely four-cornered, and drying, succulent; the skin when fresh saffron-coloured, villose, flesh pulpy, fugacious; stones hard like grape-stones, having a deep furrow on the back, two-celled. It flowers in July and August.—Native of the East Indies.

4. Grewia Lævigata. Leaves elliptic, acuminate, smooth on both sides, quite entire at the base; peduncles three-flowered. Branches with a purple bark dotted with white; pedicels almost the length of the petioles.—Native of the East Indies.

5. Grewia Glandulosa. Leaves ovate, lanceolate, acuminate, smooth on both sides, glandular at the base; flowers solitary, subsessile. Branches somewhat rugged; petiole short; flowers axillary, on very short peduncles.—Native of the Isle of France.

6. Grewia Hirsuta. Leaves lanceolate-ovate, soft; calices very hairy; peduncles many-flowered. Branches soft with hairs, especially at top; flowers subsessile, with a three-leaved lanceolate involucre; petals very short, oblong, ciliate.—Found by Koenig on the tops of mountains in the East Indies.

7. Grewia Excelsa. Leaves oblong, beneath tomentose, hoary; peduncles axillary, often solitary, three-flowered; pedicels angular.—Found in Arabia.

8. Grewia Asiatica; *Asiatic Grewia.* Leaves cordate, serrated at the base, white and downy beneath, flower-stalks aggregate, much longer than the footstalks; column naked, as long as the germen. A tree with the branches scarcely tomentose; stipules lanceolate; petioles round, tomentose, one-fifth the length of the leaves; peduncles axillary, usually in fours, trifid, three-flowered, half the length of its leaves; petals not bigger than the calix; berries small, red, acid.—Native of Surat, in the East Indies.

9. Grewia Tiliæfolia. Leaves cordate, roundish, smooth on both sides; peduncles shorter than the petiole. Branches smooth, with brown bark, very minutely dotted with ash-colour, the younger ones subvillose; petioles powdered at the tip, scarcely thickened; stipules half-cordate, acuminate, shorter than tha petiole; peduncles axillary, two or three together, three-flowered; involucre three-leaved; leaflets lanceolate, obtuse, concave, the length of the pedicels; fruit two-grained.—Native of the East Indies.

10. Grewia Mallococca; *South Sea Grewia.* Leaves cordate, ovate-oblong, crenate, scabrous; pedicels axillary, three-flowered; fruit tetracoccous. The difference by which it is distinguished from other species is difficult to make out. It is distinct by having no scales to the petals, the germen sessile, and the stones or nuts not two-celled. The berry is obtusely four-cornered, depressed, scabrous on all sides, with minute bristles. Seeds solitary, and four in the whole berry, obovate,

remarkably tapering downwards, somewhat livid.—Native of the island of Tongatabu and Huaheine in the South Seas.

11. Grewia Velutina. Leaves oval, serrated, very soft on both sides, hoary underneath; peduncles axillary, about three together, three-flowered; stem shrubby. All parts of the plant very soft with nap. Petioles very short; stipules bristle-shaped, deciduous; peduncles the length of the peticles. Flowers smaller than those of the eighth species. —Native of Arabia and the East Indies.

12. Grewia Salvifolia; *Sage-leaved Grewia.* Leaves oblong, quite entire; flowers axillary, several pedicelled; petals bowed back, linear. This is a shrub. Peduncles three or more, tomentose, short; flowers upright; calix five-toothed, tomentose; petals tomentose, upright, yellow, bifid at the tip.—Native of the East Indies.

13. Grewia Microcos. Leaves ovate, oblong; flowers panicled. This is a tree. The flowers are terminating, and the calices tomentose.—Native of the East Indies.

Grias; a genus of the class Polyandria, order Monogynia. —Generic Character. *Calix:* perianth one-leafed, cup-shaped; mouth four-cleft, finally lacerated. *Corolla:* petals four, roundish, concave, coriaceous. *Stamina:* Filamenta numerous, setaceous, longer than the corolla, inserted into the receptacle; antheræ roundish. *Pistil:* germen somewhat depressed, immersed in the calix; style none; stigma thickish, four-cornered, hollowed out crosswise. *Pericarp:* drupe large, one-celled, acuminate at the base and tip. *Seeds:* nucleus scored with eight furrows. Essential Character. *Corolla:* four-petalled. *Calix:* four-cleft. *Stigma:* sessile, cross-shaped. *Drupe:* with an eight-furrowed nucleus.——The only known species is,

1. Grias Cauliflora; *Anchovy Pear.* Branches at the top simple, short, or none; leaves on short petioles, pendulous, two or three feet long, wedge-shaped at the base, oblong, attenuated, entire, marked with nerves and veins, wrinkled, smooth; flowers from the stem, yellowish-white, fragrant, on very short, scaly, many-flowered peduncles; pedicels short, crowded, one-flowered; corollas about the size of a half-crown. This tree frequently grows to the height of fifty feet, and the uprightness of the growth, and the largeness of the leaves, give it a very elegant appearance. The fruit is pickled in the West Indies, and eaten in the same manner with the East Indian Mango, which it exactly resembles in taste; it is about the size of an alligator's egg, and much like it in shape, only a little more acute at one end, and of a brown russet colour.—Native of all the hottest parts of the West Indies, and common in many parts of Jamaica, growing generally in low moist bottoms, or shallow waters. To propagate it, put the stones into the ground soon after the fruit is gathered, and keep the plants constantly in the bark-bed in the stove. In the West Indies the seeds grow very readily, wherever they meet with a sufficient quantity of moisture, and propagate so thick, that the trees are always found formed into thickets, or large clusters.

Grielum; a genus of the class Decandria, order Pentagynia.—Generic Character. *Calix:* perianth one-leafed, spreading, deeply five-cleft, flat at the base, sharp, equal, permanent. *Corolla:* petals five, spreading, large, obovate, sessile, tapering at the base; nectaries oblong; glands placed round the germen, and united so as to form a crown. *Stamina:* filamenta ten, filiform, somewhat rigid, equal, permanent, the length of the calix; antheræ ovate-oblong, upright. *Pistil:* germina five, distinct, awl-shaped, upright, shorter than the stamina; styles none; stigmas capitate, warty. *Pericarp:* capsules five, oblong, acuminate, hard, formed from the calix, five or ten celled. *Seed:* solitary, oblong. *Observe.* It is not certain whether there be a difference of sex, or a withering of the pistil in some individuals. Essential Character. *Calix:* deeply five-cleft. *Petals:* five. *Filamenta:* permanent. *Capsules:* five, with one seed in each.——The only known species is,

1. Grielum Tenuifolium. Stem shrubby, diffuse and very much branched, clothed, like the leaves, with a white cottony down. The petals are blue, with livid yellow claws. Capsule inferior, with the calix closely adhering, and serving as a bark to it at bottom, flattish at top, and surrounded with a ring of hard bony tubercles, within which it is crowned with the permanent filamenta and styles: it has ten cells, but no valves: to each style there are two cells, but all of them are placed in a ring, regularly round the axis of the fruit, and deeply immersed in the substance of the calix. There is no receptacle, but the seeds are fixed to the tip of the cells, only one in each; the form is elliptic, beaked at top, plano-convex, or flatted lens-shaped, of a reddish chestnut colour.—Native of the Cape.

Grimmia; a genus of the class Cryptogamia, order Musci. Essential Character. *Capsule:* ovate. *Fringe:* simple, of sixteen teeth, broadest at their base. *Flowers:* terminal. *Veil:* cylindrical.—Twenty-nine species have been described; some of them belonging to the Linnean species of Bryum.

Grislea; a genus of the class Octandria, order Monogynia. —Generic Character. *Calix:* perianth, one-leafed, awl-shaped, inclined to bell-shape, upright, four-toothed, coloured, permanent. *Corolla:* petals four, ovate, from the incisures of the calix extremely minute. *Stamina:* filamenta eight, awl-shaped, upright, long, ascending; antheræ simple, upright, roundish. *Pistil:* germen superior, globular, pedicelled; style filiform, the length of the stamina; stigma simple. *Pericarp:* capsule globular, shorter than the calix, one-celled. *Seeds:* very many, roundish, very small; receptacle large. *Observe:* Sometimes one third part is added to the parts of the flower. Essential Character. *Calix:* four-cleft. *Petals:* four, from the incisures of the calix. *Filamenta:* very long, ascending. *Capsule:* globular, superior, one-celled, containing many seeds.——The species are,

1. Grislea Secunda. Leaves ovate, lanceolate, smooth, on petioles; raceme terminating; flowers all facing one way. This is a tree, with round scattered branches. Calices of a dark brownish crimson, bell-shaped, slightly angular; petals, stamina, and style, of an elegant scarlet.—Native of South America.

2. Grislea Tomentosa. Leaves half-lanceolate, with a cordate base, whitish beneath, sessile; racemes axillary, short. Stem, and principal branches, erect, smaller, ascending; bark rust-coloured; calix red, six-toothed, equal, permanent; petals six, small, lanceolate.—This is a beautiful flowering shrub, a native of the hills and valleys through the northern provinces of the Carnatic in the East Indies. The bright red calix, retaining its colour till the seeds be ripe, gives this plant a very showy appearance. Linneus says it is also a native of the West Indies.

Gromwell. See *Lithospermum.*

Gronovia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft beyond the middle, bell-shaped, coloured, permanent; divisions semi-lanceolate, upright. *Corolla:* petals five, extremely minute, roundish, from the clefts of the calix. *Stamina:* filamenta five, capillary, length of the corolla, inserted into the calix, alternate with the petals; antheræ erect, heart-shaped, twin. *Pistil:* germen inferior; style filiform, longer than the stamina; stigma capitate, undivided. *Pericarp:* berry dry, roundish, coloured, one-celled. *Seed:*

single, roundish, large. ESSENTIAL CHARACTER. *Petals,* five, together with the *Stamina,* inserted into the bell-shaped corolla. *Berry:* dry, five-cornered, inferior, containing one seed.——The only known species is,

I. Gronovia Scandens; *Climbing Gronovia.* This is an annual plant, which sends forth many trailing branches like those of the Cucumber, closely set with broad leaves, in shape like Vine-leaves; those on the stalk are covered with small spines, or rather hooked hairs, which sting like the nettle: the branches have many tendrils, by which they fasten themselves to other plants, and thus will rise to the height of six or eight feet. The flowers are small, axillary, and in bunches, of a greenish yellow colour, and make no great appearance. It has a strong smell.—Native of Vera Cruz. This being a very tender plant, must be raised on a hot-bed early in the spring, and afterwards placed in the bark-stove.

Ground Ivy. See *Glecoma.*

Groundsel. See *Senecio.*

Groundsel-tree. See *Baccharis.*

Guaiacum; a genus of the class Decandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets ovate-oblong, concave, obtuse, spreading, deciduous; the two outer ones a little smaller. *Corolla:* petals five, roundish-obovate, obtuse, concave, spreading, longer than the calix, ending in short claws, inserted into the receptacle. *Stamina:* filamenta subulate, broader at the base, upright, shorter than the corolla, inserted into the receptacle; antheræ oblong, finally recurved. *Pistil:* germen broader above, angular, pedicelled; style short, subulate; stigma simple, acute. *Pericarp:* capsules two to five, on very short pedicels, compressed, membranaceous, covered with a pulpy rind, gibbous on the outside, united on the inside, separating when ripe, gaping. *Seeds:* solitary, bony, oblong. ESSENTIAL CHARACTER. *Calix:* five-cleft, unequal. *Petals:* five, inserted into the receptacle. *Capsule:* angular, five-celled. ——The species are,

1. Guaiacum Officinale; *Officinal Guaiacum,* or *Lignum Vitæ.* Leaflets in two pairs, obtuse. This grows to be a very large tree, covered with a hard, brittle, brownish bark, not very thick. The wood is firm, solid, and ponderous, appearing very resinous, of a blackish yellow within, and of a hot aromatic taste. The smaller branches have an ash-coloured bark. Petals ovate, entire; leaflets two pairs, elliptic, sessile, entire, veined, shining. Browne describes this tree as an evergreen of a dark gloomy cast, continuing its verdure in the driest seasons, and at times throwing out a great number of blue flowers, which are succeeded by compressed berries of a roundish form. The tree takes many years to arrive at its full growth. The roots run far into the ground perpendicularly, contrary to the usual growth of timber-trees in the West Indies, which generally shoot the largest prongs of their roots in an horizontal direction, and are commonly observed to run very near the surface. The bark is thick and smooth; the wood of a dark olive colour, and cross-grained, the strata running obliquely into one another in the form of an X. As timber, it answers where strength and duration are required, and its weight no impediment. It takes a fine polish, and answers well in the turner's lathe; but is now chiefly used for the sheaves of ships' blocks. The tree rises to the height of forty feet, and measures from fifteen to eighteen inches in diameter. It is certainly one of the most valuable in the West Indies; since the body, the bark, gum, fruit, leaves, and blossom, are all applicable to some useful purpose. The gum is obtained by jagging the body of the tree in May. It exudes copiously from the wounds, though gradually; and when a quantity is found accumulated, hardened by exposure to the air and sun, it is gathered and packed in small kegs. This gum is sometimes suspected to have been sophisticated by the negroes, with the gum of the Manchineal-tree, to which it bears some similitude at the first appearance; but it is easily distinguished by dissolving a little in spirits: the true gum imparts a whitish tinge; but the Manchineal gives a greenish cast: and this is still further distinguishable by pouring a little of the same tincture into water, which takes from the Guaiacum almost immediately the complexion of milk. The fruit is purgative; and for medicinal use, far excels the bark. From the flowers is prepared also a laxative syrup, resembling syrup of Violets. The fresh bark opens the body, and is deemed a sweetener of the blood; but the pulp of the berries purges and vomits very violently. The resinous parts of the tree are of a warm, active nature, and found by long experience to attenuate and dissolve the blood: they are esteemed specifics in old venereal taints, chronical rheumatisms, and other disorders arising from the sizyness of the juices, and generally administered in decoctions, (the resin sometimes in boluses,) ordered for a continuance: but great care must be taken to moderate or temper the native acrimony of these medicines in the beginning of a course, and to prepare the body for the use of them; the neglect of which has been frequently the cause of very dismal consequences in hot climates, and may probably have the like effects sometimes in colder regions. There is a tincture made with the gum of this tree, that has been sometimes administered with success, as well as the powder itself, in obstinate intermittent and remittent fevers; in which cases they commonly procure a few stools, as well as promote a general discharge by the skin. The foliage of this tree is of a very detersive nature, and frequently used to scour and whiten the floors in most houses about Kingston: the infusion of them is also used to wash painted linens, and other stained garments; which it is said to do very effectually, without changing the lustre of their dyes. The wood and resin only are now used in Europe. Since the introduction of mercury, it is seldom prescribed in the lues venerea; if, when occasionally employed in syphilis, it is rather with a view to correct other vitia in the habit. Dr. Cullen looks upon it as analogous to the balsams and turpentines, and as having a considerable power in stimulating the extreme vessels; and thus accounts for its efficacy in chronic rheumatism; and from its passing off by the pores of the skin, he considers it as a probable remedy in some cutaneous disorders. In the London Dispensatory there is a tincture of Gum Guaiacum *(Pulvis Aloeticus cum Guaiaco,)* and the wood is an ingredient in *Decoctum sarsaparillæ compos.* The Edinburgh college have directed an elixir to be prepared with rectified spirit, or with the vinous spirit of sal ammoniac: some object to the spirituous tincture, and Dr. Cullen prefers the diffusion of the gum in water.—It is a native of the West Indies. In Jamaica it is abundant on the south side, but is seldom found in any other part of the island.—This, and the second species, can only be propagated by seeds procured fresh from the countries where they naturally grow. As soon as they arrive they should be sown in pots, filled with light earth, and plunged into a good hot-bed, and, if the seeds be good, they will appear in six weeks or two months; in six weeks more they will be strong enough for transplanting; then they should be carefully taken out of the seed pots, so as to preserve their roots as entire as possible, and each planted in separate small pots filled with light earth, and plunged into a new hot-bed of tanners' bark, where they must be shaded from the sun till they have taken fresh root; then they must be treated in the same manner as other tender exotic plants

from warm countries, admitting a large share of free air to them when the weather is warm; at which time it must be given with great caution, for too much wet will infallibly destroy them; while the plants are young, they may be kept during the summer season in a hot-bed of tanners' bark under a frame; but in the autumn they must be removed into the bark-stove and plunged into the hot-bed of tan, where they should constantly remain, and must be treated in the same manner as other tender plants, being careful not to give them too much water in the winter, when it is very prejudicial to them; and in summer they should have a large share of free air admitted to them every day. With this treatment the plants will thrive very well; but being plants of slow growth in their own country, cannot be expected to make great progress in Europe. In their native country, they grow very readily from seed, and seem fond of a dry soil with a hot exposure.

2. Guaiacum Sanctum; *Holy Guaiacum.* Leaflets many pairs, obtuse. It has many leaflets placed along the midrib by pairs; they are rounded and obtuse at their ends, but narrow at their base, of the same consistence with those of the first sort, but of a darker green colour. The flowers are produced in loose bunches towards the ends of the branches, are of a fine blue colour, and the petals are fringed on their edges. This is called *Bastard Lignum Vitæ*, in some of the West India Islands. See the first species.

3. Guaiacum Afrum. Leaflets many pairs, acute; branches rigid; leaves alternate, with eight pairs of leaflets; stipules pressed close to the branches, subulate, very small.—Native of Mossel-bay, near the Cape of Good Hope. This will live in a good green-house all the winter, but in summer it must be placed abroad with other green-house plants. It is of a slow growth, and is with difficulty propagated by layers.

4. Guaiacum Dubium. Leaves conjugate, oblong, lanceolate, obtuse.—Native of Tongatabu in the South Seas.

Guarea; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-parted, flattish, short. *Corolla:* petals four, spreading, lanceolate, obtuse; nectary tubular, cylindric, quite entire, length of the corolla, contracted at the throat. *Stamina:* filamenta none; antheræ eight, growing to the inner edge of the nectary, ovate. *Pistil:* germen roundish, on a very short pedicel; style subulate, thick, length of the nectary; stigma four-cornered, depressed. *Pericarp:* capsule roundish, large, subsessile, four-grooved, four-celled, four-valved. *Seeds:* solitary, oblong, with a scarlet aril. *Observe.* It should be distinguished from *Trichilia*, to which it is nearly allied. Essential Character. *Calix:* four-cleft. *Petals:* four. *Nectary:* cylindric, bearing the antheræ at its mouth. *Capsule:* four-celled, four-valved. *Seeds:* solitary.——The only known species is,

1. Guarea Trichilioides; *Ash-leaved Guarea.* This is a middling-sized tree, with a smooth trunk; racemes a foot long, axillary, subdivided, loose; the branches many-flowered; the peduncles very short; calix four-cornered, minute; segments blunt, spreading; leaves pinnate, without an odd leaflet. All parts of this plant, especially the bark, smell strong of musk, and may be used instead of that perfume, for many purposes. The wood is full of a bitter resinous substance, which renders it unfit for rum hogsheads; being observed to communicate both its smell and taste to all spirituous liquors: but it is often cut for staves and heading, when there is a scarcity of other timber. The powder of the bark is said to be a good emetic; and is sometimes used among the negroes for that purpose.—Native of South America and the West India islands, in woods, and by river-sides, where it flowers in January and February. The English call it *musk-wood* and *alligator-wood;* the French *bois rouge.*

Guettarda; a genus of the class Monœcia, order Heptandria.—Generic Character. *Calix:* perianth one-leafed, cylindric, very short, quite entire, the outer edge more prominent, deciduous. *Corolla:* one-petalled, funnel-shaped; tube cylindric, long; border six to nine cleft, with rounded lobes shorter than the tube. *Male Flowers. Stamina:* filamenta four to six or seven in the throat of the corolla; antheræ linear. *Pistil:* style filiform. *Female Flowers,* in the same plant. *Pistil:* germen roundish, inferior; style filiform, longer than the stamina; stigma subovate. *Pericarp:* drupe dry, roundish, depressed, torose, (according to Jussieu with a sinous nut, six-celled, and containing six seeds.) *Seed:* nut lobed, celled, perforated in the periphery for cells; kernels solitary, four to six, roundish, bent at right angles. Essential Character. *Calix:* cylindric. *Corolla:* six or seven cleft, funnel-shaped. *Pistil:* one. *Drupe:* dry.——The species are,

1. Guettarda Speciosa. Leaves roundish, acute, heart-shaped at the base, naked on both sides; flowers seven or nine cleft. A tall tree, with numerous, purplish, slightly downy branches: the fruit is globose, depressed, its nut containing six seeds.—Native of Java, and cultivated in various parts of the East Indies for the fragrance of its flowers.

2. Guettarda Argentea. Leaves roundish, acute, heart-shaped at the base, downy beneath; flowers five-cleft. A small tree, eight or ten feet high; the stem three or four inches in diameter.—Native of Jamaica.

3. Guettarda Rugosa. Leaves subcordate, ovate, acute, tomentose beneath, scabrous above; flowers white, with six stamina; branches round, opposite, scarred, smooth below, villose above; tube of the corolla an inch and a half long, soft, and somewhat silky; fruit the size of a pea, ash-coloured, with villose hairs.—Native of the East and West Indies.

4. Guettarda Elliptica. Leaves elliptic, pubescent; flowers with four stamina.—Native of Jamaica.

5. Guettarda Membranacea. Leaves ovate, acuminate, membranaceous, subhispidly scabrous; flowers whitish, with four stamina.—Native of St. Domingo.

Guilandina; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed; tube short, turbinate, permanent, with an oblique mouth; border five-parted, nearly equal, spreading, deciduous; divisions oblong, broader on the outside, and rounded; the two upper ones a little shorter, the lowest a little longer. *Corolla:* petals five, inserted into the neck of the calix; the uppermost roundish, concave, ascending, a little shorter, the rest oblong, broader in front, rounded at the tip, reflex-spreading, longer than the calix, and the two lowest a little longer than the middle ones. *Stamina:* filamenta subulate, thicker at the base, and villose, decumbent, inserted into the neck of the calix, shorter than the corolla, unequal; the lower ones gradually longer; antheræ oblong, affixed to the back. *Pistil:* germen oblong; style filiform, length of the stamina; stigma simple. *Pericarp:* legume rhomboidal, the upper suture convex, from swelling compressed, one-celled, with transverse partitions. *Seeds:* bony, globular-compressed, solitary between the partitions. Essential Character. *Calix:* one-leafed, salver-shaped. *Petals:* inserted into the neck of the calix, nearly equal. *Seed-vessel:* a legume.——The species are,

1. Guilandina Bonduc; *Yellow Bonduc,* or *Nicker Tree.* Prickly: pinnas ovate, with solitary prickles on the leaflets; leaves nearly a foot and a half long, composed of six or seven pairs of pinnæ, each of which has as many pairs of leaflets,

which are ovate and entire; the principal midrib of the leaf is armed with short crooked single thorns, placed irregularly; the stalks are also armed with thorns, which are larger. The stalks at first grow erect, but afterwards twine about the neighbouring trees and shrubs; the flowers are in long axillary spikes; legume broad, thick, three inches long, and two broad, closely armed with slender spines, opening with two valves, each enclosing two hard seeds, about the size of children's marbles, of a yellowish colour.—Native of the East and West Indies. This, together with the second, third, and fourth species, will not live through the winter in England, unless placed in a warm stove, and the pots plunged into the tan-bed. They are propagated by seeds; but those of the two first sorts are so hard, that unless they are soaked two or three days in water before they are put into the ground, or placed under the pots in the tan-bed to soften their covers, they will remain years in the ground without vegetating: when the plants come up, they will be fit to transplant in a short time; then they should be each transplanted into a small pot, filled with light fresh earth, and plunged into a moderate hot-bed of tanners' bark, shading them till they have taken fresh root. They must afterwards be treated as other tender exotic plants, giving them a large share of air in warm weather, and but little water; and when the plants have advanced to be too tall to remain in the frames, they must be removed into the bark-stove, and plunged into the hot-bed, where they will make great progress, provided they have not too much water, especially during the winter season.

2. Guilandina Bonducella; *Gray Bonduc.* Prickly: pinnas oblong-ovate, with double prickles on the leaflets. This differs from the first species in having much smaller leaves, set closer together; and below each pair of leaflets are two short, stiff, crooked spines, which are opposite; the flowers are of a deeper yellow, and the seeds are ash-coloured. The seeds are said to be useful in intermittents when powdered; and both these, and those of the preceding species, are taken by the negroes in venereal cases. The whole plant is weakly, and spreads a great way about the roots, or rises among the neighbouring bushes wherever it finds a due support. The stalk and branches are very full of thorns that arch backwards. The seeds are gray, and commonly used instead of marbles by boys in the sugar colonies. In Egypt, the nuts of both these sorts are used by the women, strung in necklaces, and hung about their children by way of amulets, to guard them from sorcery. They are often cast ashore on the north-west coasts of Ireland and Scotland, and are called by the inhabitants of the latter Molucca Beans. This tree makes a good fence.—It is a native of both Indies, China, and New Zealand.

3. Guilandina Nuga. Stem unarmed; the primary petiole of the leaves with double prickles underneath; branches thorny; leaves thick, solid, smooth, opposite; flowers yellow; legumes smooth. A weak trailing shrub, with a hard wood, which distils gum when wounded.—Native of Amboyna and Malabar, in swamps by the sides of rivers.

4. Guilandina Moringa; *Smooth Bonduc.* Unarmed: leaves subbipinnate; lower leaflets ternate. This tree has a thick root, of a softer substance than usual: the trunk is of a middling size, from twelve to twenty feet in height, smooth, with an ash-coloured bark; branches rather erect. The root, when young, is scraped, and used by the inhabitants of Egypt as horse-radish is in Europe, having much the same sharp taste; as have also the seeds.—Native of the East Indies; cultivated in Jamaica and Egypt. This species requires the same treatment as those before mentioned, but the seeds will grow without being steeped in water, and the plants are with difficulty shifted from one pot to another, for their roots are large, fleshy, and have but few fibres; so that unless great care be taken, all the earth will fall away from them, which often causes their stalks to decay almost to the root, and sometimes occasions the loss of the plants.

5. Guilandina Dioica; *Hardy Bonduc.* Unarmed: leaves bipinnate at the base and tip, simply pinnate; stem erect, thirty feet high or more, dividing into many branches, covered with a very smooth bluish ash-coloured bark.—Native of Canada. This sort will live abroad, and is never hurt by frost. It is propagated by cutting off some of the horizontal roots, or by suckers. It requires a light, but not a very moist soil.

6. Guilandina Gemina. Prickly: leaves pinnate; calix five-leaved; fruit in pairs; stem shrubby, large, suberect, with many climbing branches, on which are many recurved, scattered prickles; flowers yellow, in compound, loose, terminating racemes; seeds two or three, roundish, shining, ash-coloured, very hard, containing a roundish oily kernel like an almond.—Native of Cochin-china.

Guinea Grass. See *Panicum Maximum.*

Guinea-Hen Weed. See *Petiveria.*

Guinea Pepper. See *Capsicum.*

Guinea Wheat. See *Zea.*

Gum Elastic. See *Jatropha.*

Gum Elemi Tree. See *Amyris.*

Gum Lac. See *Croton Lacciferum.*

Gum Succory. See *Chondrilla.*

Gundelia; a genus of the class Syngenesia, order Polygamia Segregata.—Generic Character. *Calix:* common scarcely any, except the leaves surrounding the compound receptacle. *Corolla:* compound tubular, uniform; corollules hermaphrodite, five, equal; proper one-petalled, club-shaped; border bellying, five-cleft, upright. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubular, long. *Pistil:* germen ovate, immersed in the receptacle, crowned with very small scales, inferior; style filiform, longer than the corolla; stigmas two, revolute. *Pericarp:* none; but the seeds are totally immersed and hid in the receptacle. *Seeds:* solitary, roundish, acuminate, crowned with an obscure rim; the side-ones are abortive. *Receptacle:* common conic, covered on every side with partial receptacles, divided by three cusped chaffs; partial obtusely conic, quadrangular, truncate, with five little pits, one of which is in the centre, the others in the circumference, for the insertion of the five floscules. *Observe.* One central flower hermaphrodite; four marginal male. Essential Character. *Calix:* scarcely any, five-flowered. *Corolla:* tubular, male and hermaphrodite. *Receptacle:* chaffy. *Down:* none.——The only known species is,

1. Gundelia Tournefortii. Root perennial, running deep into the ground; stalks seldom more than a foot and a half high; the under leaves are long, narrow, and serrate, the teeth ending in a spine; the other leaves are broader, irregularly flashed to the midrib, and armed at the points with sharp prickles. It is a milky plant, and has the habit of a thistle. The flowers appear in June, and the seeds ripen in August.—It is propagated by seed, which should be sown in the beginning of March, in a warm dry border of fresh but lean earth, in the place where the plants are designed to remain. When the plants come up, they must be carefully cleaned from weeds; as they grow large they should be thinned, leaving the plants which are designed to remain about two feet asunder, that they may have room to spread. After this there is no other culture required, but to keep them clear from weeds. In two years they will produce their

flowers, and will make a fine appearance among other hardy plants in the pleasure garden. The plants lose their stalks and leaves in autumn, but their roots will abide many years.

Gunnera; a genus of the class Gynandria, order Diandria.—Generic Character. *Calix:* ament verticilled; scales one-leafed, one-flowered, setaceous, the length of the flower, permanent; perianth none, except the crust of the seed, which has two seeds. *Corolla:* none. *Stamina:* filamenta two, very short, opposite, sitting on the sides of the germen on the outside of the teeth; antheræ oblong. *Pistil:* germen ovate, with two teeth at the tip; styles, two short, subulate, between the teeth of the germen; stigmas simple. *Pericarp:* none. *Seed:* single, ovate, the bark formed from the crust of the perianth. Essential Character. *Ament:* with one-flowered scales. *Calix* and *Corolla:* none. *Germen:* two-toothed. *Styles:* two. *Seed:* one.——The only species yet discovered is,

1. Gunnera Perpensa; *Marsh Marigold-leaved Gunnera.* Leaves radical, cordate, obtuse, smooth, veined, repand, tooth-crenate, with the petioles scarcely pubescent; scapes two feet high; ament terminating, long, compound; the subdivisions scattered, simple, distinct; bractes lanceolate, short; floseules naked.—Native of the Cape.

Gustavia; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* none, but the receptacle above surrounded with a rim, flat, broad, bald. *Corolla;* petals six or eight, slightly connected at the base, ovate, sessile, large. *Stamina:* filamenta very numerous, shorter than the petals, uniting at the base into an upright bell, distant from the style; antheræ small, oblong, shorter by half than the petals. *Pistil:* germen turbinate, inferior, flat, bald between the petals and the style; style conical, very short, permanent; stigma blunt. *Pericarp:* berry subglobular, subconical, truncate, six-celled, crowned with the rim of the receptacle. *Seeds:* beans several, oval, smooth, mutilated on one side at the base, with a cartilaginous twisted appendix. Essential Character. *Calix:* none. *Petals:* several. *Berry:* many-celled. *Seeds:* appendicled. ——The only known species is,

1. Gustavia Augusta. This tree has thickish branches, and is from twenty to thirty feet high; leaves alternate, subsessile, somewhat crowded, in the upper part broad-lanceolate, narrower at the base, from a span to a foot in length, ribbed, subserrate, smooth on both sides; peduncles from one to three, terminating, bearing one flower, and having one joint; flower very specious, larger than the White Water-lily, with a large, naked, bald disk or receptacle between the corolla and the style; petals white, with red tips, the consistence of the White Lily, which it resembles in smell; but the wood is extremely fetid, even after it is dry; the inhabitants use it for hoops.—Native of Surinam and the island of Cayenne.

Gymnanthes; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male Flowers. Calix:* ament compound, with pedicels tripartite, or trichotomous, anther-bearing. *Corolla:* none. *Stamina:* filamenta naked, on pedicels tripartite or trichotomous, scattered, placed on every side of the ament, very short, deciduous; antheræ oblong, minute, three-celled. *Female Flowers,* on the same, or a different shrub, solitary or amentaceous. *Calix:* perianth none, but one or two scales at the base of the germen. *Corolla:* none. *Pistil:* germen roundish, superior; styles scarcely any, or very short, three-cornered; stigmas three, linear, acute, channelled, reflex. *Pericarp:* capsule tricoccous, three-celled, three-valved. *Seeds:* solitary, roundish. Essential Character. *Male:* ament naked; perianth and corolla none; stamina, pedicels three-parted, or three-forked, anther-bearing. *Female:* ament or germen, pedicelled; corolla none; style trifid. Capsule, tricoccous, three-celled.——The species are,

1. Gymnanthes Elliptica. Dioicous: stamina three-parted; females amentaceous.—Native of Jamaica.

2. Gymnanthes Lucida. Monoicous; stamina trichotomous; females solitary, pedicelled.—Native of Hispaniola.

Gynopogon; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very small, half five-cleft, permanent; segments linear, acute, erect. *Corolla:* monopetalous, contorted; tube cylindrical, ventricose below the tip, contracted at the throat; border flat, five-parted; segments ovate. *Stamina:* filamenta five, very short, inserted into the tube above the middle; antheræ erect, linear, within the tube. *Pistil:* germen ovate; style filiform, shorter by half than the tube; stigma globular, two-lobed, villose at the tip. *Pericarp:* berry pedicelled, subglobular, coriaceous, filled with the seed. *Seeds:* single, cartilaginous, subbilocular; with one or two kernels. *Observe.* The fruit is generally abortive, the seed not having kernels; the germina when cut through have two cells, and two seeds in each cell. Essential Character. *Calix;* half five-cleft, inferior, permanent. *Corolla:* five-parted; tube ventricose below the tip; throat contracted; stigma globular, two-lobed. *Berry:* pedicelled, subglobular. *Seed:* cartilaginous, subbilocular.——The species are,

1. Gynopogon Stellatum. Leaves in whorls, three together, lanceolate.—Native of the Society and Friendly Islands, in the South Seas.

2. Gynopogon Alyxia. Leaves in whorls, five together, obovate.—Native of Norfolk Island.

3. Gynopogon Scandens. Leaves opposite, ovate, ribbed. —Native of Otaheite.

Gypsophila; a genus of the class Decandria, order Digynia.—Generic Character. *Calix:* perianth bell-shaped, angular, five-parted; leaflets ovate, permanent. *Corolla:* petals five, ovate, obtuse, spreading, subsessile. *Stamina:* filamenta subulate, spreading; antheræ roundish. *Pistil:* germen almost globular; styles filiform, gaping; stigmas simple. *Pericarp:* capsule globular, one-celled, five-valved. *Seeds:* very many, roundish. Essential Character. *Calix:* one-leafed, bell-shaped, angular. *Petals:* five, ovate, sessile. *Capsule:* globular, one-celled.—The plants of this genus, possessing no great beauty, are rarely cultivated, except in botanic gardens. They are propagated by seeds, sown in a bed of light earth, and when the plants are fit to remove, they may be transplanted into the places where they are designed to remain, and will require no other culture but to keep them clean from weeds; for the roots of most sorts will continue several years, and annually produce flowers and seeds. The species are,

1. Gypsophila Repens; *Creeping Gypsophila.* Leaves lanceolate; stamina shorter than the emarginate corolla. The whole plant is smooth; root perennial, woody, very long, as thick as the little finger; stems many, in a close tuft, spread every way, half a foot in length, perennial; flowers remote, few, on bifid or trifid peduncles; corolla white or red, spreading very much; petals flat, a little attenuated towards the base, more or less emarginate, twice as long as the calix; capsules blunt.—It flowers in September, and is a native of Siberia, Austria, Switzerland, and Provence.

2. Gypsophila Prostrata; *Trailing Gypsophila.* Leaves lanceolate, smooth and even; stalks diffused; pistils longer than the bell-shaped corolla; root perennial; stems several, smooth, round, about a foot in length, reddish at the joints;

corolla white.—It flowers from June to September, and is supposed to inhabit the mountainous parts of Europe.

3. Gypsophila Paniculata; *Panicled Gypsophila.* Dioicous: leaves linear, lanceolate, the lower ones scabrous; stamina minute; styles longer than the corolla; root perennial, thick, fleshy; stems several, round, jointed, prostrate, a foot and a half long, the thickness of a quill, below villose and rugged, four-cornered, and simple, above smooth; flowers numerous, and without scent; petals white, oblong, blunt, quite entire, twice as long as the calix. It flowers in July and August.—Native of Hungary, Siberia, and Tartary.

4. Gyposphila Viscosa; *Clammy Gypsophila.* Leaves ovate-lanceolate, smooth, and even, at the base cordate and clasping; the internodes of the branches clammy in the middle; petals retuse; root annual, slender; stem erect, slender, branched almost from the bottom, from a span to a foot high; the whole plant very smooth and glaucous; flowers the size of those in the first and second species; corolla scarcely red, scentless; petals oblong, emarginate.—Native of the Levant.

5. Gypsophila Adscendens. Leaves lanceolate-linear; stalks prostrate; corolla, stamina, and pistils, all of the same length; root perennial, whitish, branched; and woody; stems very many, round, smooth, much jointed, leafy, herbaceous, purple at the base, and procumbent, then ascending; flowers white.—Native country unknown.

6. Gypsophila Altissima; *Upright Gypsophila.* Leaves lanceolate, three-nerved; stalks straight.—It is perennial, flowers in July, and is a native of Siberia.

7. Gypsophila Struthium; *Shrubby Gypsophila.* Leaves linear, fleshy, axillary, crowded, columnar; stem shrubby at the bottom, with leafy rudiments from the axils of the leaves, which are longer than the internodes, and acute at the end; flowers in corymbs, white, with ovate petals.—The ancients used this plant instead of soap, and it still answers this purpose in some parts of Spain, where it naturally grows.

8. Gypsophila Fastigiata; *Triangular-leaved Gypsophila.* Leaves lanceolate-linear, obscurely three-cornered, smooth and even, obtuse, directed one way; root perennial, very long, the thickness of a finger, white, woody; stalks several, stiff, jointed, smooth, more than a foot long, branched, ending in a dense fastigiate cyme of flowers; petals pale rose-colour. Linneus observes, that in Sweden the flowers are always white, and fastigiate in its wild state. The root, like that of the foregoing species, has a saponaceous quality, and, boiled, with linen or woollen, may be used instead of soap; it is bitter, and has a solvent aperient quality.—Native of Germany, Sweden, Switzerland, Siberia, &c. It flowers from June to August.

9. Gypsophila Perfoliata; *Perfoliate Gypsophila.* Leaves ovate-lanceolate, half stem-clasping; root perennial, strong, fleshy, striking deep into the ground, sending up stalks two and three feet in height, as thick as the little finger at bottom, swelling at the joints, branching at short intervals from top to bottom; flowers numerous, before they expand purple, but becoming paler, and at length white; capsule obtusely four-cornered, four-valved. It flowers in July and August.—Native of Spain and the Levant.

10. Gypsophila Muralis; *Wall Gypsophila.* Leaves linear, flat; calices leafless; stalk dichotomous; petals crenate; root annual, slender, small; stalk diffused, a span in length, weak, and therefore seldom upright. The flowers come out at the divisions of the stalk singly, on setaceous peduncles, one at the end. In England it flowers from June to October.—Native of Lapland, Sweden, Germany, Switzerland, France, and Siberia.

11. Gypsophila Rigida. Leaves linear, flat; stalks dichotomous; peduncles two-flowered; petals emarginate. From a very fibrous root spring numerous little stems, not more than a span high, jointed, branched; flowers pale red.—Native of the south of France, and Siberia.

12. Gypsophila Saxifraga; *Small Gypsophila.* Leaves linear; calices angular, with four scales; corollas emarginate; root perennial, woody, branched; stalks in tufts, procumbent, a span long, or about nine inches in length, very much branched, bent, and changing their direction at every joint; flowers on long peduncles, on the extreme subdivisions, which are almost naked; petals emarginate, white, with rose-coloured lines. It flowers in July and August.—Native of France, Switzerland, Austria, and Carniola.

Gyrocarpus; a genus of the class Polygamia, order Monœcia.—Generic Character. *Hermaphrodite:* calix four-leaved, unequal. *Corolla:* none. *Nectary:* four club-bed glands. *Stamina:* four. *Pistil:* one. *Style:* none. *Capsule:* one-celled, one-seeded, ending in two long membraneous wings. *Male. Calix:* five-leaved, equal. *Nectary* and *Stamina:* as in the hermaphrodite, without pistil. ——The only species is,

1. Gyrocarpus Asiaticus. Leaves deeply heart-shaped, undivided, or slightly lobed, downy beneath; panicles clustered, many-flowered, small, and yellowish; fruit the size of a filbert. A large tree, flowering just before the foliage appears.—Grows in the mountainous parts of Coromandel: called by the natives *Tanucoo;* and by the English Cattamaran-wood tree; the light white wood being excellent for cattamarans, or rafts.

HÆMANTHUS; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* involucre six-leaved, very large, bearing an umbellule; leaflets erect, oblong, permanent. *Corolla:* monopetalous, erect, six-parted; parts erect, linear; tube very short, angular. *Stamina:* filamenta six, subulate, inserted into the tube, and longer than the corolla; antheræ incumbent, oblong. *Pistil:* germen inferior; style simple, length of the stamina; stigma simple. *Pericarp:* berry roundish, three-celled. *Seeds:* solitary, three-cornered. Essential Character. Involucre six-leaved, many-flowered. *Corolla:* six-parted, superior. *Berry:* three-celled.——The species are,

1. Hæmanthus Coccineus; *Scarlet Hæmanthus,* or *Blood-flower.* Leaves tongue-shaped, flat, smooth and even, pressed close to the ground, in two rows; umbel contracted, fastigiate, shorter than the involucre; border patulous; root large and bulbous, from which the leaves issue. The flowers are produced in autumn, just before the new leaves come out; they are of a bright red, in a large cluster, two or three inches from the bulb.—Native of the Cape of Good Hope. This, and the seventh species, are not easily propagated in Europe, because their roots do not produce a sufficient quantity of offsets; hence the Dutch gardeners obtain their supplies from the Cape of Good Hope. They will not bear the open air of England during winter; the roots must therefore be planted in a pot filled with light loamy earth, and in the winter should be placed in a dry glass-case, where, during that season, the leaves will be in full vigour, and make a pretty appearance, when intermixed with other plants in the stove. Although they seldom flower here, they deserve a place in every garden

where there is a convenience for keeping them: the roots may be taken up when the leaves are decayed, and kept out of the ground till August, when they should be new-potted, and may remain abroad till the end of September, at which time they may be removed into the glass-case; they will require frequent waterings while growing, but not in large quantities. If a border be made against the front of the green-house or stoves, which may be contrived so as to be covered with glasses in winter, in which these roots, with those of the African Gladiolus, Ixia, Persian Cyclamen, &c. are planted in the full ground, they will flower more constantly, and the footstalks will rise much higher than those kept in pots.

2. Hæmanthus Puniceus; *Waved-leaved Hæmanthus*, or *Blood-flower*. Leaves oblong, elliptic, acute, retuse, waved, six to eight inches long, and two broad in the middle; umbel contracted, fastigiate; border and stamina erect; roots composed of many thick fleshy tubers, forming a head, out of which arises a fleshy spotted stalk, spreading at the top into several spear-shaped leaves, which are waved on their edges; stalks a foot high. From the side of the stalk, near the ground, breaks out a strong fleshy scape, six or eight inches long, with a large cluster of yellowish red flowers at the top. —Native of Africa. This plant was first brought to Holland, from whence it has been dispersed all over Europe. It may be propagated by parting the roots; the best time for this is in the spring, before the plants put out new stalks, which is also the proper season for shifting and new potting them; but as the roots do not multiply very fast in offsets, the best way is to propagate them from seeds, which they ripen plentifully in England: these should be sown soon after they become ripe, in pots filled with light earth, and kept in the stove all the winter: if these pots be plunged into the tan-bed in the bark-stove, in the vacancies between the plants, the earth will be kept warm, and will not dry so fast, as when they are placed in a dry-stove, while the seeds will be the sooner prepared to vegetate. In the spring the pots may be taken out of the stove, and plunged into a hot-bed, which will bring up the plants: they must have air admitted to them every day in mild weather, to prevent their drawing up weak; and when they are fit to remove, they may be each planted in a separate small pot filled with light earth, and plunged into the hot-bed again, to promote their taking new root; then they must be gradually hardened, and afterwards may be removed into the dry-stove, where they should constantly remain, otherwise the plants will not thrive and flower in this country. They must be sparingly watered in winter, for their roots, being fleshy and succulent, are apt to rot with moisture. In summer, during warm weather, they require a large share of air, and frequent waterings, especially when in flower.

3. Hæmanthus Pubescens; *Downy-leaved Hæmanthus*. Leaves oblong-lanceolate, hirsute on every side; umbel fastigiate, rounded; border and stamina erect.—It flowers in August, and is a native of the Cape of Good Hope.

4. Hæmanthus Ciliaris; *Fringed Hæmanthus*. Leaves lanceolate, smooth, ciliate; involucre broad, shorter than the rounded umbel; border reflex.—Native of the Cape.

5. Hæmanthus Toxicarius; *Fan-leaved Hæmanthus*. Leaves in two rows, oblong, flattish, smooth; peduncles longer than the spathe and flower; flowers flesh-coloured.—Native of the Cape.

6. Hæmanthus Spiralis; *Spiral-stalked Hæmanthus*. Leaves bristle-shaped; scape filiform, at the base spiral and flexuose; involucres subulate, shorter than the umbel, which bears from one to four flowers. It flowers here in September.—Native of the Cape of Good Hope.

7. Hæmanthus Carinatus; *Keeled Hæmanthus*. Leaves linear, keeled. This species has a large bulbous root, sending out three or four leaves, a foot long or more, not flat, but hollowed like the keel of a boat, and more erect than those of the first sort, but not quite so broad; the flowers are of a paler red.—Native of the Cape of Good Hope. For its propagation, see the first species.

8. Hæmanthus Multiflorus; *Many-flowered Hæmanthus*, or *Blood-flower*. Leaves three together, ovate-lanceolate, acuminate, keeled, waved, upright; umbel close, globular; petals spreading; bulb from one to three inches in diameter, the upper parts tinged of a red colour, and speckled like the stalk; scape from eight to eighteen inches in height, speckled with dark red almost to the top, round or flatted, sometimes fluted on one side; corolla of a clear shining blood-red colour, divided to the bottom into six narrow parts, which are pointed, and spread out wide; the leaves stand in some plants nearly as high as the bottom of the flowers, in others as high as the top, or even higher, and do not display themselves entirely till after the flowers are passed.—Native of Sierra Leone. To bloom successively, it must be kept in the stove.

Hæmatoxylum; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix*: perianth one-leafed, coloured; tube very short, pitcher-shaped, fleshy, permanent; border five-parted, spreading, deciduous; parts oblong, blunt, the four upper ones equal, the lowest a little longer than the rest. *Corolla*: petals five, lanceolate, broadest at top, blunt, veined, spreading, nearly equal, inserted into the calix, and larger than its divisions. *Stamina*: filamenta ten, subulate, hairy at bottom on the inside, upright, unequal, scarcely longer than the corolla, inserted into the calix; antheræ oval, small. *Pistil*: germen oblong-sabre-shaped, compressed; style capillary, bent at the tip, longer than the stamina; stigma funnel-shaped. *Stamina*: legume lanceolate, flat, blunt, one-celled, edged on each side with a thickish suture that does not open, opening by the bursting of the valves in the middle longitudinally, and dividing into two unequal boat-shaped parts. *Seeds*: few, oblong, compressed, furrowed, fixed to one of the sutures. Essential Character. *Calix*: five-parted. *Petals*: five. *Legume*: lanceolate; valves boat-shaped.——The only species is,

1. Hæmatoxylum Campechianum; *Logwood, Bloodwood, Campeache-Wood*. The stem rises from sixteen to twenty-four feet high, is generally crooked, and seldom thicker than a man's thigh; branches subdivided, flexuose, prickly, round, ash-coloured; leaves pinnate; petioles alternate, patulous, round, smooth; leaflets four pairs, on very short petiolules, generally obcordate, entire, small, veined, very smooth and shining, spreading in the day-time, but at night upright, converging; flowers in racemes, peduncled, numerous, small, reddish-yellow, on short, scattered, simple, coloured peduncles. The flowers appear in March and April, and the seeds ripen in July.—This tree grows naturally in the Bay of Campeache, at Honduras, and in other parts of the Spanish West Indies. It was first propagated in Jamaica, in the year 1715, from seeds brought from the Bay of Campeache, and it now grows wild in the neighbourhood of Savannah la Mar, in such quantities as to be extremely incommodious to the land-holders, occupying that district, in the same manner as the Opoponax and Cashew have the southern parts of Middlesex county. It was first introduced to prevent the necessity of forming settlements upon the Spanish Main; but the result did not fully answer the benevolent intentions of those who first cultivated it. It makes an impenetrable and beautiful fence. The smaller stems are made into hoops. Both the bark and gum are gentle subastringents, but the last excels, and adds a sweetness

to its virtue, which makes it more agreeable to the palate. The inner bark is red, and the wood hard. The wood, says Hill, is a very powerful medicine, to stop fluxes of the belly, and overflowings of the menses: the best way of giving it is in form of an extract, which is to be made by boiling down a strong decoction of it to the consistence of honey; in this form it will keep a long time, and is always ready for use. A strong decoction of this wood, says Meyrick, is found very efficacious for stopping obstinate purges, without contracting the fibres, as the common astringents do: it sheathes and blunts acrimonious humours, and has more of a balsamic than an astringent taste: it strengthens the stomach and bowels, and indeed the general habit, and is an agreeable medicine to take, being free from any thing disgustful to the taste, and almost void of smell: the decoction is made by boiling three ounces of powdered logwood in four pints of water, till it comes to a quart, and then adding about two drachms of cinnamon, which must be allowed to boil together with the logwood a few minutes longer; then, after letting it cool, the liquor must be strained off for use, and may be taken to the amount of three or four ounces, three or four times a day. This decoction is equally agreeable, mild, and safe, and has this advantage attending it, that it may be administered with equal safety, whether the disorder be attended with a fever or not: it commonly tinges the stools, and sometimes the urine, of a deep reddish purple colour; of which circumstance the patient ought to be apprised, that he may not alarm himself, by supposing the colour of the discharge owing to blood. Logwood is a well-known ingredient in dyeing: stuffs, however, would take only a slight and fading colour from logwood, if they were not previously prepared with alum and tartar; a little of the former is also added to the bath, and by these means a tolerably good violet colour is produced. A blue colour may be obtained from this wood, by mixing verdigris with the bath, and dipping the cloth till it has acquired the shade which is desired: the grand use of logwood, however, is for blacks, to which it gives a lustre and velvet cast, and for grays of certain shades: it is also of very extensive use for different compound colours, which it would be difficult to obtain of equal beauty and variety by means of drugs affording a dye of greater permanency. It is used for dyeing silk, violet; for this the silk must be scoured, alumed, and washed, because without the alum it would only take a reddish tinge that would not stand wetting. To dye silk thus, it must be turned in a cold decoction of logwood, till it has acquired the proper colour: if the decoction were used while hot, the colour would be in stripes very uneven. Bergman has observed, that a fine violet might be produced from logwood, by impregnating the silk with solution of tin; in fact we may thus obtain, particularly by mixing logwood and Brazil-wood in various proportions, a great number of fine shades, more or less inclined to red, from the lilac to the violet hue.—The seeds of this tree are frequently brought from America, and, when fresh, will grow readily, if sown upon a good hot-bed; if the bed be kept in a moderate temperature they will grow to be upwards of a foot high in the first year: while the plants are young they are generally well furnished with leaves, in which they are often afterwards very deficient, making but little progress. They are very tender, and should be constantly kept in the bark-stove, where, if duly watered, and the stove be kept in a due degree of heat, they may be easily preserved. In the West Indies, it thrives best in low swampy lands, or shallow waters, on a rich and tolerably firm soil.

Hair-bell. See *Hyacinthus.*

Hair Grass. See *Aira.*

Halbert Weed. See *Calea Lobata.*

Halesia; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very small, superior, four-toothed, permanent. *Corolla:* monopetalous, bell-shaped, ventricose; mouth four-lobed, blunt, patulous. *Stamina:* filamenta twelve, (seldom sixteen,) subulate, upright, a little shorter than the corolla; antheræ oblong, blunt, upright. *Pistil:* germen oblong, inferior; style filiform, longer than the corolla; stigma simple. *Pericarp:* nut corticate, oblong, narrowing to both ends, four-cornered, the corners membranaceous, two-celled. *Seeds:* solitary. Essential Character. *Calix:* four-toothed, superior. *Corolla:* four-cleft. *Nut:* quadrangular, with two seeds.—The plants of this genus are propagated by seeds, when they can be procured fresh from the places of their natural growth; they should be sown in pots as soon as they arrive, placing the pots in the ground where they may only have the morning sun: the seeds often remain a year in the ground; therefore the earth in the pots should not be disturbed, until there be no probability that the seeds will grow. When the plants come up, screen them from the sun, and water them frequently, but sparingly. In the following autumn, the pots should be placed in a common frame, where the plants may enjoy the free air in mild weather, and be screened from frost: in the succeeding spring, and before they begin to shoot, they should each be put into a small pot, plunging the pots in a frame shaded from the sun. In the third spring they may be turned out of the pots, and planted where they are to remain.——The species are,

1. Halesia Tetraptera; *Four-winged Halesia,* or *Snowdrop Tree.* Leaves lanceolate-ovate, serrate, sharp-pointed, alternate, on short glandular footstalks. This tree frequently comes up with two or three stems, from fifteen to twenty feet high, sending out branches towards their tops; the flower hanging in small bunches, all along the branches, each gem producing from four to eight or nine; they are of a pure snowy whiteness; and as they blow early in the spring, before the leaves appear, and continue for two or three weeks, they make a most elegant appearance; the flowers are succeeded by a tolerably large four-winged fruit, hanging also in bunches, and very agreeable to the taste. The wood is hard and veined; and the bark of a darkish colour, with many irregular shallow fissures. It flowers in April and May.—Native of South Carolina, on the banks of the Santee river.

2. Halesia Diptera; *Two-winged Halesia.* Leaves ovate; petioles smooth and even; fruit mucronate, with two large wings opposite to each other, and two minute.—Native of Georgia, on the banks of the Savannah river.

3. Halesia Parviflora. Flowers small. This much resembles the first species.—Found in Florida, near Matanza.

Halleria; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, trifid, flat, spreading, very obtuse, permanent; the upper cleft, twice as broad as the rest. *Corolla:* monopetalous, ringent; tube roundish at the base, bent in with a swelling throat; border upright, oblique, four-cleft; the upper cleft a little longer than the others, blunt, emarginate; the side ones shorter, broader, sharper; the lowest very short, very slender, and very sharp. *Stamina:* filamenta four, bristle-shaped, straight, inserted into the tube, longer than the corolla; antheræ roundish, twin. *Pistil:* germen superior, ovate, ending in a style longer than the stamina; stigma simple. *Pericarp:* berry roundish, two-celled. *Seeds:* small, flat, roundish, winged. Essential Character. *Calix:* trifid. *Corolla:* quadrifid. *Filamenta:* longer than the corolla. *Berry:* superior, two-celled.——The species are,

1. Halleria Lucida; *African Fly-Honeysuckle.* This plant grows to the height of six or eight feet, with a woody stem, well furnished with branches; leaves ovate, serrate, opposite, and continuing green through the year; the flowers come out singly, and are of a red colour, but being intermixed with the leaves, and growing scatteringly on the branches, are not easily discerned; they come out in June, and the seeds ripen in September. Native of the Cape of Good Hope.—These may be propagated by cuttings; which, if planted in June, in pots of light earth, will soon take root: the plants may be exposed in summer, and will require plenty of water at that season; in the winter they must be housed with the Myrtles, and other hardy exotics, which require much air in mild weather.

2. Halleria Elliptica. Leaves elliptical, acute, strongly serrated; calix four-cleft. The leaves of this are thicker than those of the former, tapering at each end, and more coarsely serrated; and the corolla less curved.—Common in woods at the Cape.

Halm, or *Helme*. See *Arundo Arenaria*.

Haloragis; a genus of the class Octandria, order Tetragynia.—Generic Character. *Calix:* perianth quadrifid, superior, fastened about the germen, permanent. *Corolla:* petals four, oblong, blunt, concave, spreading, with narrow claws, inserted into the calix. *Stamina:* filamenta eight, filiform, upright, shorter than the corolla, inserted into the calix; antheræ oblong, four-furrowed, upright. *Pistil:* germen inferior; styles four, upright; stigmas simple, blunt. *Pericarp:* drupe dry, roundish, crowned with the permanent calix. *Seed:* nut bony, four-celled, with one kernel in each cell. Essential Character. *Calix:* four-cleft, superior. *Petals:* four. *Drupe:* dry, enclosing a four-celled nut.——The species are,

1. Haloragis Prostrata. Leaves oblong, quite entire, mucronate; branches four-cornered, smooth; flowers axillary, solitary, pedicelled; fruits globular. When the fruit is in a state of maturity, the plant greatly resembles the Ammannia Latifolia.—Native of Botany island, near New Caledonia; and found in the Isle of Pines, in the South Seas.

2. Haloragis Cercodia. Leaves serrate; flowers about six in a whorl. The plant is about two feet high, branched, panicled, and upright; stalk quadrangular, and red, small, green, with a red tinge, pendulous.—Native of New Zealand.

3. Haloragis Racemosa. Leaves lanceolate, serrated; flowers in terminal and axillary clusters; stem shrubby, branched, near two feet high.—Native of the south coast of New Holland.

4. Haloragis Diygnia. Leaves scattered, linear, entire; clusters leafy, terminal.—Native of the same part as the preceding.

Hamamelis; a genus of the class Tetrandria, order Digynia.—Generic Character. *Calix:* involucre three-leaved, three-flowered; the two inner leaflets roundish, smaller, blunt; the outmost larger, lanceolate; perianth double; the outer two-leaved, smaller, roundish; the inner four-leaved, upright; the leaflets oblong, blunt, equal. *Corolla:* petals four, linear, equal, very long, blunt, reflex; nectary of four truncate leaflets, growing to the corolla. *Stamina:* filamenta four, linear, shorter than the calix; antheræ two-horned, bent in. *Pistil:* germen ovate, villose, ending in two styles, which are of the same length with the stamina; stigmas capitate. *Pericarp:* nut ovate, half covered with the calix, blunt, furrowed on both sides at the tip, having two little horns spreading horizontally, two-celled, two-valved. *Seeds:* one in each cell, oblong, narrow at the base. Essential Character. *Involucre:* three-leaved. *Perianth:* four-leaved. *Petals:* four. *Nut:* two-horned, two-celled.——The species are,

1. Hamamelis Virginica; *Witch Hazel.* This tree has a woody stem, from two to three feet high, sending out many slender branches; leaves oval, indented on their edges, having great resemblance to those of the Hazel, and placed alternately on the branches: these leaves fall away in autumn, and then the flowers come out in clusters from the joints, but are not followed by seeds in England. The Indians consider this tree as a valuable article in their materia medica; they apply the bark, which is sedative and discutient, to painful tumors and external inflammations. A cataplasm of the inner rind is said to be very efficacious in removing painful inflammations of the eyes.—Native of America, from Canada to Carolina. This plant is propagated by laying down the young branches in autumn; they will take root in a year, if sufficiently watered in dry weather. Many of the plants in our gardens have been produced from seeds imported from America: these always remain a year in the ground, so that they should be sown in pots for the convenience of plunging them into the earth in a shady part of the garden, where they may remain all the summer, and will only require to be kept free from weeds, and to be watered in very dry weather.

2. Hamamelis Macrophylla. Leaves large, punctated on their lower side with rough tubercles.—Found in Georgia, and North Carolina.

3. Hamamelis Parvifolia. Leaves smaller, oblong-ovate, upper part undulated and grossly crenate, under side pubescent, somewhat hirsute; segments of the calix oblong; stamens and perigynous filaments often nearly equal. A shrub every way smaller than the first species; the calix somewhat coloured and diaphanous, and petals bright yellow.—Found on the mountains of Pennsylvania.

Hamellia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, acute, very small, superior, upright, permanent. *Corolla:* monopetalous; tube five-cornered, very long; border five-parted, equal, small, acute. *Stamina:* filamenta subulate, inserted at the middle of the corolla; antheræ oblong, linear, the same length with the corolla. *Pistil:* germen ovate, with a conical tip, inferior; style filiform, the same length with the corolla; stigma linear, blunt. *Pericarp:* berry oval, furrowed, five-celled, crowned. *Seeds:* very many, roundish, compressed, very small. Essential Character. *Corolla:* five-cleft. *Berry:* five-celled, inferior, many-seeded.——The species are,

1. Hamellia Patens. Racemes terminating, coloured; leaves ternate, villose, pubescent. This is a shrub, or small tree, growing five or six feet high; branches diverging, spreading, round, smooth; petioles coloured; the midrib red; flowers directed one way, subsessile, distant, bright red or scarlet.—Native of the hedges and mountains of Hispaniola. This plant is propagated by seeds when they can be procured fresh from the country where it naturally grows. They should be sown in small pots, and plunged into a moderate hot-bed. The plants generally appear in five or six weeks, and should then be treated in the same way as other plants from the same countries; admitting air in warm weather, and gently refreshing them with water. As the seeds are seldom brought to England, the plant may be propagated by cuttings, which, if planted in small pots, plunged into a moderate hot-bed, and closely covered with either bell or hand glasses, will put out roots in about six weeks. They flower in July, and make a pretty appearance.

2. Hamellia Grandiflora. Clusters terminal or axillary;

flowers few, on longish stalks; tube inflated; leaves three together, lanceolate-acute, nearly smooth; corolla of a fine golden yellow, with a spreading border.—Native of the West Indies.

3. Hamellia Axillaris. Clusters from the forks of the stem; flowers turned to one side, numerous, small, pale yellow; leaves opposite, smooth, dark green.—Native of Jamaica and Hispaniola.

4. Hamellia Chrysantha. Clusters terminal; partial flower-stalks long and slender; corolla shining, yellowish-orange; leaves opposite, obovato-lanceolate, pointed, very smooth.—Found on the West side of Jamaica.

Hardbeam Tree. See *Caspinus.*

Hard-grass. See *Dactylis Glomerata.*

Hare's-Ear. See *Bupleurum.*

Hare's-Foot Fern. See *Trichomanes.*

Hare's-Tail Rush. See *Eriophorum Vaginatum.*

Hartogia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth five-cleft, smooth, permanent; clefts acute, very short. *Corolla:* petals four, ovate, obtuse, spreading. *Stamina:* filamenta four, very short, inserted into the base of the germen; antheræ ovate, furrowed. *Pistil:* germen superior, ovate, smooth; style simple, subulate; stigma acute. *Pericarp:* drupe juiceless, ovate, smooth, or a little roughish, scarcely as big as a hazel nut. *Seed:* nut with two seeds, somewhat fleshy. Essential Character. *Calix:* five-cleft. *Petals:* four, spreading. *Drupe:* ovate, enclosing two seeds. ——The only species is,

1. Hartogia Capensis. A shrub six feet high, with oblong, serrate, blunt, smooth leaves; flowers small, in short, axillary, drooping clusters.—Found in the woods near the Cape.

Hart-Root. See *Athamanta Cervaria.*

Hart's-Tongue. See *Asplenium Scolopendrium.*

Hasselquistia; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel spreading; umbellules ten, five of which are in the circumference; the rudiment of the central umbellule is a mortified vitiated body, pedicelled, somewhat three-sided, fleshy, depressed, dark-coloured, hoary above, with white hair: involucre very small, five-leaved, subulate, reflex; involucels halved; those of the outer ones three-leaved, subulate, nodding, shorter than the umbellule: umbel, when fruit-bearing, converging. *Corolla:* flowers radiate, even of the inner umbellules: floscules of the ray hermaphrodite; petals unequal, bowed in and bifid; the outmost petal two clefts, and the next single one large, so that in each corollule there are four clefts large, and six small: floscules of the inner disk male; petals nearly equal, bowed in and bifid, all the clefts small. *Stamina:* filamenta five to all the floscules, longer than the smaller petals; antheræ roundish. *Pistil:* germen inferior; styles filiform, permanent; stigmas obtuse. *Pericarp:* none. *Seeds:* outmost double, oval, smooth, the edge thicker, crenulate; inner solitary, hemispherical, drooping, pitcher-shaped, with the side hollow; these are also furnished with two styles; in the inner disk none. Essential Character. *Corolla:* radiated in the disk, male. *Seeds:* in the circumference double, with a notched edge; in the disk solitary, pitcher-shaped, hemispherical.——The species are,

1. Hasselquistia Ægyptiaca; *Egyptian Hasselquistia.* Leaves pinnate; leaflets pinnatifid; root fusiform, smaller than the finger, white, annual; stem a foot and half high, upright, round, white, with rough hairs, finally muricate, scabrous; umbels of flowers at the top of the stem, and at the ends of all the branches; peduncle five-cornered, muricate; corolla white; antheræ greenish; stamina and styles white. Biennial.—Native of Egypt, where it flowers in July. This and the next being natives of warm countries, are with difficulty preserved in England. Sow the seeds in pots about the middle of August, placing them where they may have only the morning sun; in October remove them into a common frame; and in the spring following place them in the full ground. They will flower in June.

2. Hasselquistia Cordata; *Heart-leaved Hasselquistia.* Leaves heart-shaped; stem upright, flexuose, a little streaked, hairy at bottom; umbel copious, flat, white, without the central body; marginal petals of the umbellules two, larger, flat, obovate; the rest nearly equal, small, ovate, entire; flowers white. Annual.—Native place unknown. For its propagation, see the preceding species.

Hatchet-Vetch. See *Coronilla.*

Haver. See *Arena Fatua.*

Hawkweed. See *Hieracium.*

Hawthorn. See *Cratægus.*

Hazel-nut Tree. See *Corylus.*

Heart's Ease. See *Viola.*

Heath. See *Erica.*

Heath, Berried. See *Empetrum.*

Heath, Sea. See *Frankenia.*

Hebenstreitia; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, tubular, membranaceous, emarginate, gaping longitudinally underneath. *Corolla:* monopetalous, one-lipped; tube cylindric, longer than the calix, gaping on the lower side half way; border ascending, flattish, quadrifid, the clefts nearly equal. *Stamina:* filamenta four, of which the upper pair is inserted into the edge of the corolla under the throat, and stands out, the lower anterior pair is bent back to the sides; antheræ crescent-shaped, compressed, truncate outwards. *Pistil:* germen very small; style filiform, flexuose, bent back through the fissure of the corolla; stigma simple. *Pericarp:* capsule oblong, one-celled, two-valved. *Seeds:* two, oblong, convex on one side, three-furrowed, flat on the other. Essential Character. *Calix:* emarginate; cleft underneath. *Corolla:* one-lipped; lip ascending, four-cleft. *Stamina:* inserted into the edge of the border of the corolla. *Capsule:* containing two seeds.——The species are,

1. Hebenstreitia Dentata; *Tooth-leaved Hebenstreitia.* Leaves linear, toothed; spikes smooth; stalks upright, a foot high, with simple ascending branches next the root, and under the spike; corolla white, with a red throat, singular in having the stamina placed on the very edge of the fissure; seeds subelliptic, acuminate at the tip, slightly emarginate at the base, pale straw-colour, fixed to the bottom of the capsule, without any receptacle. The flowers are destitute of scent in the morning; at noon they are stinking and nauseous; in the evening ambrosial, like the Oriental Hyacinth. Biennial, flowering from February to November.—Native of the Cape of Good Hope.

2. Hebenstreitia Ciliata. Leaves linear, toothed; calices three-valved, ciliate. This plant bears a strong resemblance to the preceding species.—Native of the Cape.

3. Hebenstreitia Integrifolia. Leaves linear, quite entire. This appears to be a mere variety of the foregoing species.—Native of the Cape.

4. Hebenstreitia Cordata; *Heart-leaved Hebenstreitia.* Leaves somewhat fleshy, cordate, sessile. This is an undershrub. Stem upright, whitish, smooth and even, sparingly branched only at top; spike terminating, sessile; corolla white, with a flesh-coloured throat; antheræ compressed, yellow.—Native of the Cape of Good Hope.

5. Hebenstreitia Erinoides. Leaves oblong, serrate, hairy; bractes entire, hispid.—Native of the Cape.

6. Hebenstreitia Fruticosa; *Shrubby Hebenstreitia.* Leaves lanceolate, toothed, smooth; bractes entire; stem shrubby. —Native of the Cape.

7. Hebenstreitia Aurea; *Golden-flowered Hebenstreitia.* Leaves somewhat cylindrical, obtuse, entire; spikes smooth, formed of beautiful golden-coloured flowers, variegated with deep orange, very fragrant in an evening.—Native of the Cape. It may be increased by cuttings, which, if taken off in May, will become flowering plants in September.

Hedera; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* involucre of a simple umbel, very small, many-toothed; perianth very small, five-toothed, surrounding the germen. *Corolla:* petals five, oblong, spreading, with the tips bowed inwards. *Stamina:* filamenta five, subulate, upright, of the same length with the corolla; antheræ trifid at the base, incumbent. *Pistil:* germen turbinate, surrounded by the receptacle; style simple, very short; stigma simple. *Pericarp:* berry globular, one-celled. *Seeds:* five, large, gibbous on one side, angular on the other. Essential Character. *Petals:* five, oblong. *Berry:* five-seeded, surrounded by the calix.—The different species of Hedera are easily propagated by the trailing branches, which send forth roots their whole length; or by cuttings planted on a shady border in autumn, which by the following autumn will be fit to plant where they are designed to remain; or by seeds sown after they are ripe, which is in the beginning of April: if these be kept moist and shaded, they will grow the same spring, otherwise they will remain a year in the ground.——The species are,

1. Hedera Helix; *Common Ivy.* Leves ovate and lobed, alternate, evergreen, glossy, smooth. The trunk in old trees is covered with an ash-coloured chopped bark; in the young branches it is of a green or purple colour. The petioles are long, and dilated at the base. The flowers are yellowish, or greenish-white, in a very close thick umbel, at the extremities of the twigs. The berry is placed below the receptacle of the flower, and is crowned with the five-cornered streaked rudiment of it; at first it is succulent, with a purple juice, afterwards it becomes coriaceous, dry, and very obscurely quinquangular. The seeds are wrinkled and yellowish. The wood is soft and porous, so as to transmit liquids if turned to a sufficient degree of thinness. In its variegated state it sometimes appears almost white.—The roots are used by leather-cutters to whet their knives upon. The branches, being very full of leaves, are as effectual as any thing to protect the tender blossoms of Apricots, Peaches, and Nectarines, against the cold winds and frosts of February and March. As a medicine it is scarcely admitted into modern practice. The leaves have a nauseous taste. Haller says, they are given in Germany as a specific in the atrophy of children. Common people apply them to issues and corns. The berries have a little acidity; and, when taken inwardly, purge and vomit. In Galicia they give the seeds bruised in pleurisies, to the quantity of two tea-spoonsful every eight hours. In warm climates a resinous juice exudes from the stalks, or may be procured by wounding them: it is insipid and inodorous, but inflames in burning, with a pleasant aromatic smell, and then has a slight astringency. It tinges spirit of wine of a reddish brown colour, and is said to be aperient, resolntive, and balsamic: but it is not in use. Country people apply the berries to issues, to increase the discharge. Meyrick informs us, that a decoction of the leaves destroys vermin in the heads of children, and heals the soreness which they occasion. An infusion of the berries is frequently found serviceable in rheumatic complaints, and is reported to have cured the dropsy. The juice snuffed up the nose occasions a pretty considerable discharge of mucus and watery humours from the head.—In the latter part of the 17th century, when it was the fashion to fill gardens with all sorts of sheared evergreens, many of these plants were trained into round heads, clipped into globes, cones, &c. and, being so hardy as not to be injured by weather, and growing in any soil, were then much esteemed: since this taste has been exploded, the Ivy is seldom admitted into gardens, unless to cover walls, or to run over ruins, for which purpose no other plant is so well adapted. Mr. Curtis, however, observes, that few people are acquainted with the beauty of Ivy when suffered to run up a stake, and at length to form itself into a standard; the singular complication of its branches, and the vivid hue of its leaves, give it one of the first places amongst evergreens in a shrubbery. In woods, when suffered to grow large and rampant, this plant, by twining round the bodies of timber-trees, does them great damage, and therefore should be carefully destroyed, as it easily may be by cutting any where through its trunk. But in ornamental outlets, where evergreens do not abound, a few trees covered with Ivy have a very pleasing effect, and induce birds of song to haunt those thickets for the sake of the berries and shelter. It produces very picturesque effects in large masses of ruined buildings: but that it is injurious to them, cannot be denied, when we consider that it must harbour wet and filth, and that the branches will make their way into any fissure or defect in the wall, and enlarge it. It is a parasitical shrub; and while fixed to any support, or left to trail upon the ground, the stalks are slender and flexible; but when it has reached to the top of its support, they shorten and become woody, forming themselves into large bushy heads. As long as the stalks are suffered to trail, Ivy does not produce any flowers; and in this state it is called *Barren* or *Creeping Ivy;* but when the branches get above their support, they produce flowers at the end of every shoot; these are succeeded by berries, formed into round bunches, called by the ancients *Corymbi*, and turning black before they are ripe. In this state it is called *Climbing* or *Berried Ivy.*—It is found wild all over Europe; but Linnæus informs us it is by no means common in Sweden. Kalm remarks, that he never saw the Common Ivy in North America, except once against a stone building, and that it was apparently brought from Europe, and planted there. Thunberg observed it in Japan, and says that the leaves are commonly undivided there, and not lobed. It begins to flower with us in September, and is much resorted to by bees and flies, when little other food is to be had. The berries increase during the winter, are full formed in February, and ripen in April; furnishing food for wild pigeons, blackbirds, thrushes, and other birds in the spring. Sheep are fond of Ivy, which is a warm and wholesome food for them in hard weather; and therefore in snowy seasons the shepherds cut down the boughs for their flocks to browze on, which is a very ancient practice.

2. Hedera Capitata; *Cluster-flowered Ivy.* Leaves elliptical, entire; racemes compound, terminating; flowers sessile, in little heads; stem arborescent, eight feet high in the stove, erect, cylindrical, abruptly branched; bark brown, a little cracked; branches curved upwards, leafy, terminated by flowers, which are numerous, white, and so small that the structure is not readily to be understood; each stands on its proper involucre, resembling a calix of one leaf, in five divisions, externally powdery, permanent.—This fine plant was discovered by Jacquin in the woods of Martinico.

3. Hedera Quinquefolia; *Five-leaved Ivy.* Leaves quinate, ovate, serrate; racemes trifid, twice dichotomous, fine, umbelled; calix very short, bluntly toothed, red at tip; petals

blunt, arched at the tip, green.—It grows naturally in all the northern parts of America, was first brought to Europe from Canada, and has been chiefly employed to cover walls or high buildings; which this plant will do in a short time, for it will shoot almost twenty feet in one year; but as the leaves fall off in autumn, and are late before they come out in the spring, it is not much esteemed, unless where better things will not thrive. As it receives no injury from smoke, or the closeness of the air, it is proper to cover buildings in great towns. The stalks put out fibres, like the Common Ivy, which insinuate themselves into the joints of a wall. It was cultivated here in 1629.

4. Hedera Pendula. Leaves ovate-lanceolate, entire; peduncles very long, pendulous.—Native of Jamaica.

5. Hedera Nutans. Leaves elliptic, coriaceous; umbels nodding, hemispherical.—Native of Jamaica.

6. Hedera Terebinthinacea. Leaves in sevens, elliptic, quite entire. The whole plant is smooth; clusters compound; partial flower-stalks umbellate.—Native of Ceylon.

Hedge Hyssop. See *Gratiola.*

Hedge Mustard. See *Sisymbrium* and *Erysimum.*

Hedge Nettle. See *Galeopsis.*

Hedges.—Hedges are either planted to make fences round enclosures, or to part off and divide the several portions of a garden: when they are designed as outward fences, they are planted with Hawthorn, Crabs, or Black-thorn, which is the Sloe; but those hedges which are planted in gardens, either to surround wilderness quarters, or to screen the other parts of a garden from sight, are planted with various sorts of plants, according to the fancy of the owner; some preferring evergreen hedges, in which case the Holly is best, next the Yew, then Laurel, Laurustinus, Phillyrea, &c.; others, who make choice of the deciduous plants, prefer the Beach and Hornbeam, English Elm, or the Alder, to any other. Those hedges which are intended for outside fences are generally made of White or Haw Thorn. It will be proper, before planting, to consider the nature of the land, and what sorts of plants will thrive best in that soil; and also what the soil is from whence the plants are to be taken: for if the land they are taken from be much better than that in which they are to be planted, it will be more difficult to get them to grow. As for the size, the sets ought to be about as large as a goose-quill, and cut within about four or five inches of the ground; they should be fresh taken up, straight, smooth, and well rooted. Those plants which are raised in the nursery are to be preferred to all others. The time for planting is February, March, and April. Secondly, if the hedge have a ditch, it should be made six feet wide at top, and one foot and a half at bottom, and three feet deep, that each side may have a proper slope; for when the banks are made too upright, they are very subject to fall down after every frost or hard rain; besides, if the ditches are made narrower, they are soon choked up in autumn by the falling leaves, and the growth of weeds, nor are they a sufficient fence to the hedge against cattle where they are narrower. Thirdly, if the bank be without a ditch, the sets should be placed in two rows almost perpendicular, at the distance of a foot from each other, in the quincunx order, so that in effect they will be but six inches asunder. Fourthly, the turf should be laid with the grass-side downwards, on that side of the ditch the bank is designed to be made, and some of the best mould should be laid upon it, to bed the sets; they are then to be planted upon it about a foot asunder, so that the ends may stand upright. Fifthly, when the first row is planted, it must be covered with mould, and the turf laid upon it as before; so that when the bank is a foot high you may plant another row of sets against the spaces of the lower ones, covering them as before. The bank is to be topped with the bottom of the ditch, and a dry or dead hedge laid on the other side, to defend the plantation from cattle. In the making of these dead hedges there should be stakes driven into the loose earth, at about two feet and a half distance, so low as to reach the firm ground: for this purpose oaken stakes are most esteemed, and next to them the Black-thorn and Sallow. The small bushes must be laid at the bottom, but not too thickly, which would cause the bushes to rot; but the upper part of the hedges should be laid with long bushes, to bind the stakes in with, by interweaving them. In order to render the hedge yet stronger, you may *edder* it, as it is called, that is, bind the top of the stakes in with long small poles, or sticks, on each side; and when the eddering is finished, drive the stakes anew, because the waving of the hedge and eddering is liable to loosen the stakes. The plants must be constantly kept weeded, and secured from being cropped by the cattle, and in February it will be proper to cut it within an inch of the ground, if it was not done before; which will cause it to shoot strong, and greatly adjust its growth. When a hedge is of about eight or nine years' growth, it will be proper to plash it; the best time for this work is either in October or February. When a hedge is grown old, say about twenty or thirty years' growth, and there are in it old stubs as well as new shoots, the old stubs should be cut sloping off within two or three inches of the ground, and the best and longest of the middle size should be left to lay down; and some of the strongest, at the height of five or six feet, in proportion to the intended height of the hedge, may be left to serve instead of stakes, and fresh stakes should be put into those places where they are wanting. The hedge should then be thinned, so as to leave on their stubs only such shoots as are designed to be of use, that there may be room left to put a spade in between them; the ditch also should be cleansed, and each side of the slopes kept as in a new ditch, and where the earth is washed from the roots, or is hollow, face it anew with so much of the first spit of earth that is dug out of the ditch, as there is occasion for, and lay what is dug out at the second spit, on the top of the bank; for if it be laid on the side or face of the bank, it will slip into the ditch again when wet comes, and also take a great deal of the bank along with it. In plashing, there are two extremes to be avoided; the first is, laying it too low and too thick, because it makes the sap run all into the shoots, and leaves the plashes without nourishment, which, with the thickness of the hedge, kills them; secondly, it must not be laid too high, because this draws all the sap into the plashes, and so causes but small shoots at the bottom, and makes the hedge so thin, that it will neither hinder the cattle from going through, nor from cropping of it. When the shoot that is designed to be plashed is bent, give it a small cut with a bill, half through, sloping a little downwards, and then weave it about the stakes; and when the whole is finished, train off the small superfluous branches that straggle too far out on both sides of the hedge. If the shrubs be very old, cut them quite down, and secure them with good dead hedges on both sides, till the young shoots are got up tall enough to plash, and plant new sets in the void spaces. In making a hedge, if it be set with Crab-stock, it will be proper to leave one standing uncut up at every thirty or forty feet, if the ground on both sides of the hedge be your own; which being done, they may be so ordered, by pruning or staking, that one may lean into one ground and the other into another. These stocks should be pruned up every year, till they are brought out of the reach of the cattle, and then they may be grafted with a red-streak, gennet-moil, or whatever kind of cider

Apple the planter may prefer. If the stocks be of Apple kernels, they may stand ungrafted, for many of them will yield very good cider fruit; but then such stocks as are not grafted will be longer before they bear, and also when you do graft, you may be certain of your kind; but if you find a very natural stock, which by leaf, shoot, and bud, appears likely, you may try it, and so you may procure a fine new fruit; and if you do not like it, you may graft it when you please. With respect to the rest of the hedge, when it has shot four or five years, you may lay it to make a fence: for the doing of which, take the following directions; first, at every laying to lay down some old plashes, or, if the hedge be thin, young ones; but they may be so laid, as to point with their ends to the ditch-side of the bank, the ends being kept low on the bank; by being so ordered, they will the better thicken the bottom of the hedge, and keep up the earth of the bank. Secondly, to heighten the bank every time you lay earth on it, so as to cover the layers, all but the ends; this earth will very much help the sets, and by heightening the banks, and deepening the ditch, you will render the fence the better. Thirdly, not to cut the plashes too much, but just so as they may bend down well; not to lay them too upright, as some do, but to lay them near to a level; for by so doing, the sap will the better break out at several places, and not run so much to the ends, as it will when they lie too much upon the slope. If you have much wood to spare, you may cut up great part of those that grow near the ditch, but then the banks should be hung with bushes, to prevent cattle from cropping them during the first year: these will shoot strong, secure the hedge, keep up the bank, and thicken the bottom of the hedge. Fourthly, take care to lay the hedge pretty thick, and turn the beard on the ditch-side; but you must not let the beard hang uncut, though it makes a good show at the first making, but you must cut off all the straggling boughs within half a foot of the hedge on both sides, which will cause it to shoot strong at these places, and make the hedge much thicker. Fifthly, if the bank be high, the hedge should be made so low that it may just serve for a fence the first year, for it will soon grow higher; and the lower the hedge is made, the faster the sets will grow, and also will be thicker at the bottom; but care must be taken to preserve it from cattle, on the field-side, for the first two years that it is made. Sixthly, if you would have a good hedge, or fence, you should new-lay it once in fourteen or fifteen years, and constantly root out Elder, Traveller's Joy, which some call Bull-bine, Briony, &c. and do not leave too many high standards or pollards in it, though the Elm is one of the best; also no dead wood is to be left in the bottom of the hedges, for that will choke the quick; but if there be a gap, the dead hedge should be made at a distance.—The Crab is also frequently planted for hedges, and if the plants are raised from the kernels of the small wild Crab, they are much to be preferred to those which are raised from kernels of all sorts of apples without distinction; because the plants of the true small Crab never shoot so strong as those of Apples, and may therefore be better kept within the proper compass of a hedge; and as they generally have more thorns upon them, they are better guarded against cattle; besides, the plants of the Crab will grow more equal than those which are raised from the kernels of various kinds of apples, for these always produce a variety of plants which differ from each other in their manner of growth, as much as in the size and flavour of their fruits, so that hedges formed of them will neither appear so well, nor can be so well managed, as the other. Some persons intermix Crab with the White-thorn in their hedges; but this is not a good method, for the plants of the Crab will grow much stronger than those of the White-thorn, so that the hedges will not be of equal growth; which is not near so beautiful or useful, as when the plants of a hedge keep pace in their growth. The Black-thorn or Sloe is also frequently planted for hedges, and is a strong durable plant for that purpose, especially as it is so strongly armed with thorns, that cattle seldom care to browse upon it: but where this is planted, the best way is, to raise the plant from the stones of the fruit; for all those which are taken from the roots of old trees, spawn and put out suckers in such plenty from their roots, as to spread over, and fill the neighbouring ground to a considerable distance on each side of the hedges; and this plenty of suckers drawing away the nourishment from the old plants of the hedge, they never grow so well as where there are few or no suckers produced; which the plants propagated from stones seldom send forth, or at least but sparingly, and therefore they are easily removed. The best method of raising these hedges is, to sow the stones in the place where the hedge is intended, when it can be conveniently done, for then the plants will make much greater progress than those which are transplanted: but the objection to this method will arise from the difficulty of securing the young plants from the cattle; yet this can have little force, when it must be considered, that if the hedge be planted it must be fenced for some years, to prevent the cattle from destroying the sets; therefore the same fence will do for it when sown, nor will it require a fence much longer than the other, for the plants which stand unremoved, will make a better fence in seven years, than that which is transplanted when the plants be of three or four years' growth. The stones of this fruit should be sown early in January, if the weather will permit; but when they are kept out of the ground longer, it will be proper to mix them with sand, and keep them in a cool place. The bushes of the Black-thorn are by much the best of any for making of dead hedges, being more lasting, and having so many thorns, that neither the cattle nor the hedge-breakers will care to meddle with it. They are also the best to be used for underground drains, for the draining of land; for they will remain sound a long time, after the air is excluded from them.—The Holly is sometimes planted for hedges, and is a very strong and durable fence; but where it is exposed there will be great care necessary to prevent it from being destroyed. It is by far the most beautiful plant that is used for hedges, and being an evergreen, will afford much better shelter in winter than any other kind of hedge, especially as the leaves are armed with thorns, which prevent the cattle from browsing on it. This plant however is of slow growth, so that hedges planted with it require to be fenced a much longer time than most others. This defect will exclude it from general use: yet in such grounds as lie contiguous to or in sight of gentlemen's houses, hedges of Holly will have a very pleasing effect, especially where they are well kept, as they will preserve their beauty at all seasons; and in the spring of the year, when the sharp winds render it unpleasant to walk abroad, these hedges will afford a good shelter for keeping off the cold winds. The surest method of raising a Holly hedge is, by sowing the berries in the place where they are to stand; but these berries should be buried in the ground a whole year before they are sown; by which method they will be prepared to grow in the following spring. The way of doing this is, to gather the berries about Christmas, which is the time they are usually ripe, and put them into large flower-pots, mixing some sand with them; then dig holes in the ground, into which the pots must be sunk, covering them over with

earth about ten inches thick: in this place they remain till the following October, and should then be taken up, to be sown wherever the hedge is to be raised. The ground for this hedge ought to be well trenched, and cleared from the roots of all bad weeds, bushes, and trees. Two drills should then be made about a foot distance from each other, and about two inches deep, into which the seeds should be scattered pretty close, lest some should fail; for it is better to have too many plants come up than to feel a deficiency. When the plants come up they must be carefully weeded, for if the weeds be permitted to grow among them, they will soon destroy or weaken them so much, that they will not recover their strength in a long time. This should be constantly observed by every person who is desirous to have good hedges of either sort; for when the weeds are suffered to grow near the plants, they will not only rob them of a great part of their nourishment, but also prevent them from putting out shoots near the ground, which will cause the bottom of the hedge to be thin and naked. When Holly hedges are intended to be kept very near, they should be sheared twice a year, in May and August; but if they are merely employed as fences, they will not require shearing more than once a year, which should be about the latter end of June, or the beginning of July; and if this be well performed, the hedges may be kept in a very orderly state. The fences which are made to secure these hedges from cattle while they are young, should be contrived to admit as much free air as possible, for that is absolutely necessary for the growth of the plants, which seldom thrive well when crowded on each side with dead hedges. The best sort of fences for this purpose, are those which are made with posts and rails; or, instead of rails, three ropes drawn from post to post, through holes in each post. This is the cheapest fence of this kind, and will appear very handsome; but where the sheep are not admitted into the fields, only two ropes will be required to keep off larger cattle. If the ropes be well besmeared with a composition of melted pitch, brown Spanish colour, and oil, mixed well together, they will last sound several years; and these sorts of fences never obstruct the air, while the place being at the same time open to view, the weeds will be more easily discovered than where the fences are close. In the latter case, the hedges are sometimes suffered to be overrun with weeds, by their being excluded from sight, and are frequently forgotten, especially in moist weather, when the weeds grow most luxuriantly. There are some persons who intermix Holly with the White-thorn in making their hedges, which will have a good effect when rightly managed, especially when young; but when this is practised, the Holly should be planted so near, as that the hedge may be entirely formed of it as it grows up, when the White-thorn should be quite rooted out; for as they will not keep pace in their growth, they cannot appear to advantage where they remain intermixed. When a hedge of Holly is intended to be made by plants, the ground should be well branched, as has been already advised for the seeds; and unless the soil be very wet, the plants should be set in October, but in wet grounds March is preferable. These plants should by no means be taken from a better soil than that in which they are to be replanted, for then they are often longer before they recover from the change than those which are taken from a leaner soil. If the plants have been removed two or three times before, they will have better roots, and will be in less danger of miscarrying; besides, they may be removed with balls of earth to their roots. When the frost comes on, if mulch be laid upon the ground near the roots of the plants, it will prevent the tender fibres, which may then have been put out, from being destroyed by the cold. We would never advise the planting of hedges with Holly plants of above five or six years' growth, from the berries; for when the plants are older, if they take to grow, they are longer before they form a good hedge, than plants which are much younger; and if the plants have been twice before transplanted, they will more certainly grow.—Ornamental hedges, such as are used in gardens, are sometimes planted with evergreens, especially if they are not intended to grow very high, for then they are planted with deciduous trees. Evergreen hedges are formed from Holly, Yew, Laurel, Laurustinus, Phillyrea, Alaternus, Evergreen Oak, and some others of less note. The Holly is preferable to any other, for the reasons above advanced. Next to this, most persons prefer Yew, on account of its growing very close; for when these hedges are well kept, they will be so thick as that a bird cannot get through them; but the dead colour of the Yew renders these hedges less agreeable to the eye.—The Laurel is one of the most beautiful greens of any of the evergreen trees: but then it shoots so luxuriantly as to make it difficult to keep the hedges planted with it in any tolerable shape; besides, the leaves being very large, will be often clipped with the shears when the hedge is dressed, which gives them a bad appearance: therefore where there are hedges of this kind, it will be the best way to prune them with a knife, cutting the shoots just down to a leaf; and although by this method the hedge cannot be rendered so even as when cut with shears, yet it will preserve a much better appearance than when most of the leaves are cut through and stubbed by the shears.—The Laurustinus is also a very fine plant for this purpose; but the same objection is to be made to this as has been advanced against the Laurel; and as one of the greatest beauties of this plant is in its flowers, which are produced in the winter and spring, so when these are sheared, the flowers are generally cut off, by which their beauty is lost. Nor can this be avoided where the hedge is to be kept in close order, and hence this plant is not so proper for that purpose; but in places where walls and other fences are designed to be hid, there is not any plant better adapted than this, provided it be rightly managed; for the branches of this plant are slender and pliable, so that they may be trained up close to the fence, so as to cover it entirely; and if, instead of clipping it with shears, a pruning knife be employed, they may be so managed as to have them full of flowers from the ground upward. This may be effected by pruning them in April, when the flowers are going off, cutting out those shoots that have flowered, or project too far from the fence, always cutting close to the leaf, that no stubs may be left; but those new shoots of the same spring must by no means be shortened, because the flowers are always produced at the extremity of the shoots of the same year; therefore when these are topped, as they must be by shearing, there can be few or no flowers upon these plants, except towards the top, where the shears have not passed. By this method of knife-pruning, the leaves will also be preserved entire, and the hedge may always be kept enough within compass, and so thick as fully to answer the purpose of covering the fence; and if the shoots be suffered to grow rather irregularly, it will make a better appearance than any thorn-hedge whatever. The small-leaved and the rough-leaved Laurustinus, are the best sorts for this purpose, because their branches grow closer together than those of the shining-leaved; they are also hardier, and flower much better in the open air.—The true Phillyrea is the next best plant for hedges. It is called the true Phillyrea, to distinguish it from the Alaternus, which is simply called the Phillyrea. The branches are strong, the leaves large, and of a deep green colour. It is of middling growth: hedges planted with this

may be laid up to the height of ten or twelve feet; and if these hedges are kept narrow at the top, that there may not be too much width for the snow to lodge upon them, they may be rendered very close and thick, and being of a very good green colour, will make a fine appearance. The Alaternus was formerly much more cultivated in the English gardens than at present. It was often planted to form hedges; but the branches are too pliable, being frequently displaced by strong winds, which render these hedges unsightly; they also shoot very irregularly and thin, so that the middle of the hedge is frequently open and wide, and only the sides of them can be kept tolerably close, and that must be by often clipping them. If we add to this, their being frequently laid or broken down by snow in the winter, it must be deemed an improper plant for this purpose.—The Ilex, or Evergreen Oak, is also planted for hedges, and where these are designed to grow pretty tall, it is a fit plant for the purpose, because it is a plant of large growth, especially the sort which is most common in England; for there are two sorts of them, which grow in the south of France and Italy, that are of much humbler growth, and better adapted to this purpose, especially when a high hedge is not wanted; but they are not common in Great Britain. When these hedges are planted very young, and kept close-trained from the beginning, they may be very close from the ground to the height of twenty feet or more, but must always be kept narrower at the top than below, that too much snow may not lodge upon and break them down in the winter.—There are also some persons who have planted the Pyracantha, or Evergreen Thorn, Juniper, Box, Cedar of Virginia, Bay, &c. as also the Atriplex, or Sea Purslane, the Furze, the Rosemary, and several other plants, for hedges; but the five sorts first mentioned having very pliant branches, which will require to be supported, and the last being often destroyed by severe frost, are unfit for this purpose; nor are there any other sorts of evergreen plants in the English gardens, which are so well adapted for hedges as those we have already pointed out.—The deciduous trees which are usually planted to form hedges in gardens, are the following sorts: The Hornbeam, which is most esteemed, especially in places where they are not required to be very high, or not wanted to grow very fast; for this plant while young does not make so great progress as many others: as it is of slower growth, the hedges formed of it may be kept neat with less trouble than most other plants will require. and the branches naturally growing very close, they will make one of the closest hedges of all the deciduous trees; but as the leaves of this tree continue upon the branches all the winter, and until the buds in the spring force them off, they have a bad appearance during the winter season. In Westphalia, and other parts of Germany, the Hornbeam is in great repute for hedges. The German husbandman throws up a parapet of earth, with a ditch on each side, and plants his sets, raised from layers, in such a manner as that every two plants interseet each other; there he scrapes off the bark, and binds them close together with straw. The plants consolidate, and form a living palisado, which being pruned annually with discretion, will in a few years make an impenetrable fence. It is not uncommon in Germany to see the sides of high-roads thus guarded for many miles together. The Hornbeam is not delicate in point of soil; will put out strong lateral shoots within three inches of the ground; and is of quick growth. The Beech is also a very proper tree for this purpose, having the same good qualities as the Hornbeam; but the leaves of this continue late in winter upon the branches, when they will have a bad appearance; besides, the litter which is occasioned by their leaves gradually falling most part of the winter, prevents the garden from being made clean a great while longer than if there were none of these planted. The Small-leaved English Elm, is also a proper tree for tall hedges: if these be planted young, and kept closely clipped from their first setting out, the hedges may be trained up to the height of thirty or forty feet, and be very close and thick the whole height. But when these trees are planted for this purpose, they should not be crowded so close together as they generally are: by which method, when the trees have stood some years, if they have thriven well, their stems will approach so near each other as that few branches can be maintained below, whereby the bottom of the hedge will be naked; therefore they should not be planted closer together than seven or eight feet, or if they be ten feet it will be still better, from the ground upward. The Dutch Elm was formerly in great esteem for hedges, being quick of growth, and thriving in such soils as the English Elm would not grow in; but the wretched appearance which these hedges made, after they had been growing a few years, caused them to be very generally discontinued, for a more unsuitable plant was never introduced into gardens. The Lime-tree has also been recommended for hedges, and in some of the old gardens there were many planted with this tree, which, for a few years after planting, made a tolerable appearance, especially when they grew upon a moist soil; but after they had stood some years, they grew very thin at bottom, and by being sheared at the top, they were rendered very stubby and unsightly: their leaves growing very thinly upon the branches, and these frequently turning of a black disagreeable colour, and falling off very soon in the autumn, and sometimes in the summer in dry seasons, has brought these trees into so much disrepute, that few persons at present will make use of them for this purpose: nor should any of the very strong shooting trees be applied to this use; for the more they are cut the stronger they will shoot, and of course will appear very unsightly; besides, the often cutting of the hedges occasions great trouble and expense, and frequent litters in gardens. The Alder is frequently planted for hedges, and where the soil is moist, there is not any of the deciduous trees equal to it for this purpose; for the leaves are of a lively green, continuing fresh till late in the autumn; and when they decay their litter is soon over, for they all drop in a short time.—There are, besides the trees above mentioned, many of the flowering shrubs which have been planted to form hedges; such as Roses, Honeysuckles, Sweetbriar, &c. but these make a bad appearance, being more difficult to train; and if they are cut to keep within compass, their flowers, which are their greatest beauty, will be entirely destroyed. But as these are but of low growth, they are not proper to plant where the hedges are to be of any height. The taste in gardening has been greatly improved of late years; clipped hedges have been almost excluded, and it is to be hoped that they will soon be wholly banished, as both troublesome and unnatural.

Hedwigia; a genus of the class Octandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, cup-shaped, four-toothed: teeth minute, ovate, sharp, upright. *Corolla:* monopetalous, tubulous; tube the length of the calix, narrower at top; border quadrifid; the clefts ovate, sharp, upright, converging. *Stamina:* filamenta eight, broad, inserted into the base of the corolla, incumbent on the germen; antheræ minute, oblong, sharp, converging above the stigma. *Pistil:* germen conical, eight-streaked, superior; style none; stigma blunt. *Pericarp:* tricoccous, (composed as it were of three ovate-acuminate capsules,) large, three-celled. *Seeds:* nuts solitary, ovate, acuminate, one side

convex and very smooth, the other wrinkled and unequal; kernels the shape of the nuts. ESSENTIAL CHARACTER. *Calix:* four-toothed. *Corolla:* four-cleft. *Style:* none. *Capsule:* tricoccous. *Seed:* a nut.——The only species is,

1. Hedwigia Balsamifera. Leaves oval, ending in a lengthened point at top, without any indentations, thin, shining, waved, yellowish-green, five or six inches long, and three inches wide, ranged in pairs along a midrib, terminated by an odd one. The flowers grow in a raceme at the extremities of the branchlets, and are white. The fruit is the size of a small nut, divided in two or three parts, covered with a green coriaceous rind, and containing a white fleshy sweet pulp, having an aromatic smell: each division has in it a flatted woody shell, enclosing a bitter oily kernel. This is a lofty tree, growing to the height of more than sixty feet, with a trunk four or five feet in circumference; outer bark gray and even; inner red, thick, and gummy; wood solid, and reddish, and is used as timber for various purposes. An aromatic oil is drawn from the kernels, which is much esteemed in disorders of the breast. The red gum that issues from the bark has a strong aromatic smell, and is much used in the cure of wounds. It is supposed that the wild swine first discovered this use of it; and hence it has acquired the name of *Bois Cochon*, or *Hog's-wood.*—Native of St. Domingo.

Hedycarya; a genus of the class Diœcia, order Icosandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed, flat-wheel-shaped, eight or ten cleft; clefts lanceolate, nearly equal; in the female permanent. *Corolla:* none. *Male. Stamina:* filamenta none; antheræ very many, (fifty,) oblong, four-furrowed, bearded at the tip, distributed along the whole bottom of the calix. *Female. Pistil:* germina numerous, flatted-globular, placed each on a cylindric pedicel in the middle of the calix; styles none; stigmas little protuberances scattered over the germina. *Pericarp:* none. *Seeds:* nuts six or ten, pedicelled, globular, somewhat bony; kernels solitary, globular. *Receptacle:* in the middle of the calix, woody. ESSENTIAL CHARACTER. *Calix:* eight or ten cleft. *Corolla:* none. *Male.* Filamenta none; antheræ in the bottom of the calix, four-furrowed, bearded at the tip. *Female.* Germina pedicelled; nuts pedicelled, one-seeded. ——The only known species is,

1. Hedycarya Dentata. A smooth shrub. Leaves alternate, oblong, serrate, on short petioles, very smooth, veined; the veins almost transverse; racemes axillary; calices hirsute; nuts very sweet.—Native of New Zealand.

Hedychium; a genus of the class Monandria, order Monogynia. ESSENTIAL CHARACTER. *Anther:* two-lobed, recurved, terminal, embracing the style, without any appendage. *Outer limb* of the *Corolla:* in three equal linear lobes; *inner,* in three parts, two-lipped. *Flower:* reversed. *Tube:* longer than the limb.——The species are,

1. Hedychium Coronarium; *Sweet-scented Garland Flower.* Leaves lanceolate; bractes imbricated, elliptical; lip cloven.—Native of the East Indies, where it is very generally cultivated for ornament.

2. Hedychium Ellipticum. Leaves elliptical, smooth; bractes imbricated, elliptical; lip entire.—Native of the East Indies.

3. Hedychium Spicatum. Leaves lanceolate; spike elongated; bractes convoluted, single-flowered; stamen much shorter than the lip.—Native of the East Indies.

Hedycrea; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, hemispherical, five-toothed; teeth sharp, patulous. *Corolla:* none. *Stamina:* filamenta five, inserted into a ring, surrounding the calix within, below the teeth, opposite to and shorter than they; antheræ roundish. *Pistil:* germen roundish, villose, superior; style longer than the calix, bristle-shaped, villose; stigma blunt. *Pericarp:* drupe oval, soft, fibrous within, one-celled. *Seed:* nut ovate, covered with fibres, one-celled; the shell hard. ESSENTIAL CHARACTER. *Calix:* one-leafed, hemispherical, five-toothed. *Corolla:* none. *Drupe:* oval, one-celled. *Nut:* ovate, covered with fibres, one-celled; the shell hard.——The only species known is,

1. Hedycrea Incana. The extremities of the branches and twigs have oval leaves, ending in a point, smooth and green on the upper surface, covered with a very white down underneath, and placed alternately; their petiole is short, accompanied at the base by two opposite stipules. The flowers grow in a spike at the ends of the branches and twigs; they are white, close, and sessile. The fruit is of the size of a large olive, white, dotted on the outside with red; the pulp is white, melting, and of a sweetish taste; the shell or nut is bony, and separates with difficulty from the fibres in the pulp; the kernel is two-lobed. This tree grows only to the height of three or four feet, with a trunk five or six inches in diameter. The bark is ash-coloured, very thin, falling in large pieces, and renewing itself every year. The wood is hard, whitish, and when sawed has the smell of rancid oil.—Native of Guiana, where it is called *caligni* by the natives, who are very fond of the fruit, which is ripe in November and December.

Hedyosmum; a genus of the class Monœcia, order Polyandria.—GENERIC CHARACTER. *Male Flowers. Calix:* ament without scales, covered on every side with staminas; perianth none. *Corolla:* none. *Stamina:* filamenta none; antheræ very many, imbricately heaped together, upright, oblong, acuminate at the tip, converging at the base into an oblong ament, and placed on a linear receptacle. *Females, solitary on the same tree. Calix:* perianth one-leafed, covering the germen, three-toothed at the tip: teeth minute, upright. *Corolla:* none. *Pistil:* germen oblong, three-cornered; style very short, three-cornered; stigma simple, obtuse. *Pericarp:* berry roundish, three-cornered, small, superior. *Seed:* single, hard, three-sided, shining. ESSENTIAL CHARACTER. *Male. Ament:* covered with antheræ. No perianth, corolla, or filamenta. *Female. Calix:* three-toothed. *Corolla:* none. *Style:* one, three-cornered. *Berry:* three-cornered, one-seeded.——The species are,

1. Hedyosmum Nutans. Stem shrubby; branches loose; leaves lanceolate, acuminate.—Native of Jamaica.

2. Hedyosmum Arborescens. Stem arborescent; branches stiff, upright; leaves ovate-lanceolate.—Native of Jamaica.

Hedyotis; a genus of the class Tetrandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, four-parted, superior, permanent; parts linear, sharp. *Corolla:* monopetalous, funnel-shaped, a little longer than the calix, half four-cleft; clefts patulous, nearly equal. *Stamina:* filamenta four, subulate, inserted at the sinuses of the corolla; antheræ roundish. *Pistil:* germen roundish, inferior; style filiform, the length of the stamina; stigmas two, thickish. *Pericarp:* capsule twin-globular, two-celled, gaping next the coronal; calix with a transverse cleft. *Seeds:* few, angular. ESSENTIAL CHARACTER. *Corolla:* monopetalous, funnel-shaped. *Capsules:* two-celled, many-seeded, inferior.——The species are,

1. Hedyotis Maritima. Leaves oval, blunt, on short petioles, fleshy; flowers opposite, sessile; stems herbaceous, prostrate, a hand in length, smooth and even; fruit the size of coriander.—Native of the East Indies.

2. Hedyotis Pumila. Leaves ovate, sharp; flowers alternate, peduncled; root annual; stems little, branched, a hand in

length, smooth and even; capsule roundish, crowned with the four teeth of the calix.—Native of Tranquebar.

3. Hedyotis Fruticosa. Leaves lanceolate, petioled; corymbs terminating, involucred. Stem four-cornered; stipules ovate, rhombed, broad, short; corymbs brachiate, or trifid; calix four-cleft; style bifid, blunt.—Native of Ceylon.

4. Hedyotis Auricularia; *Earwort.* Leaves lanceolate-ovate; flowers in whorls. Stems smooth, long; branches long, jointed, alternate. It is accounted a specific in deafness.—Native of Ceylon.

5. Hedyotis Herbacea. Leaves linear-lanceolate, opposite, smooth, quite entire; stem herbaceous, dichotomous; peduncles in pairs. Stem eight inches high, slender, procumbent; flowers axillary, in pairs, but often solitary; corolla white, subcampanulate.—Native of Ceylon and Cochin-china.

6. Hedyotis Graminifolia. Leaves linear; stem decumbent; panicle racemed, with the flowers directed one way; peduncles following the sun. Perennial; stems fillform, a foot long; corolla blue; the segments before noon expanding very wide, in the evening two upright, and two bent back.—Native of the East Indies.

7. Hedyotis Hispida. Leaves linear-lanceolate; flowers in whorls. Stems half a foot in length, decumbent, quadrangular, hispid, with a branch or two; petioles extremely hispid, united with the filiform torn stipules so as to form a short sheath; calix hispid; stamina the length of the corolla; style longer, club-shaped; capsule half-two-celled, the partition disappearing in the middle, and not reaching to the tip; seeds many.—Brought from Canton in China.

8. Hedyotis Rupestris. Leaves four-faced, awl-shaped, channelled; flowers sessile, axillary; corollas villose, with a crooked tube. This is a shrub, seldom exceeding three feet in height; branches diffused, often procumbent at the base, otherwise erect. The flowers are yellow, without scent, sessile, axillary, solitary.—Native of Havannah, on rocks near the sea-coast, and of Jamaica.

9. Hedyotis Diffusa. Leaves lanceolate, acute, rough-edged; flower-stalks simple, axillary, alternate; fruit nearly globose; stem procumbent.—Native of the East Indies.

10. Hedyotis Serpylloides. Leaves ovate; stipulas fringed; flowers in dense, sessile, terminal clusters.—Found in Guadaloupe.

Hedypnois; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common calicled, cylindrical, ten-leaved or thereabouts, permanent; scales linear, erect, acute, equal; calicled at the base, with fewer, narrower scales, which are short and close. *Corolla:* compound, subimbricate, uniform; corollules hermaphrodite, many. Proper monopetalous, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindrical, tubulous. *Pistil:* germen oblong; style filiform, length of the stamina; stigmas two, reflex. *Pericarp:* none; common calix hardened, converging, almost globular, covering the marginal seeds with its scales. *Seeds:* solitary, somewhat oblong, bowed in a little, streaked, roughish, the length of the calix. The outer crowned, with the calicle membranaceous, erectish, obscurely five-cornered, toothletted; pappus none. The inner crowned, with the calicle obscure, many-bristled, very short, within which is a pappus of five erectish awned chaffs. *Receptacle:* naked. Essential Character. *Calix:* calicled, with short scales. *Seeds:* crowned with the calicle; outer without down, covered up in the scales of the calix; inner having a down of five erectish awned chaffs. *Receptacle:* naked, hollow, and dotted.—This genus embraces some species of *Hyoseris* and of *Crepis;* and, according to Jussieu, Lapsana Zacintha. For Hudson's species of Hedypnois, see *Apargia.* See also *Leontodon* and *Tragopogon*, to which this genus is nearly allied.

Hedysarum; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, half five-cleft; clefts subulate, upright, permanent. *Corolla:* papilionaceous, streaked; banner reflex-compressed, ovate-oblong, emarginate, long; wings oblong, narrower than the other petals, straight; keel straight, compressed, broader outwardly, transversely blunt, from the base to the swelling part bifid. *Stamina:* filamenta diadelphous, simple, and nine-cleft, bent in at a right angle; antheræ roundish, compressed. *Pistil:* germen slender, compressed, linear; style subulate, bent in with the stamina; stigma very simple. *Pericarp:* legume with roundish compressed joints, two-valved, and containing one seed. *Seed:* kidney-shaped, solitary. *Observe.* The pericarp differing in this genus has occasioned its being unnaturally separated into several genera. Essential Character. *Corolla:* keel transversely obtuse. *Legume:* jointed, with one seed in each joint.——The species are,

* *With simple Leaves.*

1. Hedysarum Alhagi; *Prickly Hedysarum.* Leaves lanceolate, obtuse, very smooth, pale green, on short footstalks; stem shrubby, thorny, about three feet high, branching out on every side. From under the leaves come out thorns nearly an inch long, of a reddish-brown colour. The flowers come out from the side of the branches in small clusters; they are purple in the middle, and reddish about the rims; legumes sickle-shaped.—Native of the Levant. This plant produces the manna used in Persia, very different from that of the flowering Ash, which is the common kind. The drug is principally collected about Tauris, and is known by the name of *trungibin*, or *terenjabin.* It is a natural exudation from the leaves and branches, which takes place only in very hot weather: at first it resembles drops of honey, but soon thickens into little solid grains.—It is propagated by seeds, which will frequently lie a year in the ground before they vegetate: sow them therefore in pots filled with light earth, and plunge them into a moderate hot-bed; if the plants do not appear by the beginning of June, take the pots out of the bed, and place them where they may have only the morning sun, and in the autumn plunge them into an old bed of tanners' bark under a frame; in spring plunge them in a fresh hot-bed, which will bring up the plants; when they are fit to remove, put them separately into small pots filled with light earth, and plunge them into a very moderate hot-bed, shading them from the sun till they have taken new root; then gradually inure them to the open air, into which remove them in June, placing them in a sheltered situation, where they will remain till the autumn; when they ought to be plunged into an old tan-bed under a frame, where they may be protected from frost, and in mild weather enjoy the free air. In a warm border, by covering it in frosty weather, this plant will endure our winters when they are not severe.

2. Hedysarum Bupleurifolium; *Hare's-ear-leaved Hedysarum.* Leaves lanceolate, acute; stem unarmed; stipules scariose, the length of the petioles; legumes even-jointed, upright, equal. It varies with lanceolate and cordate-oblong leaves.—Native of India. This, and the seventeen following species, are all too tender to endure the open air of our climate. They are propagated by seeds, which must be sown upon a hot-bed early in the spring. When the plants are fit to remove, they must be each planted in a separate small pot, filled with light earth, plunging them into a fresh hot-bed, where they should be screened from the sun till they have taken new root; after which they may be treated in the same manner as other tender plants; always keeping them in the

bark-stove or glass-case, otherwise they will not produce seeds, nor even always flower, in England. They require as much air as possible in warm weather. Many of the sorts seldom flower till the second year.

3. Hedysarum Linifolium; *Flax-leaved Hedysarum.* Leaves linear, hoary; stem prostrate; racemes very short, axillary; legumes globular, small, snow-white, with a permanent style, one-jointed.—Native of the East Indies.

4. Hedysarum Nummularifolium; *Moneywort-leaved Hedysarum.* Leaves wedge-shaped; stems long, angular, diffused; stipules awl-shaped, longer than the petiole, patulous, very small, clothing the stem; spikes solitary from the axils, on a long peduncle; flowers very small; the legumes declined, crescent-shaped, hispid on the back, containing one seed.—Native of the East Indies.

5. Hedysarum Moniliferum; *Necklace Hedysarum.* Leaves orbiculate; legumes necklace-shaped, globular, jointed; stems a span long, prostrate; stipules two-parted, streaked, sharp, scariose; heads of flowers axillary: perennial.—Native of the East Indies.

6. Hedysarum Styracifolium; *Storax-leaved Hedysarum.* Leaves cordate, orbiculate, retuse, smooth on the upper surface, tomentose underneath; stem shrubby, and, like the whole plant, villose; stipules lanceolate.—Native of China.

7. Hedysarum Reniforme; *Kidney-leaved Hedysarum.* Leaves kidney-shaped; stem columnar, annual, a foot and a half high, branched, slender, smooth, procumbent; flowers violet-coloured, in terminating spikes or racemes, consisting of few flowers.—Native of India, and the suburbs of Canton in China.

8. Hedysarum Sororium. Leaves kidney-shaped, emarginate; stem three-sided, herbaceous, sarmentose, smooth, a foot high; petiole almost the length of the leaf; stipules two, oval, small, petioled at the base of the petioles, so that the leaves might in strictness be looked upon as ternate.—Native of the East Indies.

9. Hedysarum Vespertilionis; *Bat-winged Hedysarum.* Leaves simple and ternate, somewhat crescent-shaped, variegated, yellow, red, and green; middle leaflets two-lobed; lobes lanceolate, divaricate; legumes plaited: stem four feet high, upright, very straight, almost simple, round, but four-cornered at the top, furrowed, hispid with very fine hairs, frequently having one or two short upright branchlets; flowers in a simple, long, upright, terminating spike or raceme; corolla white; banner broad, cordate, converging, a little longer than the calix; wings bent in, shorter than the banner, keel of an intermediate length.—It is a native of Siam, from whence it has been carried into Cochin-china, where it is cultivated for its beauty, for in a gentle breeze the leaves as they move resemble as many variegated butterflies.

10. Hedysarum Gangeticum; *Oval-leaved Hedysarum.* Leaves ovate, acute, stipuled. This is an annual plant, about three feet high, having a slender stalk, inclining to be shrubby; flowers minute, in long terminating spikes; banner and keel of the corolla yellow; wings violet-coloured.—Native of India and the suburbs of Canton.

11. Hedysarum Maculatum; *Spotted Hedysarum.* Leaves ovate, obtuse; stems several, from a hand to a long span and a foot in height, either upright or declining, round, slender, roughish with slender hairs, pressed close; flowers on the upper part of the stalk, in pairs one above another, or sometimes three together, on very slender peduncles, forming a long thin spike, in which each pair of flowers is placed in a contrary situation to the next.—Native of the East Indies.

12. Hedysarum Latebrosum. Leaves ovate, serrulate; legumes hid by a vaulted, supine, scariose bracte; stem somewhat shrubby, naked, with a few wand-like divaricate round branches; flowers axillary, peduncle very short, two-flowered, with a leafy bracte, resembling a dry wrinkled leaf, and defending the legume from birds.—Native of India.

13. Hedysarum Vaginale; *Sheathed Hedysarum.* Leaves cordate-lanceolate; petioles simple; stipules sheathing. This plant is annual, herbaceous, and procumbent; stipules acuminate; spikes towards the ends of the stems long and narrow; branches few; legumes cylindric, smooth-jointed, straight, dividing by joints, though they are scarcely apparent on the outside, and there are no divisions within.—Native of India.

14. Hedysarum Glumaceum. Leaves simple, lanceolate; stipules and calices scariose; legumes wrinkled, perennial; stems woody, procumbent, wand-like, round, smooth, a foot high; raceme terminating, when in flower two inches long, when in fruit elongated; flowers usually in pairs, seldom solitary.—Native of the Cape of Good Hope.

15. Hedysarum Imbricatum; *Imbricate-leaved Hedysarum.* Leaves cordate, sessile, stipuled, the upper ones imbricate, flower-bearing; stems herbaceous, filiform, diffused, branched; flowers among the upper leaves, solitary, sessile, shorter, hid by the leaves.—Native of the Cape of Good Hope.

16. Hedysarum Triquetrum; *Triangular-branched Hedysarum.* Leaves oblong; petioles winged; branches three-sided; stems many, perennial, shrubby, procumbent, three feet long, with three side-branches; flowers purple, in spikes or racemes, mostly terminating; banner roundish. In the Cochin-chinese plant, the leaves have not rounded margins, nor refracted petioles, as the plant of Ceylon has; they have both lanceolate stipules, and the stem inclining to red at the end. The Chinese call it *Kasongso.*—Native of India, China, and Cochin-china.

17. Hedysarum Strobiliferum; *Strobile-bearing Hedysarum.* Bractes of the strobiles inflated, cordate, obtuse. This is a tree, with oblong-ovate alternate leaves, quite entire, and petioled; stipules subulate; branches round. There are strobiles from the axils of the leaves, as in the Hornbeam, on a simple flexuose peduncle.—Native of India.

18. Hedysarum Gramineum; *Grass-leaved Hedysarum.* Leaves linear, lanceolate; stipules scariose; racemes naked; pedicels two-flowered; teeth of the calix bearded. This shrub is determinately branched; stems round, stiff, jointed; racemes stiff, elongated, leafless; peduncles in pairs, one-flowered, distant; corolla small, purple.—Native of India.

** *With conjugate Leaves.*

19. Hedysarum Diphyllum; *Two-leaved Hedysarum.* Leaves binate, petioled; bractes in pairs, ovate, acute, sessile; annual; stem herbaceous, procumbent, filiform, round, smooth; peduncles axillary, terminating, longer than the leaves, upright, stiff, many-flowered; flowers alternate, on very short pedicels, between two opposite bractes, acuminate at both ends; corolla yellow or purple.—Native of Jamaica, South America, and the East Indies.

*** *With ternate Leaves.*

20. Hedysarum Adscendens. Leaves roundish, pubescent underneath; stem columnar; branches declined, ascending, hairy; racemes simple, erect, axillary.—Native of Jamaica.

21. Hedysarum Pulchellum. Bractes in pairs, conjugate, orbiculate, marked with lines; stem shrubby, upright, three feet high, round, smooth; branches many, oblique, obtusely angular; spikes of flowers long, straight, terminating; corolla yellow; legume flat, straight, acuminate, composed of two joints defended by the bractes.—Native of India and China.

22. Hedysarum Elegans. Leaves obtuse, tomentose on both sides; bractes conjugate, ovate; legumes bowed; stem

somewhat shrubby, upright, three feet high, branched; spikes upright, mostly terminating; flowers heaped, yellow, each with two hairy bractes, marked with lines.—Native of China, near Canton.

23. Hedysarum Spartium. Leaves ternate and simple, somewhat tomentose; stem dichotomous; flowers in pairs; legumes jointed, hispid. This is a whitish plant, with shrubby variegated stems, very short blunt stipules, and oblong leaves; flowers scattered, subpedicelled, in pairs or solitary; corolla yellow, with the claw the length of the calix, and the border flat.—Native of India.

24. Hedysarum Lineatum. Leaves oblong, marked with lines; racemes axillary, pendulous; stem straight; legumes rhomb-shaped, of one joint only, with one seed.—Native of Ceylon.

25. Hedysarum Supinum. Leaves ovate, bluntish, hoary-villose underneath; stem branched, procumbent; racemes simple, erect, terminating; root long, small, woody. Stems a foot long, reddish, rough, round, woody; corolla purple; legumes crooked, forming a semicircle, brown; the joints united by so small an isthmus, that when they adhere by their roughness to the clothes, they separate; whence the Portuguese name of *Erva de Amor*, or Love-Herb.—It grows almost every where in the woods of Jamaica.

26. Hedysarum Canum. Leaves ovate, acuminate, hoary underneath; stem columnar, branched, erect; racemes terminating, erect; legumes declined, rough with hairs. The stalks are terminated by long spikes of small purple flowers, which are succeeded by narrow pods, straight on one side, but jointed on the other.—Native of Jamaica and Hispaniola.

27. Hedysarum Retroflexum. Racemes erect; legumes pendulous, many-jointed, compressed, with one edge repand, and from four to seven joints; leaflets ovate, tomentose, underneath silky.—Native of India.

28. Hedysarum Trigonum. Leaves ovate, acute, rough with hairs; stem climbing, three-sided; racemes very long, axillary; legumes writhed, bent in. It is a climber, and raises itself generally to the top of the tallest trees in the wood. The stem is every where beset with small hooked bristles or rough hairs. The leaves are much like those of the Kidney-bean; and all the branches terminate in a large and beautiful flower-spike.—Native of Jamaica.

29. Hedysarum Umbellatum. Peduncles umbelliferous; stem shrubby. This shrub has woody branches, the lower ones round and brown, the upper ones angular and villose; peduncles axillary, solitary, shorter than the petioles; flowers white.—Native of India, Tanna, and New Caledonia.

30. Hedysarum Biarticulatum. Stem undershrubby; legumes two-jointed; leaves like those of Trefoil, with ovate-oblong smooth leaflets, almost equal; flowers in spikes.—Native of India and China.

31. Hedysarum Lappaceum. Leaves ternate, obcordate; flowers axillary, subsolitary; legumes two-jointed, with hooked bristles; stems suffruticose, prostrate, pubescent, round, the thickness of a pigeon's quill, very much branched; stipules minute, awl-shaped; flowers on short peduncles, solitary, seldom two together; germen villose.—Native of the East Indies.

32. Hedysarum Heterocarpon. Flowers panicle-spiked; legumes jointed, the lowest one-seeded; stipules bristle-shaped; stems round, herbaceous; spike of flowers narrow. There is a variety which is more procumbent, with blunter leaflets: the lowest legumes of this are not always one-jointed.—Native of Ceylon, China, Japan, and the Society Isles.

33. Hedysarum Viscidum. Legumes membranaceous, even, entire; stem and branches hispid. The upper branches are hispid, with spreading viscid hairs; leaves on longish petioles; leaflets broad, from round inclined to rhomb-shape.—Native of India.

34. Hedysarum Scorpiurus. Leaves oblong, hirsute underneath; stems procumbent, three-cornered; racemes axillary; legumes roundish, upright. This plant grows in tufts, and seldom rises above sixteen or seventeen inches from the root.—Native of Jamaica and Hispaniola.

35. Hedysarum Canadense; *Canadian Hedysarum.* Leaves simple and ternate; stem even; flowers racemed. This is an upright plant, and mostly smooth; stem streaked, and angular; leaflets lanceolate; stipules awl-shaped. It is perennial. A native of Virginia and Canada, where it is found flowering in July and August.—The seeds of this plant may be sown in the beginning of April, in a light fresh earth. When the plants are come two inches high, they should be transplanted where they are to remain for good; but if they are not too thick in the seed-bed, they may be suffered to remain there until the following autumn, at which time they should be carefully taken up, and transplanted into the borders where they are designed to stand; for their roots generally run down very deep, so that it is unsafe to remove them often. This plant produces its flowers about the same time of the year as the former, and, if the season proves favourable, perfects its seeds in autumn; and the roots will abide in the open air very well, resisting the severest cold, provided they be planted in a dry soil.

36. Hedysarum Gyrans; *Sensitive Hedysarum.* Leaves oval-lanceolate, obtuse, the lateral ones minute; racemes terminating and axillary, rather simple, many-flowered, long; leaflets pubescent; flowers nodding; bractes solitary, membranaceous, cordate, under the flowers deciduous; calix erect, two-lipped; upper lip trifid, lower with two smaller contiguous teeth; banner of the corolla largish, roundish, entire, brown with dusky streaks; wings connected with the keel by their upper edge, brown; keel longer than the wings, bifid at the base and tip, compressed, ferruginous; legume on a short pedicel, compressed, channelled on the back, crenate in front, gaping, containing five or six kidney-form oblong seeds. The leaves are of a bright green, with the middle part of a more glaucous appearance than the rest. This is a wonderful plant, on account of its voluntary motion, which is not occasioned by any touch, irritation, or movement in the air, as in Mimosa, Oxalis, and Dionæa, nor is it so transitory as in Amorpha. No sooner, says Linneus, had the plants raised from seed acquired their ternate leaves, than they began to be in motion this way and that; this movement did not cease during the whole course of their vegetation, nor were they observant of any time, order, or direction; one leaflet frequently revolved, whilst the other on the same petiole was quiescent; sometimes a few leaflets only were in motion, then almost all of them would be in movement at once: the whole plant was very seldom agitated, and that only during the first year. It continued to move in the stove during the second year of its growth, and was not at rest even in winter. Swartz observes, that the motion is irregular, and that it sometimes ceases entirely; that it is immoveable in a very hot day, being only slowly agitated in the evening. In our climate, the leaves in general only make a feeble attempt at exerting this extraordinary faculty towards the middle of the day. We are at a loss to account for this motion, which does not depend upon any external cause that we can trace, and which we are not able to excite by any art that we possess. It is not the action of the sun's rays, for the plant is fond of shade, and the leaves revolve well on rainy days, and during the night: exposed to too much wind

or sun, it is quiet. Perhaps, says Linneus, there may be some part in vegetables, as in animals, where the cause of motion resides.—It is a native of Bengal, near the Ganges; and is there called *Buràm chadali*, or *Burram chandali*. It grows luxuriantly in the gardens of Jamaica.

37. Hedysarum Canescens; *Rough-leaved Hedysarum.* Leaves scabrous underneath; stem hispid; flowers racemed, conjugate. This is an upright hairy plant; the leaflets are ovate; stipules awl-shaped, subcordate; flowers white.—Native of Virginia.

38. Hedysarum Repandum. Leaves ternate, repand-crenate; racemes terminating, elongated. The stem is woody, round, purplish, pubescent at top; leaflets on a short petiole, ovate, unequal; petioles two inches long, pubescent, jointed, and thicker at the base, with two bristle-shaped scales between the leaflets; stipules lanceolate, ciliate; peduncle terminating, erect, half a foot long; flowers very remote, purple, before they open drooping; legume linear.—Native of Arabia.

39. Hedysarum Adhærens. Leaves ternate, oblong; racemes axillary; legumes cylindric, jointed, villose; stems weak, simple, three-sided, somewhat hairy; leaflets petioled, an inch long, the side ones smaller, having long hairs thinly scattered over both surfaces, and pressed close to them; petioles an inch and a half long, hairy.—Native of the West Indies.

40. Hedysarum Marilandicum; *Maryland Hedysarum.* Leaves roundish; stem frutescent, branched very much; legumes jointed, even; root perennial; flower-stems squarish and roughish, with small flowers, distant from each other, in two long rows, on short slender peduncles; corolla purple fading to blue; banner broadish, first concave, then spreading, having greenish spots at the base; wings applied to the keel, of a purple colour; keel compressed, whitish towards the base.—Native of Virginia, Carolina, and Maryland.

41. Hedysarum Tortuosum; *Twisted-podded Hedysarum.* Leaves oval-oblong, obtuse, smoothish; racemes erect, axillary; legumes twisted, compressed, pubescent. It grows erect, and rises generally to the height of two feet and a half or more; flowers in spikes thinly placed, on pedicels half an inch long; corolla of a pale purple colour.—It is common in the remote hills and inland parts of Jamaica, Santa Cruz, and Vera Cruz.

42. Hedysarum Spirale; *Spiral-podded Hedysarum.* Leaves ovate, obtuse, smooth; stem very much branched, with diffused branches; racemes loose, divaricate; legumes spirally twisted; flowers small, of a pale purplish colour. Annual.—Native of Jamaica.

43. Hedysarum Frutescens. Leaves subovate, villose underneath; stem frutescent; root perennial; flowers at the ends of the branches in short spikes, purplish-yellow and small.—Sent by Dr. Dale from South Carolina. This may be raised in the same manner as directed for the second species. In summer the plants may be exposed to the open air, but in the autumn they must be placed under a frame to screen them from frost; the following spring some of these plants may be shaken out of the pots, and planted in a warm border, where, if the summer prove warm, they will flower, but these seldom perfect their seeds; therefore two or three plants should be put into larger pots, and plunged into a moderate hot-bed, which will bring them early to flower, and if the glasses be kept over them in bad weather, these will ripen their seeds in autumn; and the roots will continue some years, if screened from frost in winter.

44. Hedysarum Axillare. Leaves rhombed-roundish; stem creeping, rooting; petioles upright; scapes axillary, longer than the leaves. This runs many feet from the main roots, commonly casting a few fibres from all the joints that touch the ground, which greatly forwards its luxuriant growth. The leaves are marked with some prominent veins on the under side, and are seldom less than an inch and a half in length.—Common in the shady hills of Jamaica and St. Domingo.

45. Hedysarum Viridiflorum; *Green-flowered Hedysarum.* Leaves sharpish; stem upright; racemes very long, upright: perennial.—Native of North America.

46. Hedysarum Hirtum. Leaves oval; stem shrubby; spikes oblong; calices and fruits hirsute, one-seeded; legumes of one joint, ovate-acute. In gardens, the first year it bears mutilated flowers, and yet is fruitful. The second year the corollas are white.—Native of Virginia.

47. Hedysarum Junceum; *Slender-branched Hedysarum.* Leaves lanceolate; legumes one-jointed, rhomb-shaped; peduncles subumbelled, lateral; root perennial; stem herbaceous, two feet high, rushy, wand-like, round, somewhat furrowed, smooth, somewhat pubescent towards the end; branches of the same length and structure with the stem, alternate, few; flowers in pairs, erect, pedicelled; corolla white; banner broad, roundish, scarcely emarginate, with blood-red streaks at the base; wings ovate, rounded at the tip; keel bifid from the tip to the middle; the lobes rounded. It flowers in July and August.—Native of India.

48. Hedysarum Violaceum; *Violet-flowered Hedysarum.* Leaves ovate; flowers in pairs; legumes naked, veined, jointed, rhomb-shaped; flowers violet-coloured, in pairs, usually connected by their proper pedicels, in some glomerate, from the axils of the leaves, in others fixed here and there on filiform peduncles.—Native of North America.

49. Hedysarum Paniculatum; *Panicled Hedysarum.* Leaves linear-lanceolate; flowers panicled; legume rhomb-shaped; flowers purple.—Native of Virginia.

50. Hedysarum Nudiflorum; *Naked-flowered Hedysarum.* Flowering-stem naked; leafy stem angular; flowers purple.—Native of Virginia.

51. Hedysarum Repens; *Creeping Hedysarum.* Leaves obcordate; stems procumbent; racemes lateral; flowers variegated red and white, or sometimes white only, on long axillary upright peduncles, disposed in a small spike; legumes short, acuminate, smooth, compressed, containing one very small ovate seed.—Native of both Indies.

52. Hedysarum Hamatum; *Hook-podded Hedysarum.* Leaves nerved, naked; spikes sessile; legumes two-seeded, covered, having a hooked point; root long, deep; stems many, round, hairy, from seven or eight inches to a foot in length, creeping, branched; leaflets small, smooth, shining, ciliate, having many beautiful white nerves on the under surface. The flowers come out towards the top; they are of an orange colour, with a little purple in the middle.—Native of Jamaica, Hispaniola, and Ceylon. There is a variety, the stems of which are from one to two feet in length, shrubby, gray, branched into many twigs, which are green and hoary; leaflets purple on the edge, having purple spots on their backs, and a down of the same colour; petioles half an inch long; flowers on the tops of the twigs, yellow, several opening successively. Swartz makes it a distinct species under the name of Stylosanthes Viscosa.—Native of Jamaica and Ceylon.

53. Hedysarum Triflorum. Leaves obcordate; stems procumbent; peduncles one-flowered, seldom three together; roots simple, long; flowers minute, scarlet; legume small, peduncled, crenate in front, containing three or four seeds, which are roundish and minute. It wakes at ten o'clock in

the morning, and sleeps at four in the afternoon.—Native of both Indies and China. There is a variety of this species found in Ceylon and China.

54. Hedysarum Barbatum; *Bearded Hedysarum.* Racemes oblong, somewhat branched; legumes bent in; calices hairy; stem procumbent, from three to five inches in length, branched, round, somewhat shrubby at the base, even; branches procumbent, almost simple, short, round, pubescent; flowers terminating in a sort of spike, comose; peduncles long, two, approximating, filiform; the flowers nodding, pale blue.—Native of Jamaica, in the dry sandy parts.

55. Hedysarum Lagopodioides. Racemes oblong; legumes bent in; calices hirsute; stem undershrubby, upright, two feet high, round, hispid, with diffused branches; flowers dark purple, in oblong, dense, very hirsute, terminating spikes; seeds flattish, brown, even, small.—Native of China and New Caledonia.

56. Hedysarum Microphyllum. Leaves ovate, villose; stem frutescent, upright, smooth; flowers terminating, panicled; petioles capillary, purple, smooth; flowers on capillary pedicels, alternate or subdichotomous, flexuose, purple, hispid; corolla purple.—It flowers in August and September, and is a native of Japan.

57. Hedysarum Racemosum. Leaves oblong, stipuled, smooth; stem frutescent, upright; racemes axillary, upright, very long; legumes smooth. Racemes a hand or more in length, from upright spreading, capillary, smooth, often several; pedicels solitary or in pairs, one-flowered, very short, capillary.—Native of Japan.

58. Hedysarum Caudatum. Leaves oblong, smooth; stem herbaceous; panicle terminating; calix hirsute; corolla purple; legume almost linear, with ferruginous down on it.—Native of Japan.

59. Hedysarum Tomentosum. Leaves tomentose underneath; stem angular, tomentose; racemes axillary. The whole plant, except the surface of the leaves, is tomentose; stipules two, at the base of the petiole, broad at the base, bristle-shaped.—Native of Japan.

60. Hedysarum Sericeum. Leaves emarginate, villose; stem frutescent, upright; flowers axillary, solitary, on very short peduncles; stipules bristle-shaped; calices silky, tomentose. It flowers in September and October.—Native of Japan.

61. Hedysarum Virgatum. Leaves obtuse, with a point; stem angular, hairy; peduncles capillary, three-flowered: it is herbaceous, with hairy angles, upright, purplish; branches alternate, filiform, angular, hairy, from erect spreading, wand-like; flowers axillary; peduncles hairy, three-flowered at the tip, from spreading reflex, an inch long.—Native of Japan.

62. Hedysarum Pilosum. Leaves ovate, acuminate; stem decumbent, rough with hairs; racemes axillary; each raceme has about four flowers; peduncle capillary, scarcely the length of the petiole; corolla purple. It flowers in September.—Native of Japan.

63. Hedysarum Striatum. Leaves oblong, stipuled; stem herbaceous; flowers axillary, solitary; stipules at the base of the petiole, ovate, membranaceous, ferruginous, pressed close; flowers single, on very short peduncles from the axils of the leaves; calix hairy; corolla purplish.—Native of Japan.

64. Hedysarum Volubile; *Twining Hedysarum.* Leaves ovate-oblong; stem twining; root perennial; spikes of flowers axillary, on very long, slender, smooth, peduncles; flowers distant, two or three together, generally opposite; banner broadish, first concave, then flat, and bent back, with a greenish spot at the base; wings of a middling length, applied to the keel, which is compressed and cuspidate; the whole of a very lively purple, except in the hidden parts of the banner, which changes to an obscure dun colour.—Native of North America.

65. Hedysarum Triangulare. Leaves ovate, acute, marked with lines; all the nerves underneath, with the midrib above, are very tomentose; umbels axillary; branches three-sided, flexuose; flowers small, sessile, in a peduncled axillary umbel; angles of the branches tomentose.—Thunberg gathered it in Java.

**** *With pinnate Leaves.*

66. Hedysarum Argentatum; *Silvery Hedysarum.* Leaflets silky underneath, and shining; legumes jointed; stem leafless; scapes the length of the leaves, or higher, somewhat tomentose, white; spike terminating; calicine leaves near the length of the corolla, which is violet-coloured or white, with the wings shorter than the banner; the legume consists of two or three lanuginous joints, enveloped in the dry flower.—Perennial, and a native of Siberia.

67. Hedysarum Alpinum; *Alpine Hedysarum.* Legumes joined, smooth, pendulous: stem upright, somewhat shrubby, round, simple, branched; flowers yellow, in small upright racemes.—Native of Siberia and Cochin-china.

68. Hedysarum Obscurum; *Creeping-rooted Hedysarum.* Stipules sheathing; stem upright, flexuose; flowers pendulous; root perennial, creeping; root-leaves on the flowering plant none; stem-leaves few, alternate; leaflets three to eight on each side, with an odd one, ovate, oblong; flowers eight lines in length, imbricate, pendulous, on short peduncles, varying in number, having no scent; corolla violet-purple or red, seldom white; banner spotted with white above the claw; that and the wings nearly of the same length; the keel shorter; germen commonly red.—It flowers on the higher Alps, of which it is a native, in July.

69. Hedysarum Coronarium; *Common Hedysarum,* or *French Honeysuckle.* Legumes jointed; prickly, naked, straight; stem diffused; root biennial. From the angles which the leaves form with the stem and branches, peduncles come out five or six inches in length, sustaining spikes of beautiful red flowers, which open in June and July, and perfect seeds in September, after which the roots commonly decay; but if the plants be cut down before they seed, they will last longer.—It is a native of Spain and Italy. Ray observed it in Sicily. In Calabria it grows wild in great luxuriance, near four feet high, affording excellent nourishment to horses and mules, both green and made into hay; but it does not endure the spring well in the north of Italy: and on that account we may reasonably infer that it could not be profitably cultivated in England. Osbeck mentions, that he saw it brought into Cadiz in great bundles, as food for the cattle. In German, French, Italian, and Spanish, it has the name of *Sulla;* the Germans also call it *Kronenklee, Schildklee,* and *Spanische Klee:* The French also use the names of *Sainfoin d'Espagne,* and *Sainfoin à bouquets;* and the Dutch call it *Sierlyk haanekop.* In England it was formerly called *Red Satin-Flower,* or *Red-flowered Fitchling,* as well as *Red* or *French Honeysuckle,* the name it still retains.—It may be propagated by sowing the seeds in April, in a bed of light fresh earth; and when the plants come up, they should be transplanted into other beds of the like earth, and in an open situation, at about six or eight inches' distance from each other, leaving a path between every four rows, to go between them to hoe and clear them from weeds. In these beds they may remain till Michaelmas, and may be then transplanted into the large borders of a parterre or pleasure-garden, allowing

them at least three feet distance from other plants, amongst which they should be interspersed, to continue the succession of flowers; where they will make a fine appearance when blown, especially the red sort, which produces very beautiful flowers. As these plants decay after they have perfected their seeds, there should annually be a fresh supply of plants raised, where they are desired, for the old roots seldom continue longer. They are very proper ornaments for large borders, or to fill up vacancies among shrubs; but they grow too large for small borders, unless their stalks are pruned off, leaving only two or three on each plant, which, if kept upright with sticks, will prevent their hanging over other flowers.

70. Hedysarum Flexuosum; *Waved-podded Hedysarum.* Legumes jointed, prickly, flexuose; stem diffused. The stalks rise nearly a foot high, and the leaves are composed of two or three pairs of ovate leaflets, terminated by an odd one. The flowers come out in spikes at the tops of the stalks, and are of a pale red, intermixed with a little blue. They appear in July, and are succeeded by jointed pods, which are waved on both sides, forming an obtuse angle at each joint; the seeds ripen in autumn.—Native of the Levant. This and the two following species should be sown in April where they are to remain, and require only to be thinned where they are too near, and kept free from weeds.

71. Hedysarum Humile; *Dwarf Hedysarum.* Legumes jointed, rough; wings of the corolla obsolete; spikes hirsute; stems depressed, half a foot in length, usually with one branch and leaf only; root perennial; leaflets obovate, oblong, villose underneath. It is an annual plant, and flowers in July and August.—Native of the south of France and Spain. See the preceding species.

72. Hedysarum Spinosissimum; *Prickly Hedysarum.* Legumes jointed, prickly, tomentose; stem diffused; annual. The legume has generally two orbicular joints equally prickly; the stem is terminated by small spikes of purple flowers, which are succeeded by small rough legumes.—Native of Spain and Portugal. See the 70th species.

73. Hedysarum Virginicum. Stem shrubby; legumes jointed, smooth, peduncled, upright; leaflets oblong, blunt, small, many; flowers violet-coloured, in terminating spikes. The legumes are slender, with roundish, flatted seeds.—Native of Virginia and Cochin-china.

74. Hedysarum Fruticosum. Leaflets alternate, oblong, soft; stipules subulate; racemes axillary; joints of the legumes netted; corollas purple; legumes flatted, with the joints wrinkled and netted. It is a very handsome plant, grateful to horses, and extremely useful in fixing driving sand.—Native of Siberia.

75. Hedysarum Pumilum. Stem undershrubby; wings shorter than the banner, and banner shorter than the keel; legumes one-seeded. This is a small shrub, only a hand in height; spike smooth; banner half the length of the keel, which is very large, broad, and blunt; calix even, with very short awl-shaped teeth.—Native of Spain.

76. Hedysarum Argenteum. Leaves pinnate; legumes one-seeded, wrinkled; spikes ovate, very hairy; stems erect, hairy; root-leaves simple; petiole elliptic, the next ternate; flowers crowded; cauline peduncles axillary, elongated, higher than the stem, tomentose, hoary at top; corolla purple, half the length of the calix; banner orbiculate; wings minute.—Native of the Levant and Barbary.

77. Hedysarum Onobrychis; *Cultivated Hedysarum, Saintfoin,* or *Cock's Head.* Legumes one-seeded, prickly; wings of the corolla equal in length to the calix; stem elongated; root perennial; peduncles long, slightly hairy, bearing numerous flowers in a long spike, thickly imbricate upwards, each with an awl-shaped bracte, longer than the pedicle; corolla standard oval, slightly emarginate, partly bent back, shorter than the keel, flesh-coloured, striated with red veins; wings not longer than the teeth of the calix, hooked near the base, pale flesh-colour; keel broad, bent with an obtuse angle at the top, flesh-coloured, with a deeper red beneath. It is much cultivated in several parts of Europe, in dry soils, for feeding cattle; and is found in England on Gogmagog hills, Newmarket heath, about Royston in Norfolk, on Salisbury plain, in Cambridgeshire, Hertfordshire, on Epsom downs, Cotswold hills, about Malton in Yorkshire, and generally in all other hilly situations and calcareous soils. It yields great abundance of excellent fodder, but is supposed to be much sooner damaged by rain, when cut, than any other sort of plant usually mown for hay. The old English names were *Medick Vetchling,* and *Cock's Head.* The modern name of *Saintfoin* came from France, whence we originally had the seed. The Germans have many names for it: they call it *Esparzette, Esper, Sparsette, der Gemeine Sussklee, Hahnenkopf, Hahnenkamn, Hahnem Kammklee, Grosser Turkischer Klee, Turkischer Kleberklee, Schweizerklee, Wickenklee, Eselswicken, Heiligheu, Stachelheu, Stachelahre, Weidhopfenkraut, Gurtriemen, Frauenspiegel, rothe Ramsen, Sainfoin.* The Dutch call it *Haanckammetje's:* the Swedes and Danes, *Esparset,* and *Sainfoin:* the French *Sainfoin, (Saintfoin,) Esparcette, Foin de Bourgogne:* the Italians, *Cedrangola:* the Spanish and Portuguese, *Pipirigallo.*—Native of England, France, Flanders; many parts of Germany, as the Palatinate, Bohemia, Silesia; in Austria, Carniola, Switzerland, Savoy, Italy, Spain, Siberia; on hilly pastures, and open downs, particularly in a calcareous soil. If sown upon a dry, gravelly, or chalky soil, it will continue eighteen or twenty years; but on a deep moist soil the roots will run down into the ground, and in the winter season the moisture will rot them; so that it seldom lasts two years in such places. It is esteemed one of the best sorts of fodder for most cattle, and is a great improvement to chalky hills, upon which it succeeds better than in any other soil, and will continue many years, provided there be a surface of six or eight inches upon the chalk. The best time for sowing the seed is the beginning or middle of April, according to the season, observing always to do it in dry weather, otherwise the seeds will be apt to burst, and never come up. The seed being large, the common allowance is four bushels to an acre, but three bushels are amply sufficient. If it were sown in rows, as directed for Lucerne, it would be a great improvement to the plants; for, when these have room enough, they branch out on every side, and become very strong; and by hoeing between them the natural grass may be kept down, which, if permitted to grow, will rob the Saintfoin of its nourishment, and in time destroy it. Saintfoin is frequently sown with Oats or Barley, but this is a very bad method, for what is gained from the crop of corn, will be doubly lost in the Saintfoin; and this generally holds true in most sorts of grass-seeds, for the corn growing over it, so weakens the crop beneath, that it scarcely recovers its strength in a year after. The ground in which the seed is sown should be well ploughed, and made very fine. If it be sown in drills, the drills should be eighteen inches asunder, and about an inch deep; if the plants come up too thick, they should be hoed out to the distance of six or eight inches, when the ground is hoed to destroy the weeds. The first year, by no means feed the crop down; for, the crown of the roots being young and tender, cattle would eat it so low as entirely to destroy the

HEDYSARUM ONOBRYCHIS_
Saintfoin.

HIBISCUS ABELMOSCHUS_
Target-leaved Hibiscus.

HELIOTROPIUM_
Peruvian Turnsole.

Published by Henry Fisher Caxton London 1823

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

roots; and, if large cattle were let in upon it, they would trample it down so much as to prevent its shooting again; the first year therefore it should be mowed, and this should be done when it is in flower. The sooner it is carried off the ground when cut, the better it will be for the plants. It does not require to be so often turned as other hay, for the stalks being large they will not lie so close in the cocks as to ferment; in catching-weather, therefore, the cocks may be made large, and, if they be turned and spread every other day, or once in three days, there will be little danger of its heating so as to receive damage; but if it be spread, and much exposed to rain and dew, the goodness of the hay will be exhausted. The crop will be fit to cut the first year towards the end of July, or at the beginning of August. After this is cleared off, the roots will soon shoot again, and by the end of September, provided the season be favourable, there will be a fine crop fit for feeding. Sheep will enrich the ground with their dung, and greatly strengthen the roots; but they should not be suffered to remain upon it longer than the middle of November the first year; and the succeeding years, when the crop is cut early, it should not be fed upon longer than the middle of September. The most common time of sowing Saintfoin is in the spring; and it is even commonly reputed bad husbandry to sow it in the autumn, because the frost is apt to draw it out of the ground. It has, however, been sown with success in October along with Wheat or Rye, after Winter Tares. The crop was good, even the first season, though it happened to be a very dry one; whereas it is well known that Saintfoin sown in the spring yields a very scanty crop the first year, even when assisted with manure. At either season it is commonly sown with corn; but it is still doubtful whether the crop of artificial grass may not be diminished in proportion as the crop of corn flourishes. Other seeds are sometimes sown with it, to give a crop the first year, as White Clover, common Red Clover, and Trefoil: of these the first is much the best. The quantity of seed usually sown is at least four bushels, and some sow five; though Mr. Miller is for sowing a less quantity. In drilling, two bushels are sufficient; but this is not a common practice with Saintfoin. One of the best preparations for Saintfoin is, to take two crops of Turnips in succession, and then in the spring to sow four bushels of this seed with two bushels of Barley. Coal-ashes are a good dress for Saintfoin; and soot a still better, in the quantity of from ten to twenty bushels on an acre, laid on early in the spring. It is much infested with a kind of grass which botanists call Bromus Sterilis, and farmers know by the name of Black-grass. The scythe slips over it; the seed ripens very early, and is difficult to separate from the Saintfoin seed. It may easily be pulled up by hand. When the crop begins to fail, or the land is wanted for something else, a Saintfoin lay may be broken up successfully for Potatoes; for the red worm, which makes such ravages if corn be sowed without paring and burning, will not touch the Potatoes. The hay made from plants saved for seed is no better fodder than chopped straw or chaff; and to have the hay in perfection, it should be cut before it begins to flower, when the juice abounds, and it will nourish cattle much more than when it stands to be in full flower. This plant is exceedingly wholesome for horses, and is esteemed one of the best sorts of food for cattle, especially in the spring, nor is there any danger attending the use of it, as there is in Clover. It produces abundance of milk; and butter made of that milk is very good. Since it has been introduced into England, many dairy farms have been set up, where it was formerly impracticable: and if this plant and Lucerne was properly cultivated to such an extent as they might be, not only a much greater quantity of milch cows could be maintained, but a greater number of black cattle might be fattened, and more sheep and hogs, which would be a great improvement to many estates in hilly countries: for, by increasing the live-stock, there will be an addition of manure for dressing the land in proportion. Saintfoin is allowed on all hands to be an admirable improvement on lime-stone rocks and chalk downs; which, in order to be cultivated to the greatest advantage, should be in this course, with no more arable than is necessary for the change. Thus, if Saintfoin last sixteen years, as it certainly will, if properly managed, then sixteen parts of the down should be Saintfoin, and as many more parts as there are years necessary for tillage before the ground should be sown with it again: suppose this period to be five years, the portions would then be,

10, Saintfoin.
1, Saintfoin pared and burnt, and under Turnips.
1, Barley or Oats.
1, Clover.
1, Wheat.
1, Turnips.
1, Barley or Oats, and with this crop Saintfoin sown again.

16

Suppose each part to contain twenty-seven acres, then there would be two hundred and seventy acres of Saintfoin; and so on. Saintfoin is also a vast improvement in thin, loose, dry, sandy loams, upon marl or chalk bottoms. Thin soils that wear out or tire of clover, are laid down to great advantage with it, will last twenty years, and pay the farmer as well as his best corn crops. If a flock of sheep be an object of primary importance, this plant will afford them plenty of dry food for winter in hard weather. An acre of indifferent land will yield two tons of Saintfoin dry, and therefore twenty acres will serve a thousand sheep for a month, supposing a sheep eats three pounds of hay in a day, which is a large allowance. Now, the expense of an acre of Saintfoin, including fourteen shillings for rent, tithe, and poor, is about one pound; whereas that of an acre of Turnips will be two pounds seven shillings. Eight acres and a half of Turnips then balance twenty acres of Saintfoin. Now, a thousand sheep will eat two acres and a half of Turnips in a day; and therefore seventy-five acres will be required for a month, or, at the lowest calculation, twenty-four acres; the expense of which is fifty-six pounds eight shillings, to be set against twenty pounds, the expense of Saintfoin. Some green food, however, should be joined with the hay, for milch ewes or cattle. Green Borecole, the Turnip-rooted Cabbage, or the Swedish Turnip, would answer this purpose; being hardy, and standing above the snow. One great advantage of this, in common with other artificial grasses, is, that even in a dry season from a ton to a ton and a half of hay may be obtained from an acre, when natural meadows unwatered will produce only half a ton. Modern authors affect to write *Sainfoin*, as if the term meant *wholesome hay*; whereas it is called *Saintfoin*, or holy hay, from a presumption of its superior excellence. Ignorant persons confound it with Cinquefoil, from the sound merely; for no two vegetables can be more different.

78. Hedysarum Saxatile; *Rocky Hedysarum.* Legumes one-seeded, furrowed, without prickles; wings of the corolla very short; scapes subradicate; stems under ground woody, above ground scarcely any: the spike resembles that of the foregoing species, but is whitish.—Native of Provence, the county of Nice, and Siberia. Perennial.

79. Hedysarum Caput Galli; *Cock's-Head Hedysarum.* Legumes one-seeded; teeth of the crest subulate; wings very

short; stem diffused; root white, annual; flower twice as long as the calix; banner ovate, retuse; keel shorter than the banner; wings very small, one-fourth the length of the calix.—Native of France and Sicily, flowering in July and August.

80. Hedysarum Crista Galli; *Cock's-Comb Hedysarum.* Legumes one-seeded, prickly; divisions of the crest lanceolate, toothletted; root annual.—Native of the Levant.

81. Hedysarum Crinitum; *Crooked-podded Hedysarum.* Racemes long; legumes bent in; stem shrubby, five feet high, round, tomentose, with diffused branches; flower violet-coloured, in a close, round, straight, terminating spike, a foot long; bractes lanceolate, acuminate, ciliate, two-flowered.—Native of India, Cochin-china, and China.

82. Hedysarum Comosum. Leaves pinnate, lanceolate; racemes elongated, cylindric; stem shrubby; branches angular, villose; flowers crowded on very short pedicels. Jacquin describes it as a very handsome plant, with a perennial root; an upright round stem, a foot and half high, leafy all over, closely hispid, with very minute white hairs; flowers at first red, but changing to blue, and soon falling.—Found by Kœnig in the East Indies, and by Issert on the coast of Guinea.

83. Hedysarum Cornutum; *Horned Hedysarum.* Leaflets linear; legumes one-seeded, even; stems shrubby; peduncles permanent, thorny; flowers three or four, alternate, pedicelled, placed before the tip of the peduncle.—Native of the Levant.

84. Hedysarum Incanum; *Hoary-leaved Hedysarum.* Leaves without stipules, hoary underneath; stem erect; flowers in racemes, drooping, flesh-coloured. It has no stipules.—Native of Japan.

85. Hedysarum Lineare; *Linear-leaved Hedysarum.* Leaflets lanceolate-linear; spikes terminating; legumes straight, smooth, and even; stem diffused, suffruticose, two feet high. The root is thought to be deobstruent, an emmenagogue, and to create an appetite.—Native of Cochin-china.

86. Hedysarum Sericeum. Leaves ternate; leaflets ovate, silky underneath; flowers in spikes, axillary and terminating; stem shrubby, six or seven feet high, dividing into several branches; flowers small, and of a bright purple colour; legumes flat, smooth, jointed, about an inch long.—Native of La Vera Cruz.

87. Hedysarum Villosum. Leaves ternate; stem diffused, villose; flowers in terminating spikes; calices very villose. This is an annual plant, seldom rising more than eight or nine inches high, sending out several branches from the root, which are diffused and hairy; spikes close and short; corolla purple.—Native of La Vera Cruz.

88. Hedysarum Glabrum. Leaves ternate; leaflets obcordate; stem panicled; legumes smooth, lunulate, compressed, oblique to the stem, one-seeded.—Native of Campeachy.

89. Hedysarum Scandens. Leaves ternate; leaflets obovate; stem twining; spike very long, bent back. It climbs to the height of ten or twelve feet. Flowers dark purple, sitting close to the stalk.—Native of La Vera Cruz.

90. Hedysarum Pedunculatum. Leaves ternate; the middle leaflet on a longer petiole; racemes axillary, upright, very long; root perennial; stem annual, erect, about two feet high. The flowers are produced in long axillary spikes, growing erect; they are small, and of a bright yellow colour, sessile, and succeeded by jointed pods, straight on one side.—Native of South Carolina.

Heisteria; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-cleft, acute, small, permanent. *Corolla:* petals five, ovate, acute, concave, spreading. *Stamina:* filamenta ten, ovate, acute, flat, upright, alternately shorter; antheræ roundish. *Pistil:* germen roundish, flatted; style upright, short; stigma four-cleft, obtuse. *Pericarp:* drupe oblong, flatted at the tip, placed on a very large coloured calix. *Seed:* nut oval, obtuse. Essential Character. *Calix:* five-cleft. *Petals:* five. *Drupe:* with a very large coloured calix.——The species are,

1. Heisteria Coccinea. This is an inelegant branching tree, twenty feet in height. Leaves oblong, quite entire, drawing to a sickle-shaped point, shining, on short petioles, alternate, half a foot in length; flowers small, peduncled, axillary, with white corollas; calix in the flower small and green, in the fruit scarlet, with a very large spreading limb, and short, very blunt, roundish segments.—Native of Martinico, in close woods near torrents, flowering in February and March, and fruiting in June. The French inhabitants call it *Bois Perdrix*, birds being very fond of the fruit.

2. Heisteria Cauliflora. Leaves oblong, somewhat obovate, tapering at the base; flowers from the stem and naked branches; calix of the fruit closed, deeply lobed.—This lofty tree is found in Guiana.

3. Heisteria Parvifolia. Leaves ovate, pointed, shining; flowers axillary; calix of the fruit widely spreading, with deep ovate lobes.—Found in Sierra Leone.

Helenium; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common simple, one-leafed, many-parted, spreading; leaflets about twenty, gradually drawing to a point. *Corolla:* compound, radiate; corollets hermaphrodite, numerous in the disk; females as many as there are parts of the calix, in the ray. Proper of the hermaphrodites tubular, shorter than the calix, five-toothed; of the females ligulate, broader outwards, trifid at the tip, longer than the calix. *Stamina:* in the hermaphrodites; filamenta five, capillary, very short; antheræ cylindric, tubular. *Pistil:* in the hermaphrodites; germen oblong; style filiform, length of the stamina; stigma bifid: in the females, germen oblong; style very short; stigma bifid. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites, solitary, obovate, angular, crowned with a small five-toothed calicle: in the females, very like the others. *Receptacle:* naked, convex; the calicine chaffs only of the ray separating the florets. Essential Character. *Calix:* simple, many-parted. *Corollets:* of the ray, semitrifid. *Down:* five-awned. *Receptacle:* naked, excepting the calicine chaffs in the ray.——The species are,

1. Helenium Autumnale; *Smooth Helenium.* Leaves very smooth. It rises to the height of six or seven feet in good ground; the roots when large send up a great number of stalks, which branch towards the top. The leaves sit close to the stalks, and from their base is extended a leafy border along the stalk, so as to form what was generally termed a winged stalk, but Linneus calls it a decurrent leaf; the upper part of the stalk divides, and from each division arises a naked peduncle about three inches long, sustaining one large bright yellow flower, shaped like a Sun-flower, but much smaller, having long rays, which are jagged pretty deep into four or five segments; these appear in August, and there is a succession of flowers on the plants till the frost puts a stop to them. The whole plant is intensely bitter, with something of the aroma of *Anthemis Nobilis*, and would probably answer all its medicinal properties.—Native of America, where it grows in great plenty in the woods, and other shady places and moist grounds of Virginia and New England. This, as well as the next species, may be propagated by seeds, or by parting their roots; but the latter is generally practised in this country, because they seldom perfect seeds here, but if the

seeds are procured from abroad, they should be sown in the beginning of March on a border of light earth: and if the seeds should not come up the first year, the ground should not be disturbed, because they often remain a whole year in the ground before the plants come up; in which case there is nothing more to be done, but to keep the ground clear from weeds, and wait until the plants rise. When they appear, if the season proves dry, they must be often watered, which will greatly forward their growth; and where the plants come up too close to each other, they should be thinned, and transplanted out into beds a foot asunder every way, being careful to shade them until they have taken root, as also to water them in dry weather. In autumn they may be transplanted where they are to remain, and the following summer they will produce their flowers, which will continue till the frost prevents them; and their roots will abide many years, and afford many offsets, by which they may be increased. The best season to transplant the old roots, and to part them for increase, is in the end of October, when their flowers are past, or the beginning of March, just before they begin to shoot; but if the spring should prove dry, they must be duly watered, otherwise they will not produce so many flowers the same year: these plants should not be removed oftener than every other year, if they be expected to flower strong.

2. Helenium Pubescens; *Downy Helenium.* Leaves pubescent. This has the appearance of the preceding species, but the leaves are not three inches long, and are more than an inch broad in the middle, ending in acute points, and are sharply serrate on their edges. The flowers stand upon shorter peduncles, growing closer together. They both flower at the same season.—Native of North America.

3. Helenium Longifolium. Leaves linear-lanceolate, entire, very smooth; flower-stalks greatly elongated, naked. A more slender plant than the first species, with leaves twice or thrice as long, and much narrower.—Native of North America.

4. Helenium Quadridentatum. Upper leaves entire, smooth, broad at the base; florets of the disk four-cleft; root annual; stem two feet high, much branched; flowers much smaller than the other species, orange-coloured; flower-stalks long, slender, simple, naked, terminal, and solitary.—Native of Carolina and Louisiana.

Helianthus; a genus of the class Syngenesia, order Polygamia Frustranea.—Generic Character. *Calix:* common imbricate, somewhat squarrose, expanded; scales oblong, broadish at the base, gaping every where at the tips. *Corolla:* compound radiate; corollets hermaphrodite, very numerous, in the disk; females fewer, much longer in the ray. Proper of the hermaphrodites, cylindric, shorter than the common calix, bellying at the base, orbiculate, depressed; border five-toothed, sharp, spreading: of the females, ligular, lanceolate, quite entire, very long. *Stamina:* in the hermaphrodites, filamenta five, curved, inserted below the belly of the corollet, the length of the tube; antheræ cylindric, tubular. *Pistil:* in the hermaphrodites, germen oblong; style filiform, length of the corollet; stigma two-parted, reflex: in the females, germen very small; style and stigma none. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites, solitary, oblong, blunt, four-cornered, compressed at the opposite angles; the inner ones narrower, crowned with two lanceolate, acute, deciduous chaffs: in the females none. *Receptacle:* chaffy, large, flat; chaffs lanceolate, acute, two separating each seed, deciduous. Essential Character. *Calix:* imbricate, somewhat squarrose. *Down:* two-leaved. *Receptacle:* chaffy, flat.——The species are,

1. Helianthus Annuus; *Annual Sun-flower.* All the leaves cordate, three-nerved; peduncles thickening; flowers drooping; root annual. Stem single or branched, from five or six, to ten or fourteen feet in height, and in hot climates twenty or more; when vigorous, the size of a man's arm; leaves alternate, a span or a span and a half in length, and almost as much in breadth, rough, serrate, acuminate, hanging down at the end, on oblong petioles; flower single, nodding, a foot or more in diameter. The semiflorets, or ligulate floscules in the ray, are usually of a fine golden colour, and nearly an inch in breadth, ending in a point which is commonly bent back. The seeds are numerous, black, variegated, or white; and when these have quitted their cells, the receptacle looks like a honeycomb. The great size of the whole compound flower recommends it to the student for the examination of the floscules, which, in the class Syngenesia, are usually very small. The whole plant, and particularly the flower, exudes a thin, pellucid, odorous resin, resembling Venice turpentine. The seeds are excellent food for domestic poultry. The varieties are those with double flowers, and deep yellow, and sulphur-coloured. This flower becomes double by the change of tubular into ligular florets, like those in the ray, only smaller. Gerarde observes, that it was called Indian Sun-flower, or flower of the Sun, *Corona Solis*, and *Sol Indianus*, because it resembles the radiant beams of the sun. The report of its turning with the sun is a vulgar error. Gerarde says he could never observe it; and we have seen four flowers on the same stem pointing to the four cardinal points. It flowers from June to October. Native of Mexico and Peru.—This and the second species are easily propagated by seeds sown in March upon a bed of common earth; and when the plants come up, thin them where they are too close, and keep them clean from weeds: when the plants are grown six inches high, they may be taken up with balls of earth to their roots, and planted into the large borders of the pleasure-garden, observing to water them till they have taken new root; after which they will require no other care but to keep them clear from weeds. In July the great flowers upon the tops of the stems will appear, amongst which the best and most double flowers of each kind should be preserved for seeds; for those which flower later upon the side-branches are neither so fair, nor do they perfect their seeds so well, as those which are first in flower: when the flowers are quite faded, and the seeds are formed, the heads should be carefully guarded from the sparrows, which will otherwise devour most of the good seeds; and about the beginning of October, when the seeds are ripe, the heads, with a small part of the stem, should be cut off, and hung up for a month in a dry airy place until the seeds are perfectly dry and hard, when they may be easily rubbed out, and put into bags or papers, preserving them from vermin until the season for sowing them.—The perennial sorts rarely produce seeds in England, but most of them increase very fast at their roots, especially the creeping-rooted kinds, which spread too far for small gardens. They are all very hardy, and will grow in almost any soil or situation; they are propagated by parting their roots into small heads, which in one year's time will increase greatly. The best season for this work is in the middle of October, soon after the flowers are past, or very early in the spring, that they may be well rooted before the droughts come on; otherwise their flowers will be few in number, and not near so fair, and by this means their roots will be weak; but if they be planted in October, it will supersede the trouble of watering them, as they will be securely rooted before the dry weather arrives, and will then only require to be carefully weeded.

2. Helianthus Indicus; *Dwarf Annual Sun-flower.* All the leaves cordate, three-nerved; peduncles equal; calices leafy. This is suspected to be a variety of the foregoing; though it constantly preserves its distinction. It grows only from eighteen inches to three feet in height. It is probably a native of Mexico or Peru.

3. Helianthus Multiflorus; *Perennial Sun-flower.* Lower leaves cordate, three-nerved; upper ones ovate. The stems are many, upright, from five to nine feet high, branching; the stem, and each branch, terminated by a flower, the principal one eight to ten inches in diameter, the lateral ones gradually smaller. There is a constant succession of flowers from July to November. Native of Virginia.—This, which is the most common in our English gardens, is the largest and most valuable, and is very proper furniture for large borders in great gardens, as also for bosquets of large growing plants, or to intermix in small quarters with shrubs, or in walks under trees, where few other trees will thrive; it is also a great ornament to gardens within the city, where it grows in defiance of the smoke better than most other plants; and, for its long continuance in flower, deserves a place in most gardens, for the sake of its flowers, to adorn halls, chimneys, &c. in a season when we are at a loss for other flowers. It begins flowering in July, and continues till October.—There is a variety of this species with very double flowers, which is now become so common in the English gardens, as to have almost banished the single sort from hence.

4. Helianthus Tuberosus; *Tuberous-rooted Sun-flower*, or *Jerusalem Artichoke.* Leaves ovate-cordate, triple-nerved; stems several, rough, hairy, streaked, from ten or twelve to sixteen feet in height, the size of a child's arm; branches many, long from bottom to top; flowers terminating, small; florets in the ray twelve or thirteen. These seldom blow before October, and in some seasons they do not expand at all. The seeds never ripen here: roots creeping, with many tubers clustered together, thirty, forty, or fifty, from one plant, measuring a peck, or in good soils half a bushel; they are like the common potatoe, red on the outside, and very irregular in their shape, the size of a man's fist at biggest. "Mr. John Goodyer received in 1617, two small roots no bigger than hen's eggs, from Mr. Franquevill of London; the one he planted, and the other he gave to a friend. The root he planted produced a sufficient number to supply all Hampshire." This note is dated the 17th of October, 1621; and Johnson observes, that his friend took it presently upon the first arrival into England. If this were the era of the first introduction of Jerusalem Artichoke, it seems surprising, even allowing for the facility with which it is increased, that so soon as the year 1629, or even earlier, it should have become so common in London, that even the most vulgar began to despise it; whereas, when first received among us, it was, as Parkinson says, a "dainty for a queen." Our ancestors boiled them tender, and, after peeling, ate them sliced and stewed with butter, wine, and spices. Thus, says Parkinson, they were a dish for a queen, being as pleasant as the bottom of an artichoke: but their too frequent use, owing to their being so plentiful and cheap, hath rather bred a loathing than a liking of them. They also baked them in pies, with marrow, dates, ginger, raisins, sack, &c. Notwithstanding what our old authors have above advanced, it is probable that this root was discontinued from a notion of its flatulent quality. The potato seems to be more nutritious and wholesome. It is not necessary therefore now to enforce the cultivation of Jerusalem Artichoke as the general article of food, but it certainly makes an agreeable variety at good tables. There is no better reason for the common English name, than that the root, when boiled, has the taste of an artichoke bottom: Parkinson therefore would have it called Potatoes of Canada, because the French brought them first from Canada into these parts; not that Canada is their original country, for they are unquestionably the produce of a hot climate, being natives of Brazil.—These plants are propagated by planting the smaller roots, or the larger ones cut in pieces, observing to preserve a bud to each separate piece, either in the spring or autumn, allowing them a good distance, for their roots will greatly multiply; in the following autumn, when their stems decay, the roots may be taken up for use. They should be planted in some remote corner of the garden, for they are very unsightly while growing, their roots overrun every thing, and they cannot easily be destroyed. When desired for a crop, the sets should be planted in an open part of the kitchen-garden, in rows three feet or more asunder, at least eighteen inches distant from each other, and four or five inches deep. The best time for this is the latter end of March. A light soil suits them best. Some persons cut the stalks half way down, at the end of July or the beginning of August; because they shade the ground too much, and from their great height are apt to be blown down. They may be taken up for present use in September, and the whole crop may be housed in October. If kept in sand, and in a dry place, they will continue the whole winter.

5. Helianthus Decapetalus; *Ten-petalled Sun-flower.* Stem smooth at bottom; leaves lanceolate-cordate, triple-nerved; ray of the flower ten-petalled; peduncles scabrous. This resembles the third species very much, but it differs in having the stem, which scarcely attains the height of a man, scabrous, but smooth at bottom.—Native of Canada.

6. Helianthus Frondosus. Calix squarrose, waved, leafy; rays eight-petalled; leaves ovate; stem scabrous at bottom. This is allied to the foregoing species.—Native of Canada.

7. Helianthus Strumosus; *Carrot-rooted Sun-flower.* Root fusiform, white and fleshy; stems several, nine or ten feet high, round, rough, somewhat hirsute, streaked, subdivided into numerous branches; leaves alternate, a hand long, an inch or more broad, acuminate, rough, dark green, slightly notched about the edge; flowers terminating in corymbs; petals pale yellow, ending in a bifid point; leaflets of the calix produced into long leaves. The roots are bitterish, aromatic, and not disagreeable: they are eaten by the Canadians, among whom this plant grows wild. It flowers from July to September.

8. Helianthus Giganteus; *Gigantic Sun-flower.* Leaves alternate, lanceolate, scabrous, ciliate at the base; stem stiff, scabrous, ten feet high; peduncles scabrous, hispid, usually about twenty florets in the ray, bifid at the end; the first two leaves of the branches are opposite, and have the appearance of stipules; the flowers nod more in the night than in the day. It flowers in September and October.—Native of Virginia and Canada.

9. Helianthus Altissimus; *Tall Sun-flower.* Leaves alternate, broadish, lanceolate, scabrous; petioles ciliate; stem stiff, smooth. This strongly resembles the preceding species, but the leaflets of the calix are shorter, and not so copious. There are usually sixteen florets in the ray. It flowers in August and September.—Native of Pennsylvania.

10. Helianthus Angustifolius. Leaves alternate, linear; stem purplish, a foot and half in height; disk of the corolla brown; ray deep yellow, emarginate.—Native of Virginia.

11. Helianthus Divaricatus; *Rough-leaved Sun-flower.* Leaves opposite, sessile, ovate-oblong, three-nerved; panicle dichotomous; stem scarcely the height of a man, extremely even at top, but with scattered rough hairs, purple, with a glaucous bloom; flowers in a panicle, with trichotomous

branches, yellow, small, peduncled, with the middle peduncle simple; peduncles somewhat scabrous. It flowers from August to October.—Native of North America.

12. Helianthus Atro-rubens; *Dark-red Sun-flower.* Leaves opposite, spatulate, crenate, triple-nerved, scabrous; calicine scales erect, the length of the disk; stem commonly single, about the size of a swan's quill at bottom, from eighteen inches to three feet and more in height, round, dusky purple, rough, with abundant whitish hairs; root-leaves flat, hairy, smaller than those of the stem, which are twisted and waved, especially towards the lower end, rough with frequent hairs, and on the lower ones particularly with small tubercles; flowering-branches divaricate; the disk of the flower dark red; floscules in the ray yellow, marked with a few lines, pointed and entire, sometimes in very old flowers divided into segments. It flowers in September and October, and continues two or three years.—Native of Carolina and Virginia.

13. Helianthus Mollis. Leaves ovate, acuminated, very rough on the upper surface, and soft underneath.—It flowers from July to October, and is found in the exsiccated swamps of Pennsylvania and Virginia.

Heliconia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* spathes common and partial alternate, distinct, with hermaphrodite flowers; perianth none. *Corolla:* petals three, oblong, channelled, erect, acute, equal. Nectary two-leaved; one leaflet nearly equal to the petals; the other very channelled, hooked, opposite. *Stamina:* filamenta five, (according to Adanson, six,) filiform; antheræ long, erect. *Pistil:* germen inferior, oblong; style shorter than the stamina; stigma long, slender, curved, with a terminating head. *Pericarp:* capsule oblong, truncate, three-sided, three-celled. *Seeds:* solitary, oblong. *Observe.* This genus is distinguished from *Musa* by a tricoccous capsule, and there is some doubt whether it ought not to be transferred to the class *Hexandria.* Essential Character. *Spathes:* both general and partial. *Perianth:* none. *Corolla:* three-petalled. *Nectary:* two-leaved. *Pericarp:* tricoccous. *Seeds:* solitary. *Capsules:* fleshy, three-celled, according to Swartz.——The species are,

1. Heliconia Bihai; *Bastard* or *Wild Plantain.* Leaves and spadix radical; spathes distich, cordate; nectary ventricose, bifid at the tip. This is a very large herbaceous plant, from ten to twelve feet in height. The leaves have long sheathing footstalks, their bases enfolding one another so as to resemble a stem about five feet high, and as thick as a man's thigh, after which the stalks spread into two rows; the leaf itself is six or eight feet long, and eighteen inches wide, linear, entire, rounded at each end, flat, smooth, pliable, with one rib, and numerous parallel veins. The flowers have five perfect filamenta shooting from the bottom of the real flower-leaf, and one imperfect filamentum from the nectarium. The berries are small and succulent, and contain each three hard rugged seeds.—This beautiful plant is a native of bogs in Guiana and the Caribbee islands; it also grows wild in most of the cooler mountains of Jamaica, and thrives very luxuriantly in every rich well-shaded gully among the woods.

2. Heliconia Psittacorum. Leaves on the stem rounded at the base; spadix terminating, flexuose; spathes lanceolate; nectary lanceolate, concave, entire. This plant bears a great resemblance to *Canna,* and grows to the height of eight feet, with a simple smooth stem; flowers pedicelled, crowded, upright, an inch long, fulvous, on round peduncles, half an inch long; corolla three-sided, the two upper petals erect, linear, acute, keeled, converging, glued to the nectary, the uppermost only trifid, the lower petal embracing the upper petals and nectary at the base, a little wider, keeled, ventricose, brownish-green at top.—Native of Jamaica in wet parts of mountain-woods; also of South America.

3. Heliconia Hirsuta. Leaves rounded at the base, simply nerved, very smooth; inflorescence hirsute; spadix flexuose; nectary lanceolate, adnate; stem very smooth; spathes alternate in two rows, lanceolate, awl-shaped, channelled, ascending, the lower ones larger, with a hispid keel, peduncles from nine to twelve in the axils of the spathes, upright, round, very hirsute, short, leafless, one-flowered; corolla curved, two-petalled; upper petal complicated, hispid, bifid at the tip; lower broader, complicated, hispid, oblong, with a brown mark on the inside at the top.—Found in South America by Mutis.

Helicteres; a genus classed by Linneus in Gynandria, order Decandria; by Schreber, in Decandria Monogynia; and by Swartz, in Monadelphia Decandria.—Generic Character. *Calix:* perianth one-leafed, tubulous, half-ovate, obliquely spreading, unequally five-cleft, coriaceous. *Corolla:* petals five, oblong, equal in breadth, fixed to the receptacle, longer than the calix; claws long, with a tooth on each side at the base; nectary of five petal-shaped, lanceolate, very small leaflets, covering the germen. *Stamina:* filamenta five, ten, or more, very short; antheræ oblong, lateral. *Pistil:* receptacle filiform, very long, bowed back, bearing an ovate germen at the tip; style subulate, longer than the germen; stigma subquinquefid. *Pericarp:* capsules five, often twisted spirally, one-celled. *Seeds:* very many, angular. *Observe.* In some species Jacquin and others have observed dodecandrous and polyandrous flowers, and straight capsules. One species has no corolla. Essential Character. *Pentagynous. Calix:* one-leafed, oblique. *Petals:* five. *Nectary:* of five leaflets. *Capsules:* five, twisted.—The plants of this genus are propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants are come up strong enough to remove, they should be each planted in a separate small pot, filled with light earth, and plunged into a moderate hot-bed of tan, observing to shade them from the sun until they have taken new root; then they should be treated in the same way as other tender plants from hot countries, raising the glasses every day in fine weather, that the plants may enjoy fresh air, without which they would be drawn up weak. In the summer the plants may remain under the frames, if there be sufficient height for them to grow; but in autumn they must be plunged into the tan-bed in the stove, where they should always remain, being careful to shift them into larger pots when they require it, and not to give them too much wet in the winter, but in summer they should have a large share of air in warm weather, and require to be often refreshed with water. These plants have often flowered in the Chelsea garden during the second year of their production from seeds, and have sometimes ripened seeds. They will live several years with proper management.——The species are,

1. Helicteres Baruensis; *Small-fruited Screw Tree.* Decandrous: leaves cordate, serrate; fruit twisted, with straight tips. This is an upright tree, about twelve feet in height, branching but a little; the younger branches, peduncles, and petioles, are tomentose: peduncles many-flowered, terminating, thick; the flowers have no scent; petals whitish; seeds about fifty in each capsule, obovate, angular, smooth, of a brown chestnut colour. The bark of the trunk and principal branches, being easily peeled off, and very tough, is used instead of ropes.—Native of the island of Baru, in woods near the coast; and of the West Indies.

2. Helicteres Isora; *Great-fruited Screw Tree.* Decan-

drous: leaves cordate, serrate; the whole fruit twisted. Swartz describes it, "Leaves elliptic, subcordate; fruit subulate at the tip." A small upright tree, about twelve feet high, branching but little; peduncles many-flowered, terminating, glandular; petals white, obtuse, reflex.—This curious shrub, as Browne calls it, is very frequent in the lower gravelly hills of Jamaica.

3. Helicteres Hirsuta. Decandrous: leaves cordate, serrate; fruit oblong, five-celled, straight, very hirsute; stem shrubby, six feet high, upright, round, hairy, with diffused branches; peduncles many-flowered, axillary; corolla dusky purple. In this and the fifth species, the stamina are not gynandrous, but rather monadelphous; nor ought the pedicel supporting the germen to be looked upon as a receptacle, for it is entirely detached from the stamina.—Native of the woods of Cochin-china.

4. Helicteres Undulata. Decandrous: leaves lanceolate, waved; flowers in heaps; siliques five, stellate. This is a middle-sized tree, with spreading branches; flowers small, mostly terminating; calix none; corolla greenish-red; siliques oblong, thick, scarlet, straight above, convex underneath; seeds few, ovate, smooth, brown, fleshy, adhering to each valve by their proper pedicels.—Native of Cochin-china, in woods.

5. Helicteres Angustifolia. Decandrous: leaves lanceolate, quite entire; fruit ovate, straight; stem shrubby, five feet high, upright, branched; flowers pale purple, on two-flowered axillary peduncles.—Native of China, in the neighbourhood of Canton.

6. Helicteres Pentandra. Pentandrous: leaves ovate, floral leaves coloured, dusky purple; calices hispid with branching bristles.—Native of Surinam.

7. Helicteres Carthaginensis. Polyandrous: leaves cordate, serrate, tomentose on both sides; fruit oblong, straight. This is an upright tree, about twelve feet high; flowers extremely fetid, generally coming out with the leaves, but sometimes before them; calix brownish-yellow; petals purple. It has so much the habit of the first sort, that it can hardly be distinguished from it, except in the flower and fruit.—Native of the woods of Carthagena in New Spain, where it is found flowering in June and July.

8. Helicteres Paniculata. Polyandrous: leaves ovate, acute, smooth, petioled; flowers panicled; siliques five, stellate, oblong, two-valved, red. This is a large tree, with spreading branches; flowers in loose panicles, mostly terminating; calix none; corolla of a reddish colour, and spreading very much.—Native of the woods of Cochin-china.

9. Helicteres Apetala. Dodecandrous, apetalous: leaves five-lobed; siliques divaricate. This is an elegant tree, forty feet in height, with a large handsome head; the leaves are plaited, smooth above, subvillose beneath, upwards of a foot in diameter, and numerous; flowers also numerous, very fetid, dirty yellow with purple spots, without either petals or nectary, in large loose panicles at the ends of the twigs. It is apparent that the filamenta are the continuation of the bark, or outer part of the receptacle, but that the germen springs from the pith of it.—Native of Carthagena, in woods, flowering from May and June to September.

Heliocarpus; a genus of the class Dodecandria, order Digynia.—Generic Character. *Calix:* perianth four-leaved, coloured; leaflets linear, long, broadish, spreading, deciduous. *Corolla:* petals four, linear, much shorter than the calix, narrower. *Stamina:* filamenta sixteen, awl-shaped, almost the length of the calix; antheræ twin, linear, incumbent. *Pistil:* germen roundish; styles two, simple, upright, length of the stamina; stigmas acute, distant. *Pericarp:* capsule turbinate-ovate, peduncled, compressed, surrounded perpendicularly on both sides with rays pinnately branched, two-celled, two-valved, with the partition contrary. *Seeds,* solitary, subovate. Essential Character. *Calix:* four-leaved. *Corolla:* four-petalled. *Styles:* simple. *Capsule* two-celled, compressed, longitudinally radiated on both sides (according to Gærtner, superior, club-shaped, surrounded with filiform feathered rays.)——The only species known is,

1. Heliocarpus Americana; *American Heliocarpus.* It rises with a thick, soft, woody stalk, from fifteen to eighteen feet high, sending out several lateral branches towards the top; leaves heart-shaped, full of veins, serrate, ending in acute points, alternate, on oblique petioles three inches long. The flowers are produced at the ends of the shoots, in branching clusters, and are of a yellowish-green colour.—Found at La Vera Cruz. This plant is propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they should be each planted in a small pot, filled with light kitchen-garden earth, and plunged into a hot-bed, treating them in the same way as other tender plants which will not bear the open air in this country at any season of the year: while young, the plants require to be plunged into the tan-bed, but after they have acquired strength, they will thrive in the dry-stove. In winter they should have but little water, and must be kept warm; but in summer they should have plenty of fresh air in mild weather, and must be frequently refreshed with water. With this management the plants will flower the third year, and produce good seeds, and may be preserved by care for several years.

Heliophila; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved; leaflets spreading, oblong, concave, membranaceous at the edge, deciduous; the two outer ones bladdery at the base. *Corolla:* four-petalled, cruciform; petals roundish, flat, sessile; nectaries two from the receptacle, bowed back towards the bladder of the calix. *Stamina:* filamenta six, awl-shaped, erect, the length of the calix, two opposite a little shorter; antheræ oblong, erect. *Pistil:* germen cylindric; style shorter than the germen; stigma blunt. *Pericarp:* silique columnar, somewhat torulose, mucronate, two-celled, two-valved. *Seeds:* several. Essential Character. *Nectaries:* two, bowed back towards the bladder of the calix.—The seeds of plants belonging to this genus may be sown in the spring on a south border; and when the plants come up, if they are thinned, and kept clean from weeds, it is all the culture they require.——The species are,

1. Heliophila Integrifolia; *Whole-leaved Heliophila.* Leaves lanceolate, undivided, rough with hairs above, smooth below; stalk erect, four or five inches high, sending out two or three side-branches; the flowers grow in a loose terminating bunch, and have no scent; the corolla resembles that of Flax or Anagallis Monelli; it is blue, and closes at night; the pods are nearly three inches long, taper, and contain a double row of three flat seeds.—Native of the Cape of Good Hope.

2. Heliophila Coronopifolia; *Buck's-horn-leaved Heliophila.* Leaves linear, pinnatifid. This is a smooth shrubby plant.—Native of the Cape of Good Hope.

3. Heliophila Amplexicaulis. Leaves stem-clasping, entire, smooth; siliques necklace-shaped.—Found by Thunberg at the Cape of Good Hope.

4. Heliophila Incana; *Hoary Heliophila.* Leaves spatulate, quite entire, pubescent; siliques villose, shrubby.—Found at the Cape, flowering in May and August.

5. Heliophila Filiformis; *Divaricated Heliophila.* Leaves subulate, filiform, smooth; siliques pendulous; branches divaricate; stem half a foot high, herbaceous, rushy; racemes

horizontal, on horizontal pedicels; petals spreading as the calix does, but nearly three times as large, pale, streaked; siliques awl-shaped, stiff, very smooth and even. It is annual, and flowers in July and August.—Native of the Cape.

6. Heliophila Pusilla; *Dwarf Heliophila.* Leaves linear; siliques necklace-shaped, upright. Annual. A span high, upright, branched.—Native of the Cape of Good Hope.

7. Heliophila Flava. Leaves linear; stems shrubby, rushy. It has the appearance of Broom, upright, sparingly branched, stiff; racemes terminating, long, simple; the flowers distant; petals obovate, the same size as the cabbage, yellow, veiny; the claws longer than the calix; germen ovate; it varies with red corollas. It is doubtful whether this be a natural species of this genus.—Native of the Cape of Good Hope.

8. Heliophila Circæoides. Leaves cordate; stem brittle, branched, herbaceous: the whole plant is succulent, weak, smooth; root fibrous, annual; petioles semicolumnar, channelled above, shorter than the leaf, spreading; flowers alternate, very remote, but towards the end nearer, peduncled; the flowering peduncles erect, a line in length, bearing one flower; fruit peduncles reflected; seeds three or four, roundish.—Native of the Cape of Good Hope.

9. Heliophila Digitata. Leaves palmate-pinnatifid, villose; pinnas linear. The stem thickens very much upwards, which gives this plant a very singular appearance.—Native of the Cape of Good Hope.

10. Heliophila Pinnata. Leaves trifid and pinnate; leaflets linear; siliques necklace-shaped, upright. This resembles the sixth species very much, but it has branched or pinnate leaves.—Native of the Cape of Good Hope.

Heliotrope. See *Heliotropium.*

Heliotropium; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubular, five-toothed, permanent. *Corolla:* monopetalous, salver-shaped; tube the length of the calix; border flat, half five-cleft, obtuse; clefts smaller, alternate, more acute, between the larger ones; throat naked. *Stamina:* filamenta five, very short, in the throat; antheræ small, covered. *Pistil:* germen four; style filiform, length of the stamina; stigma emarginate. *Pericarp:* none; calix erect, unchanged, cherishing the seeds in its bosom. *Seeds:* four, ovate, acuminate: according to Gærtner, nuts four, naked or corticate, not perforate. Essential Character. *Corolla:* salver-shaped, five-cleft, with teeth interposed; the throat closed with arches.——The species are,

1. Heliotropium Peruvianum; *Peruvian Turnsole* or *Heliotrope.* Leaves lanceolate-ovate; stem shrubby; spikes numerous, aggregate-corymbed. This rises with a shrubby stalk from two to three feet high, dividing into many small branches; leaves three inches long, and an inch and a half broad in the middle, hairy, greatly veined, and ash-coloured on their under side, on short footstalks; the flowers are produced at the ends of the branches in short reflex spikes, growing in clusters; the peduncles divide into two or three, and these again into smaller ones, each sustaining a spikelet of pale blue flowers, which have a strong sweet odour, of a very particular nature, somewhat resembling that of bitter almonds.—It is a native of Peru. This is well known, and generally cultivated for the delightful scent of its flowers, which are of a blueish white, and produced in a stove, or warm green-house, at almost all seasons. It may be propagated either by seeds or cuttings. The seeds may be sown upon a moderate hot-bed in the spring; when the plants are fit to remove, transplant them into small pots filled with light earth, plunge them into a hot-bed, and shade them till they have taken new root; then inure them by degrees to the air, into which remove them in summer, placing them in a sheltered situation: in autumn, house them in a good green-house, where they will flower during great part of the winter. If the cuttings be put into pots filled with light earth, during any of the summer months, and plunged into a moderate hot-bed, they will take root freely; but these do not make so good plants as those taken from seed. Mr. Curtis remarks, that a stove is most congenial to this plant in winter, when it must be carefully defended from the frost, so fatal to most of the natives of Peru. In hot weather it must be well watered.

2. Heliotropium Indicum; *Indian Turnsole* or *Heliotrope.* Leaves cordate-ovate, acute, somewhat scabrous; spikes solitary; fruits bifid; stem herbaceous, a foot and half or two feet high, round, scabrous, hirsute, subdivided; flowers sessile, pointing one way, approximating in a double row, small, blue; tube very long, cylindric, not globular, as in the others; border scarcely half five-cleft; segments equal, blunt; throat five-rayed, orange-coloured, closed; germina in connate pairs. It is annual or biennial, flowers in July and August, and ripens seeds in September and October.—Native of the West Indies and Cochin-china. The variety, which Mr. Miller makes a distinct species, is a smaller plant, seldom above two feet high; the leaves are an inch and half long, and about half an inch broad; the spikes of flowers are very slender, and not more than two inches long; the flowers are small, and of a light blue colour.—This, together with the third and ninth species, require their seed to be sown on a hot-bed in the spring, and when the plants are fit to remove, transplant them on another hot-bed, to bring them forward, treating them in the same way as the Balsamine, and other tender annual plants. They should be taken up in June with balls of earth, and replanted in the borders of the flower-garden, where they will flower, and in warm seasons produce ripe seeds.

3. Heliotropium Parviflorum; *Small-flowered Turnsole* or *Heliotrope.* Leaves ovate, wrinkled, scabrous, opposite and alternate. This is nearly allied to the foregoing. Stem erect, pubescent, a foot high; most of the leaves opposite, except those in the middle of the stem, which are alternate, petioled, lucid, acute; peduncles opposite to the leaves, or from the divisions of the stem, longer than the leaves, erect, each having two recurved imbricate spikes; corolla minute, pervious, white with a yellow base. It is an annual plant, flowering in July and August.—Native of the West Indies. For its propagation and culture, see the preceding species.

4. Heliotropium Inundatum. Leaves oblong, obtuse, hirsute; spikes in fours, erect; stem shrubby.—Native of the Caribbee Islands.

5. Heliotropium Europæum; *European Turnsole* or *Heliotrope.* Leaves ovate, quite entire, tomentose, wrinkled; spikes conjugate. This rises about seven or eight inches high, dividing into two or three branches, at the ends of which the flowers are produced in double spikes, joined at the bottom, about an inch long, turning backward; flowers white, appearing in June and July. There is a variety with large sweet flowers.—This, and the seventh species, are annuals, which succeed better from the seeds scattered in autumn, or are sown at that season, than in the spring, when they seldom appear in the same season; but if the seeds be suffered to shed, these plants will maintain themselves without any other culture, but keeping them clean from weeds, and thinning them where too close.

6. Heliotropium Malabaricum. Leaves ovate, plaited, strigose, quite entire; spikes almost solitary.—Native of Malabar.

7. Heliotropium Supinum; *Trailing Turnsole* or *Heliotrope.* Leaves ovate, quite entire, tomentose, plaited; spikes

solitary. This is smaller than the fifth species, with more slender branches, somewhat lanuginous, and prostrate; the root small and annual; flowers white.—Native of the Cape of Good Hope; flowering in June and July. For its propagation and culture, see the fifth species.

8. Heliotropium Fruticosum. Leaves linear-lanceolate, hairy; spikes solitary, sessile; stem shrubby, two feet high, very much branched; branches stiff, scabrous, and ash-coloured; spikes always single, and not much bent, small and slender; flowers terminating, on short pedicels, pointing one way, on short, axillary, hispid peduncles; corolla white; border five-cornered; throat closed, pale, having five rays from the centre to the angles of the border.—Native of the West Indies, near the sea-shore. This, and the seventeenth and eighteenth species, are propagated by seeds, but the difficulty of getting them fresh from America, and the uncertainty of their growing unless they are sown abroad, and brought over in earth, has made them scarce in Europe.

9. Heliotropium Curassavicum; *Glaucous Turnsole* or *Heliotrope*. Leaves lanceolate-linear, smooth, without veins; root annual; stem round, very smooth, with a glaucous bloom on it; branches trailing, a foot or more long; spikes in pairs, on a common peduncle, and recurved; corolla white, with a yellow base and an open throat; the fruit is an ovate globular berry, containing four nuts, drying up as it grows ripe, and divisible into four parts: it flowers in June and July.—Native of the West Indies. See the second species.

10. Heliotropium Orientale. Leaves linear, smooth, without veins; spikes conjugate; flowers scattered. It is a small procumbent creeping plant: annual.—Native of Asia.

11. Heliotropium Gnaphaloides. Leaves linear, obtuse, tomentose; peduncles dichotomous; flowers of the spikes in fours; stem frutescent. It is an upright shrubby plant, commonly about two feet high, and sometimes, but rarely, rising to the height of six feet; branches round, little divided, the older ones blackish, the younger scarred at bottom where leaves have grown, all together forming a convex, white, handsome head, visible far off at sea; flowers small, with the calices of all so connected, that no one can be taken out without tearing the next. This species is distinguished by its copious, narrow, thick, and silvery leaves.—Native of Cuba, Jamaica, Barbadoes, and St. Eustatia, in all of which it is found upon the coast. It is propagated by seeds, which must be procured from the places where it naturally grows, for it never produces any in Europe; these seeds should be sown in a tub of earth in the country, for when the dried seeds come over, they seldom grow; and if they do, it is not before the second year: so that if the seeds be sown as soon as ripe in a tub of earth, when they arrive in England, the tub should be plunged into a hot-bed of tanners' bark, which will bring up the plants; and when they are fit to remove, they should be each planted in a separate small pot filled with soil composed of sand and light undunged earth, with a little lime-rubbish well mixed together, then plunged into a hot-bed of tanners' bark, and shaded until they have taken new root; after which they must be treated in the same manner as other tender exotic plants, always keeping them in the tan-bed in the stove, giving them but little water during the summer.

12. Heliotropium Scabrum. Leaves lanceolate, strigose; stem branched, diffused; root simple, fusiform; flowers terminating, heaped, small, white, fenced with leaves.—Sent by Kœnig from the East Indies.

13. Heliotropium Marifolium. Leaves lanceolate, hispid; stems procumbent, somewhat shrubby; spikes simple, alternate, copious without order, not compact, with bractes of the same shape with the leaves; flowers white, hirsute on the outside, as also are the calices; root woody.—Native of the East Indies.

14. Heliotropium Coromandelianum. Leaves obovate, villose, entire; spikes simple and conjugate; seeds dotted; root simple, fusiform; stems erect and prostrate, hispid.—Native of the East Indies, and also of Arabia.

15. Heliotropium Capitatum. Leaves oblong-ovate, quite entire, smooth, hoary underneath; flowers in axillary heads; stem arborescent. It rises with a shrubby stalk six or seven feet high: the young branches are closely covered with a white down, and the leaves on them are very hoary and entire, but those of the older branches are greener, and some of them are notched on their edges. At each joint of the stalks appear two short branches opposite, with small hoary leaves placed opposite: these when bruised emit a strong odour very disagreeable to some persons, and by others reckoned very pleasant. They rarely flower in England. Mr. Miller cultivated them for forty years, and only saw them once in flower. The flowers are white, collected in roundish heads, which turn backward and sit close to the branches; the leaves continue all the year.—Both this and the next species are too tender to endure the winter of this country in the open air. They must be protected from the frost in a green-house, and may be ranged with Myrtles and other hardy green-house plants, where they may have a large share of air in mild weather, and be treated in the same way: they are easily propagated by cuttings during any of the summer months. If the cuttings be planted in a shady border, and duly supplied with water, they will take root in five or six weeks, and may then be potted, and placed in a shady situation till they have taken new root, after which they may be treated as the old plants.

16. Heliotropium Canariense. Leaves ovate, crenate, opposite; flowers in dichotomous axillary heads; stem arborescent, three or four feet high. The leaves, when bruised, emit an agreeable odour, for which it is by some persons much esteemed. The gardeners have given this plant the title of *Madame de Maintenon*, but on what account we do not know.—Native of Canada. For its propagation and culture, see the preceding species.

17. Heliotropium Procumbens. Stem procumbent; leaves ovate, tomentose, quite entire; spikes solitary, terminating. It is an annual plant, with trailing stalks six or seven inches long, with small leaves. The flowers are produced at the ends of the branches, in single short spikes, which are reflexed; they are small and white, making little appearance.—Native of Carthagena in New Spain. For its propagation and culture, see the eighth species.

18. Heliotropium Americanum. Leaves oblong-ovate, tomentose; spikes conjugate, terminating; stem shrubby. This rises with a shrubby stalk, three feet high, dividing into slender branches, which are closely garnished with leaves, placed without order. The flowers are produced at the ends of the branches in double spikes, which are slender, short, and straight, not recurved as the other species; flowers small and white; plant perennial.—Native of La Vera Cruz, where it was found growing in great plenty. For its propagation &c. see the eighth species.

19. Heliotropium Tetrandrum. Leaves ovate-lanceolate, smooth, opposite; spikes heaped, terminating; stem herbaceous, annual, one foot high, somewhat erect, diffused, whitish, obtusely four-cornered, with purple joints; flowers red, in long close spikes.—Found in the gardens of Cochin-china.

20. Heliotropium Undulatum. Leaves lanceolate, hispid, rolled back at the edge, waved; spikes conjugate; corollas villose; stem procumbent; branches a span long and more; calix hairy, five-cleft, with linear blunt segments; corolla

hairy on the outside, longer than the calix.—Native of Arabia.

21. Heliotropium Lineatum. Leaves elliptic, petioled, rolled back at the edge, flat; spikes conjugate; stem procumbent; branches slender, a span long, villose, tomentose above; corolla smooth, longer than the calix; tube widening at the top. Distinguished from the preceding, by the form and hairiness of the leaves, with the edge not at all waved; by the presence of bractes; by the smoothness of the corolla, and by the stigma being quite entire.—Native of Arabia.

22. Heliotropium Ternatum. Leaves in threes, and alternate, lanceolate, hoary underneath; spikes terminating, conjugate; branches round, hoary, with small hairs pressed close; corolla white.—Native of the West Indies.

23. Heliotropium Pinnatum. Leaves pinnate; stem erect, herbaceous, simple, only branching a little at the base, a foot high, the size of a goose-quill, villose; peduncles axillary and terminating; flowers crowded.—Found in the Straits of Magellan.

24. Heliotropium Amplexicaule. Leaves lanceolate, obtuse, half stem-clasping; spikes branching; stem shrubby; branches hairy; from the axils there are rudiments of branchlets; peduncle terminating, hairy, twice or thrice dichotomous at top; tube of the corolla twice as long as the calix, with fewer villose hairs scattered over it.—Found in Brazil.

Hellebore. See *Helleborus.*

Hellebore, White. See *Veratrum.*

Helleborine. See *Arethusa Divaricata.*

Helleborus; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* none, unless the corolla, which in some species is permanent, be so called. *Corolla:* petals five, roundish, blunt, large; nectaries several, very short, placed in a ring, one-leafed, tubular, narrower at bottom; mouth two-lipped, upright, emarginate, the inner lip shorter. *Stamina:* filamenta numerous, subulate; antheræ compressed, narrower at bottom, upright. *Pistil:* germina about six, compressed; styles subulate; stigmas thickish; (Gærtner says, pistilla five or more, permanent.) *Pericarp:* capsules (leguminous, beaked, according to Gærtner) compressed, two-keeled, the lower keel shorter, the upper convex, gaping. *Seeds:* several, round, fixed to the suture. *Observe.* The first species drops its petals, the other sorts retain them, and they become green: the number of pistils varies much. Essential Character. *Calix:* none. *Petals:* five, or more (or *Calix:* five-leaved, *Corolla:* none.) *Nectary:* two-lipped, tubular. *Capsule:* many-seeded.—The species are,

1. Helleborus Hyemalis; *Winter Hellebore* or *Aconite.* Flowers solitary, sitting in the upper leaf; root tuberous, transverse, with many dependent fibres, putting up several naked stems or scapes, simple, smooth, round, from an inch or two to four inches in height, terminated by a single leaf, spreading out horizontally in a circle, divided into five parts almost to the base, and the parts simple or divided into two, three, or four lobes. In the bosom of this sits one large, upright, yellow flower; the petals ovate, marked with lines, converging a little, deciduous, usually six in number, or from six to eight; pistils six, or from four to six; and stamina about thirty. This, like all the other Hellebores, is a powerful medicine, and requires great caution in the application: see the third and fifth species. Gerarde calls it Winter's Wolf's-bane, and Small Yellow Wolf's-bane; and is now generally known by the name of Winter Aconite.—Native of mountainous situations in Austria, Silesia, Switzerland; also of Lombardy and other parts of Italy. This flowers very early in the spring, which renders it worthy of a place in all curious gardens, especially as it requires but little room: it is propagated by offsets, which the roots send out in plenty; these roots may be taken up and transplanted any time after their leaves decay, which is generally from the beginning of June till October, when they will begin to put out new fibres; but as the roots are small, and nearly of the colour of the ground, so, if care is not taken to search them, many of the roots will be left in the ground: they should be planted in small clusters, otherwise they will not make a good appearance; for single flowers of this small kind, when scattered about the borders, can scarcely be seen at a distance; but when planted in bunches alternately with Snowdrops, will have a good effect, as they flower at the same time, and are much of a size. This plant flowers so early, that it is liable to be cut off by severe frosts.

2. Helleborus Ranunculinus; *Ranunculus-leaved Hellebore.* Flowers solitary, peduncled; leaves digitate, multifid, gashed; stem a hand in height, upright, round, smooth, leafy at the top, sustaining one or two flowers, which are axillary, solitary, peduncled, upright, and yellow. It is very nearly related to the preceding species, but handsomer.—Tournefort imported it from Cappadocia.

3. Helleborus Niger; *Black Hellebore,* or *Christmas Rose.* Stem almost naked, with one or two flowers; leaves pedate; roots perennial, creeping, entangled, very black on the outside, externally rough and knotted, with many long, simple, perpendicular fibres; corolla very large, generally white at first, but frequently with a tint of red, growing deeper with age, and finally becoming green. It derives the name of Black Hellebore from the colour of the root; and of Christmas Rose, from the time of flowering and the colour of the corolla.—Native of Italy, Austria, Idria, and Silesia, in mountainous situations, flowering from December to March. This species has usually been taken for the true Black Hellebore of the ancients, till Tournefort discovered the mistake. See the fifth species. Culpeper confounds this plant with the sixth species; but his account will apply equally well to both. He says it is not safe to give it raw, and that if any harm arise from taking it in that state, the common cure is to take goat's milk; and where that cannot be obtained, such milk as can be gotten. The roots, adds he, are very effectual against all melancholy diseases, especially such as are of long standing, as quartan agues and madness; it helps the falling sickness, the leprosy, both the yellow and black jaundice, the gout, sciatica, and convulsions: but, unfortunately, this renowned herbarist has forgotten to inform us, what quantity is to be taken for the dose, and also the manner of application; so that we cannot avail ourselves of his experience and skill. Although many writers consider the root a perfectly innocent and safe medicine, yet as we find several examples of its poisonous effects, it should always be employed with great caution. It seems to have been principally owing to its purgative quality, that the ancients esteemed this root such a powerful remedy in maniacal disorders; because they suppose it evacuated the black bile, from which those diseases were then thought to proceed: but, though evacuations are often found necessary in various cases of alienation of mind, yet as they can be produced with more certainty and safety by other medicines, this catholicon of antiquity seems now almost entirely abandoned. It is however still used in small doses of six or eight grains, for attenuating viscid humours, promoting the uterine and urinary discharges, and opening inveterate obstructions of the remoter glands; it often proves a powerful emmenagogue in plethoric habits, where steel is considered as improper: it is also used in dropsies, and in some cutaneous diseases. The roots of the plant, says Dr. Hill, are the only parts to be used in medicine. These are of a bitter pungent taste, and,

if chewed for a few minutes, leaves a sensation of numbness on the tongue, which continues for a considerable time: given in substance, in doses of ten or fifteen grains, it purges roughly, and, to such as are of robust habits, may prove serviceable in dropsical complaints; but cloves, cardamoms, or some other warm spice, should always be joined with it, to correct its ill qualities, and render the use of it more safe: taken in smaller doses, it promotes urine and perspiration, and is very much extolled for its singular efficacy in obstructions and suppressions of the menses: it is likewise useful in all hysteric, nervous, and hypochondriacal complaints; and was at one time esteemed almost a specific for madness. There is a tincture of it kept in the shops, which is by far the best preparation for internal use: thirty or forty drops of this is a dose; but in order to be productive of any remarkable effects, the use of it must be persevered in for a considerable length of time.—Like most alpine plants, it loves a pure air, a moderately moist situation, and an unmanured soil. It will not thrive in the neighbourhood of London. The flowers being liable to be injured by frost, must be covered during the winter with hand-glasses, or preserved in pots in a common hot-bed frame, without which they cannot retain their beauty long. It is propagated by parting the roots in autumn.

4. Helleborus Viridis; *Green Hellebore.* Stem bifid; branches leafy, two-flowered; leaves digitate; peduncles axillary, an inch long, round, supporting two (sometimes only one) nodding green flowers; stem round, a little branched at top, leafy, reddish at the base, upright, smooth, a foot or eighteen inches high.—Native of France, Italy, Austria, Carniola, Silesia, and Switzerland. Ray, in his History, gives no hint of this or the next species being natives of England; and seems, in his Synopsis, to think that they are not aboriginals here. Bobart, however, speaks of this species as growing wild abundantly in Stokenchurch woods, and many other rocky and hilly situations: it is found near Cambridge; near Leeds in Yorkshire; near Arundel Castle, in Sussex; in various parts of Kent, Oxfordshire, and Northamptonshire. Parkinson mentions his having seen it in the woods in Worcestershire and Hampshire; it is found also among bushes in the woods and pastures of Dunglass Glen, Scotland: it flowers in March and April. If the seeds of this, and of the sixth species, be permitted to scatter, or are sown soon after they become ripe, the plants will come up early in the following spring, and when they have obtained sufficient strength, may be transplanted into woods or wilderness quarters, where they will thrive and flower very well in the shade, and make a good appearance when few other plants are in flower.

5. Helleborus Officinalis; *Black Hellebore.* Leaves pedate; flower-stalks radical, many-flowered; flowers white, turning purplish as they fade; bracteas deeply lobed, serrated; roots black, fibrous, rather tuberous than creeping. This is the true Black Hellebore of the ancients, which ought to be used in medicine. The medicinal qualities of the root are acrid and violently purgative, and were supposed useful in maniacal cases.—Found on Mount Athos, on hills near Thessalonica, and near Constantinople.

6. Helleborus Fœtidus; *Stinking Hellebore*, or *Bear's-foot.* Stem many-flowered, leafy; leaves pedate; root small, but bent with a prodigious number of slender dark-coloured fibres: at the divisions of the branches are oval lanceolate stem-clasping stipules deeply bifid at the extremity; at the base of each peduncle, an oval lanceolate entire bracte; both these are frequently tinged with purple; flowers almost globular, pendent on peduncles, forming a sort of umbel.—Native of Germany, Switzerland, France, and England, preferring a chalky soil, among bushes, flowering early in the spring. This species is always green, whereas the fourth species dies down to the root every year. It is often called Black Hellebore, and is frequently used as an anthelmintic; the powder of the dried leaves being the preparation principally made use of, and this in doses of about fifteen grains for children, the decoction of about a drachm of the green leaves being considered as equal to fifteen grains of the dry ones: it is usually repeated on two, and sometimes three, successive mornings; and seldom fails to bring away worms, if there be any in the intestinal tube. A decoction of the roots is a violent purge, and should be very sparingly used. Country people cut them into pieces; they insert these pieces into holes made in the ears and dewlaps of cattle, which produces a suppuration and discharge that proves serviceable in many disorders. The powder of the roots or leaves strewed on issues, greatly promotes the discharge, and consequently renders them more efficacious.

7. Helleborus Lividus; *Livid, Purple*, or *Great Three-flowered Black Hellebore.* Stem many-flowered, leafy; leaves ternate; flowering from January to May. This resembles the fourth species, but differs from it in having trifoliate leaves, which are broader, entire, with a smoother surface; and the stalks rise higher than any of our common sorts.—Native place unknown. It is propagated by parting its roots in autumn, and by seeds: but few of the latter ripen in general, nor do the roots make much increase: this is the real cause of its present scarcity. As it flowers in February, and is a singular plant, it well deserves to be admitted into every collection.

8. Helleborus Trifolius; *Small Three-leaved Hellebore.* Scape one-flowered; leaves ternate; stem leafless; flower minute, resembling that of the Parnassia, white, and sometimes yellow.—It is a native of Denmark, Siberia, Hudson's Bay, and of Canada; where it is so abundant in the woods as to cover the ground in many parts: it commonly chooses mossy places that are not very wet; Woodsorrel and Alpine Circæa are its companions. It is universally called *Tissa-voyanne jaune*, by the Canadian French. The leaves and stalks are used by the Indians, for giving a fine yellow colour to several kinds of work, which they make of skins; and the French use it to dye wool yellow. It flowers in June and July.

Helmet Flower. See *Aconitum.*

Helonias; a genus of the class Hexandria, order Trigynia.—Generic Character. *Calix:* none. *Corolla:* petals six, oblong, equal, deciduous. *Stamina:* filamenta six, subulate, a little longer than the corolla; antheræ incumbent. *Pistil:* germen roundish, three-cornered; styles three, short, reflex; stigmas blunt. *Pericarp:* capsule roundish, three-celled. *Seeds:* roundish. Essential Character. *Calix:* none. *Corolla:* six-petalled. *Capsule:* three-celled.—The plants of this genus may be increased by offsets, taken from the roots in autumn; or by seeds, which should be sown soon as ripe: they prefer a light fresh soil, and are hardy enough to thrive in the open air. They must not be removed oftener than once in three or four years; and they are as long in coming to flower from the seed.——The species are,

1. Helonias Bullata; *Spear-leaved Helonias.* Leaves elliptic-lanceolate, somewhat spatulate, ribbed; root perennial, composed of many thick fleshy fibres; the stalk is terminated by a close obtuse spike of dark red flowers, some of which are barren.—Native of moist shady places near Philadelphia, where it is called *Stargrass* by the natives; and is of an acrid aromatic flavour. It flowers in April and May.

2. Helonias Asphodeloides; *Grass-leaved Helonias.* Stem-leaves setaceous; stem extremely simple, two feet high; flowers white, in a simple terminating raceme, on peduncles

longer than the flowers. It very much resembles an Asphodel, but has three recurved styles.—Native of Pennsylvania and Virginia. It flowers in May and June.

3. Helonias Pumila. Radical leaves obovate, those on the stem lanceolate; cluster cylindrical; flowers with narrow white petals and yellow antheræ.—Native of Virginia, Canada, &c.

Helvella; a genus of the class Cryptogamia, order Fungi. —Generic Character. Pileus on the stem smooth on both sides; seeds thrown out from under the surface.—Persoon enumerates nine species; one without a stalk; three with a furrowed stalk; and five with a smooth or even one. The following are of each section.

1. Helvella Acaulis. Sessile, waved, expanded, reddish-brown, paler and fibrous underneath.—Found in the ground in Fir forests.

2. Helvella Mitra. Pileus tumid, many-lobed, of a blackish livid hue; stalk furrowed and cellular, whitish.—Common, growing on the ground, and is, like the Morel, eatable.

3. Helvella Esculenta. Stalk smooth; pileus reddish-brown, roundish, its surface crumpled and cellular. This is often confounded with the true Morel.

Hemerocallis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* six-parted, bell-funnel-form; tube short; border equal, spreading, more reflex at top. *Stamina:* filamenta six, subulate, the length of the corolla, declining, upper ones shorter; antheræ oblong, incumbent, rising. *Pistil:* germen roundish, furrowed, superior; style filiform, the length and situation of the stamina; stigma obtusely three-cornered, rising. *Pericarp:* capsule ovate, three-lobed, three-cornered, three-celled, three-valved. *Seeds:* very many, roundish. Essential Character. *Corolla:* bell-shaped, the tube cylindric. *Stamina:* declining.——The species are,

1. Hemerocallis Flava; *Yellow Day Lily.* Leaves linear-subulate, keeled; corollas yellow. It has strong fibrous roots, to which hang knobs or tubers, like those of the Asphodel, from which come out leaves two feet long, with a rigid midrib, the two sides drawing inward, so as to form a sort of gutter on the upper side: the flower-stalks rise two feet and a half high, having two or three longitudinal furrows; these are naked, and at the top divide into three or four short peduncles, each sustaining one pretty large yellow flower, shaped like a Lily, having but one petal, with a short tube, spreading open at the brim, where it is divided into six parts: they have an agreeable scent, from which some have given this plant the title of Yellow Tuberose. It flowers in June, and the seeds ripen in August.—There is a variety with smaller roots and leaves: both are natives of Siberia, Hungary, Dalmatia, Istria, and has found its way into Switzerland and Silesia. This, and the other species, are easily propagated by offsets, which the roots send out in plenty; they may be taken off in autumn, (that being the best season for transplanting the roots,) and planted in any situation, for they are extremely hardy, and will require no culture but weeding, and room sufficient to spread their roots. The first species may also be propagated by seeds, which, if sown in autumn, the plants will come up in the following spring, and these will flower in two years; but if the seeds are not sown till spring, the plants will not come up till the year after. In a moist soil and shady situation they thrive better than in dry ground.

2. Hemerocallis Fulva; *Copper-coloured Day Lily.* Leaves linear-subulate, keeled; corollas tawny or copper-coloured. This is a much larger plant than the first, and the roots spread and increase much more; the flower-stalks are as thick as a man's finger, and rise nearly four feet high; they are naked, without joints, and branching at the top, where there are several copper-coloured flowers, shaped like those of the Red Lily, and as large. The stamina are longer than those of the preceding species, and their summits are charged with a copper-coloured farina, which sheds on being touched. The flowers appear in July and August, and only last each one day, though there is a succession on the same plant for a fortnight or three weeks.—Native place of growth uncertain. In Japan it varies with a double flower; and in China and Cochin-china the inhabitants boil the flowers, both fresh and dry, commonly with their meat. It is a very unsuitable plant for small gardens, and best adapted for plantations.

3. Hemerocallis Lancifolia. Leaves lanceolate, seven-nerved; scape round, jointed, upright, smooth, longer than the leaves; flowers at the top of the scape in racemes, drooping; corolla white.—Native of Japan, where it is frequently kept in gardens and houses for its elegance; flowering in August and September.

4. Hemerocallis Japonica. Leaves ovate, wavy, many-nerved; petioles winged, membranaceous, a hand in length or rather more.—Native of Japan.

5. Hemerocallis Cordata. Leaves heart-shaped, veined; stem round, upright, smooth, a foot high or more; flowers terminating, alternate, upright. Gærtner doubts whether this be a genuine species of Hemerocallis, since it differs so much in the fruit.—Native of Japan, where it is frequently cultivated.

6. Hemerocallis Graminea; *Narrow-leaved Day Lily.* Leaves channelled, nearly triangular; bractes short and membranous; corolla swelling at the base, its inner segments crisped at the base; stigma three-lobed.—Native of Siberia.

Hemimeris; a genus of the class Didynamia, order Angiospermia.—Generic Character. *Calix:* perianth one-leafed, five-parted almost to the base, much shorter than the corolla; parts ovate, unequal, permanent. *Corolla:* monopetalous, wheel-shaped, ringent; tube very short, (scarcely any,) intruded, white; upper lip cloven, with a kind of bag at the base, composed of little nectareous pits; lower concave, blunt. *Stamina:* filamenta two or four, filiform, inserted into the base of the lower lip, bent round; antheræ very small, heart-form, cohering, yellow. *Pistil:* germen superior, sharp, smooth; style thread-form, of the same length and in the same situation with the stamina; stigma simple, sharpish. *Pericarp:* capsule ovate, sharp, twin, gibbous at the base on one side, two-celled, two-valved. *Seeds:* very many, smooth. *Observe.* Allied to *Antirrhinum*, but differing in the form of the corolla. Essential Character. *Calix:* five-parted. *Corolla:* wheel-form; upper lip cloven, with a nectareous bag at the base.——The species are,

1. Hemimeris Sabulosa. Diandrous: leaves opposite, pinnatifid; stem prostrate.—Native of the Cape.

2. Hemimeris Montana. Diandrous: leaves opposite, ovate, serrate; stem upright.—Native of the Cape.

3. Hemimeris Diffusa. Didynamous: leaves alternate and opposite, pinnatifid; stem patulous.—Native of the Cape.

Hemionitis, or *Mule Fern;* a genus of the class Cryptogamia, order Filices or Ferns.—Generic Character. Capsules digested into lines, meeting together, either intersecting each other or branched.——The species are,

1. Hemionitis Lanceolata. Fronds lanceolate, quite entire; leaves plane and simple, seldom exceeding sixteen or eighteen inches in length, when most luxuriant; they grow in tufts from a strong fibrous root. This plant is commonly found on the trunks of trees, in the cooler and more shady inland woods of Jamaica.—Neither this nor any of its genus is often propagated in gardens. They must be all procured from the country where they naturally grow; planted in pots filled with loamy undunged earth, and placed in the stove: in

summer they must be frequently watered, but they require little in winter. They require abundance of free air in summer.

2. Hemionitis Lineata. Frond lanceolate-linear; lines of fructifications nearly parallel, longitudinal.—Native of Jamaica.

3. Hemionitis Parasitica. Fronds ovate, acuminate; shoots chaffy, creeping; leaves about two inches long, and one and a half over where broadest.—Creeping on trees in the cooler inland woods of Jamaica.

4. Hemionitis Palmata. Fronds palmate, hirsute; roots many, fibrous, black; stalks black, cornered, about six inches high, covered with ferruginous hair: the whole frond is like the leaf of a creeping Ranunculus.—Found between Savannah and Two-mile Wood in Jamaica, and also in Martinico.

5. Hemionitis Japonica. Fronds bipinnate; pinnas lanceolate, entire. The fructifications are in trichotomous lines, over the whole lower surface.—Native of Japan.

6. Hemionitis Reticulata. Fronds lanceolate-sickled, quite entire; veins netted.—Native of the Society Islands.

7. Hemionitis Esculenta. Frond pinnate; pinnas alternate, lanceolate, crenate, slightly eared at the base. This species is a foot and half high or more; stipe smooth, grooved; roots esculent.—Native of the East Indies.

8. Hemionitis Triloba. Frond pinnate; leaflets three-lobed, sinuated, taper-pointed, downy, stalked, the terminal one large, very deeply three-lobed; lines of capsules numerous.—A very elegant Fern: native of the Brazils.

9. Hemionitis Acrostichoides. Fronds pinnate, distinct; leaflets broad-lanceolate, taper-pointed, waved or crenate; fructifications confluent.—Gathered at Sierra Leone.

Hemlock, Common. See *Conium.*

Hemlock, Water. See *Cicuta.*

Hemp. See *Cannabis Sativa.*

Hemp Agrimony. See *Eupatorium.*

Hemp Agrimony, Water. See *Bidens.*

Hemp, Bastard. See *Datisca.*

Hemp, Virginia. See *Acnida.*

Henbane. See *Hyoscyamus.*

Heracleum; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, manifold, very large, partial flat; involucre universal, many-leaved, caducous, partial halved on the outside; leaflets three to seven, linear-lanceolate, the exterior ones longer; perianth obscure. *Corolla:* universal not uniform, radiate; floscules all generally fertile; proper of the disk equal; five-petalled; petals bent in and hooked, emarginate; of the ray unequal, five-petalled; the outer ones larger and more bifid, oblong, hooked. *Stamina:* filamenta five, longer than the corollets; antheræ small. *Pistil:* germen subovate, inferior; styles two, approximating, short; stigmas simple. *Pericarp:* none; fruit elliptic, compressed, emarginate, striated in the middle on both sides, margined. *Seeds:* two, ovate, leafy, and compressed. *Observe.* In some species the radiate female flowers are fertile; the male ones of the disk are abortive, being destitute of stigmas. The first and second species are hermaphrodite throughout, and sometimes the involucre is entirely wanting. The second species has uniform flowers. Essential Character. *Involucre:* caducous. *Corolla:* difform, inflex-emarginate. *Fruit:* elliptic, emarginate, compressed, striated, margined.—To propagate the plants of this genus, sow their seeds in autumn; in the spring, when the plants are up, hoe the ground, cutting up the weeds, and thinning the plants as directed for Parsneps.——The species are,

1. Heracleum Sphondylium; *Common Cow-Parsnep.* Leaflets pinnatifid, even; flowers radiate; root biennial, thick, yellowish without, white within, running deep into the ground, sweet to the taste, with some acrimony; stem two, three, and four feet high, round, furrowed, rough with white hairs, hollow within, branched from the bottom; leaves hairy and scabrous, frequently a foot in length, and more than half that in breadth, pinnate and waved. The universal umbel is flat, and has ten, twelve, or more rays; the partial umbel has upwards of thirty; florets white, greenish-white, or purplish; they have a horned appearance before they expand, particularly the outer ones, which are four times the size of the inner petals; the central flowers are frequently abortive. The seeds have a strong smell, somewhat like that of a bug; but are accounted diuretic and stomachic. Linneus says that the plant is used in Scania for the dysentery; and Gmelin informs us that the inhabitants of Kamtschatka, about the beginning of July, collect the footstalks of the radical leaves, and after peeling off the rind, which is very acrid, dry them separately in the sun, and then, tying them in bundles, lay them up carefully in bags placed in the shade, where they become covered with a yellow saccharine efflorescence, tasting like liquorice, which being shaken off, is eaten as a great delicacy. The Russians distil an ardent spirit from the stalks thus prepared, by first fermenting them in water with the greater bilberries; and the spirit thus produced is said to be more agreeable to the taste than spirits made from corn. The leaves are a favourite food with rabbits and swine: horses are said not to like them, but cows, sheep, and goats, are partial to them. The Germans call this plant *Heilkraut, Barenklaw;* the Dutch, *Heilkruid, Beerenklaauw;* the Danes, *Biorneklov;* the Swedes, *Biornsloka;* the French, *la Berce;* the Italians, *Sfondilio;* the Spaniards, *Essondilio;* the Portuguese, *Canabraz;* and the Russians, *Putschki, Slatkaja trawa.* The old English writers call it *Cow Parsnep, Meadow Parsnep,* and *Madnep.* It is called *Hogweed* in Norfolk; and in various parts of England the dry stalks are named *Kexes* or *Kecksies,* in common with those of some other plants.—Native of most parts of Europe, in moist and fertile soils, flowering from May to July.

2. Heracleum Angustifolium; *Narrow-leaved Cow-Parsnep.* Leaves crosswise pinnate; leaflets linear; corollas flosculose. It is probably a mere variety of the foregoing. Hudson remarks, that the distinction of the flosculose and radiate corolla is very uncertain.—It grows plentifully near Berkhampstead in Hertfordshire, near the place where Ray found it; and where both sorts may be seen growing from the same root. There are other varieties also not worth enumerating.

3. Heracleum Sibericum; *Siberian Cow-Parsnep.* Leaves pinnate; leaflets in fives, the middle ones sessile; corollets uniform; root biennial; stem deely furrowed, hispid; flowers flosculose, by no means radiate; petals green, bent in, not at all emarginate; universal involucre none. The Kamtschadales extract a kind of spirit from this species, which is called *Raka.*—Native of Siberia.

4. Heracleum Panaces; *Palmated Cow-Parsnep.* Leaves pinnate; leaflets in fives, the middle ones sessile; flowers radiate; root biennial; stem much taller than the common sort, attaining the height of six feet, hirsute, round, slightly angular, branched; flowers large, radiate, greenish or yellowish white. Gerarde calls it *Hercules All-Heal.*—Native of Italy, Silesia, and Siberia.

5. Heracleum Austriacum; *Austrian Cow-Parsnep.* Leaves pinnate, wrinkled and scabrous on both sides; flowers subradiate; root knotty, with circles round it, and a few fibres; stem from a foot to two feet in height, slightly angular, striated, solitary, smooth, soft, with a white pile only towards the top, scarcely branched. It flowers in July and August.—Native of Austria, Carniola, and Silesia.

6. Heracleum Alpinum; *Alpine Cow-Parsnep.* Leaves

simple; flowers radiate; stem from eighteen inches to three feet high, round, smooth, jointed; corollas white, radiate, smaller than in the rest.—Native of the Swiss Alps, Provence, and Silesia.

7. Heracleum Lanatum. Petiole of the leaves woolly and very villose; seeds orbiculate; flowers white.—Found in shady woods on rich moist soil, in Canada and Pennsylvania, flowering in June and July.

Herb Bennet. See *Geum.*

Herb Christopher. See *Actæa.*

Herb Paris. See *Paris.*

Herb Robert. See *Geranium.*

Heritiera; a genus of the class Monœcia, order Monadelphia, or, according to Schreber, order Syngenesia.—Generic Character. *Male Flowers,* smaller than the females. *Calix:* perianth one-leafed, bell-shaped, five-toothed. *Corolla:* none. *Stamina:* filamentum in the centre of the calix, columnar, conic-subulate, below the tip surrounded by antheræ, from five to ten in number, minute, united into a cylinder. *Female Flowers,* in the same plant with the males, larger. *Calix:* as in the males. *Corolla:* none. *Stamina:* filamenta none; antheræ ten, inserted into the receptacle at the base of the germina, two between each, twin, minute, perhaps barren. *Pistil:* germina five, semiovate, compressed, smooth; styles conical, short, in flowering-time cohering at the tip; stigmas club-shaped. *Pericarp:* five drupes, juiceless, spreading very much, oval, flattish above, convex underneath, keeled and winged, one-celled. *Seeds:* solitary, subglobular, large. Essential Character. *Male. Calix:* five-toothed. *Corolla:* none. *Filamenta:* columnar. *Antheræ:* from five to ten, below the top. *Female. Calix:* five-toothed. *Corolla:* none. *Germina:* five, sessile. *Drupes:* five, dry, with one subglobular seed.——The only species yet discovered is,

1. Heritiera Littoralis; *Looking-glass Plant.* A tree with alternate, oval-oblong, obtuse, perennial, thick, veined, smooth, quite entire, petioled leaves.—Found in Ceylon and Pulo Condore, and generally a native of the East India islands, in a wet sandy soil, flowering from August to November.

Hermannia; a genus of the class Monadelphia, order Pentandria.—Generic Character. *Calix:* perianth one-leafed, five-cleft, roundish, inflated; the little clefts bent in, permanent. *Corolla:* pentapetalous, spiral against the sun; claws the length of the calix, with a little membrane on each side converging into a cowled nectareous tube; border spreading, broadish, blunt. *Stamina:* filamenta five, broadish, very slightly coalescing at bottom into one body; antheræ upright, acuminate, converging. *Pistil:* germen roundish, five-sided, five-cornered; styles five, filiform, approximating, subulate, longer than the stamina; stigma simple. *Pericarp:* capsule roundish, five-sided, five-celled, gaping at the top. *Seeds:* very many, small; according to Gærtner, kidney-form. Essential Character. *Styles:* five. *Capsule:* five-celled. *Petals:* semitubular at the base, oblique.—The plants of this genus are all propagated by planting cuttings of them during any of the summer months, in a bed of fresh earth, observing to water and shade them until they are well rooted, which will be in about six weeks after planting: then take them up with a ball of earth to their roots, and plant them into pots filled with light fresh earth, placing them in a shady situation until they have taken fresh root; after which they may be exposed to the open air with Myrtles and Geraniums, until the middle or end of October; when they must be removed into the green-house, observing to place them in the coolest part of the house, where they may have as much free air as possible; for if they are too much drawn in the house, they will appear faint and sickly, and seldom produce many flowers; whereas when they are only preserved from the frost, and have a great share of free air, they will appear strong and healthy, and produce large quantities of flowers in April and May, during which season they make a very handsome appearance in the green-house: they must also be frequently watered, and will require to be new-potted at least twice every year, in May and September, without which their roots would be so matted as to retard their growth. These plants, except the ninth and twenty-first species, seldom produce good seeds in England, which is probably owing to their having been long propagated from cuttings only, for they are generally fruitful when raised from seeds.——The species are,

1. Hermannia Althæifolia; *Marshmallow-leaved Hermannia.* Leaves ovate, crenate, plaited, tomentose; flowering calices bell-shaped, angular; stipules oblong, leafy. This seldom rises more than two feet and a half high; the stem is not very woody, and the branches are soft and tender.—Native of the Cape of Good Hope.

2. Hermannia Plicata; *Plaited-leaved Hermannia.* Leaves cordate-ovate, toothletted, plaited, tomentose; flowering calices oblong-ovate, subcylindrical. It flowers in November and December.—Native of the Cape of Good Hope.

3. Hermannia Candicans; *White Hermannia.* Leaves ovate, serrated, subcordate, blunt, tomentose; flowering calices patulous, somewhat angular; stipules subulate. The whole plant is covered with a very white down.—Native of the Cape of Good Hope.

4. Hermannia Salvifolia. Leaves ovate, entire, wrinkled, tomentose, hispid; flowers drooping.—Native of the Cape of Good Hope; found there by Thunberg.

5. Hermannia Biserrata. Leaves ovate, lanceolate, unequal, serrate, smooth; flowers drooping.—Found by Thunberg at the Cape of Good Hope.

6. Hermannia Trifurca. Leaves lanceolate, entire, three-toothed; flowers in racemes, pointing one way; petals blue.—Native of the Cape of Good Hope.

7. Hermannia Alnifolia; *Alder-leaved Hermannia.* Leaves wedge-shaped, marked with lines, plaited, crenate-emarginate. It rises with a shrubby stalk six or eight feet high, dividing into many erect irregular branches, covered with a brown bark. The flowers are produced in short spikes on the upper part of the branches; they are small, and of a pale yellow colour, appearing in April and May, and ripening into seed in August.—Native of the Cape of Good Hope.

8. Hermannia Odorata; *Sweet-scented Hermannia.* Leaves oblong-lanceolate, tomentose, wrinkled underneath, the lower one truncate and toothletted; calices pitcher-shaped and angular. It flowers most part of the year.—Native of the Cape of Good Hope.

9. Hermannia Hyssopifolia; *Hyssop-leaved Hermannia.* Leaves lanceolate, blunt, serrate. It rises with a shrubby stalk to the height of seven or eight feet, sending out many woody lateral branches, growing very erect. The flowers come out in small bunches from the side of the stalk: they are of a pale straw colour, appear in May and June, and are frequently followed by seeds, which ripen in the latter part of August.—Native of the Cape of Good Hope.

10. Hermannia Lavendulifolia; *Lavender-leaved Hermannia.* Leaves lanceolate, blunt, quite entire. This has shrubby branching stalks, which are very bushy, but seldom rise more than a foot and a half high, and are very slender. The flowers come out singly from the side of the stalk, are small and yellow, and continue most part of the summer.—Native of the Cape of Good Hope.

11. Hermannia Denudata; *Smooth Hermannia.* Leaves

lanceolate, sharp, even, serrate at top; stems upright, round, smoothish, stiff; corolla yellow. It flowers from May to July. —Native of the Cape of Good Hope.

12. Hermannia Glabrata. Leaves lanceolate, sharp, gash-serrate, smooth; flowers drooping.—Native of the Cape.

13. Hermannia Ciliaris. Leaves lanceolate, sharp, entire, and serrate, ciliate.—Native of the Cape of Good Hope.

14. Hermannia Linifolia. Leaves linear; peduncles one-flowered.—Native of the Cape of Good Hope.

15. Hermannia Filifolia. Leaves linear, three-sided, quite entire.—Native of the Cape of Good Hope.

16. Hermannia Trifoliata. Leaves ternate, sessile, plaited, retuse, tomentose; stem creeping; branches narrow; flowers pendulous.—Native of the Cape of Good Hope.

17. Hermannia Triphylla. Leaves ternate, petioled, flat, obovate; stems herbaceous; stipules small; petals the length of the leaves: the whole plant has hairs thinly scattered over it.—Native of the Cape of Good Hope.

18. Hermannia Grossularifolia; *Gooseberry-leaved Hermannia.* Leaves lanceolate, pinnatifid, rough. This is of lower stature than the seventh species, but sends out a greater number of branches, which spread wide on every side. The flowers are produced in short close spikes at the end of every shoot, so that the whole shrub seems covered with them; they are of a bright yellow, and appear towards the end of April, but are not succeeded by seeds in England. —Native of the Cape of Good Hope.

19. Hermannia Pulchella. Leaves lanceolate, pinnatifid; pinnas entire and gashed; stem upright, even.—Found by Thunberg, at the Cape of Good Hope.

20. Hermannia Diffusa. Leaves lanceolate, pinnatifid; pinnas entire and toothed; peduncles capillary, two-flowered; stem procumbent.—Native of the Cape of Good Hope.

21. Hermannia Hirsuta. Leaves simple and ternate, hirsute, sessile. It rises with a shrubby hairy stalk about two feet high, sending out many side-branches, which grow very erect; the flowers are produced towards the end of the branches; they are large, and of a deep yellow colour, with large, swollen, hairy calices. It continues flowering most part of the summer.—Native of the Cape of Good Hope.

Hermas; a genus of the class Polygamia, order Monœcia. —Generic Character. *Hermaphrodite*, umbel terminating. *Calix:* umbel universal, many-rayed, hemispheric; partial many-rayed; central ray flower-bearing, the rest without any floret; involucre universal, many-leaved, lanceolate, short, permanent; partial, of one or two leaves, lanceolate, the length of the partial umbel: proper perianth obscure, five-toothed. *Corolla:* universal flosculous; of the proper, petals five, oblong-ovate, upright, flat, entire, equal. *Stamina:* filamenta five, filiform, shorter than the petals; antheræ barren, oblong. *Pistil:* germen inferior, compressed, larger than the corolla; styles two, filiform, upright, longer than the corolla; stigmas obtuse. *Pericarp:* none; fruit orbicular, emarginate at the base, gaping at the angles. *Seeds:* two, cordate-orbicular, compressed, flat, margined, marked with a single longitudinal elevated streak. *Male*, umbels lateral, later, of the same plant. *Calix:* umbel universal, as in the hermaphrodite; partial, many-rayed, the rays all flower-bearing; involucre as in the hermaphrodites; perianth scarcely any. *Corolla:* as in the hermaphrodites. *Stamina:* filamenta five, filiform, length of the corollet; antheræ pollen-bearing, oval, nearly twin. Essential Character. Hermaphrodite. *Umbel:* terminating. *Involucre:* universal and partial; umbellets with truncate rays, the central one floriferous. *Petals:* five. *Stamina:* five, barren. *Seeds:* in pairs, suborbiculate. *Male. Umbels:* lateral, with universal and partial involucres; umbellets many-flowered. *Petals:* five. *Stamina:* five, fertile.—For the mode of propagating and cultivating the plants of this genus, see *Bupleurum.*——The species are,

1. Hermas Depauperata. Stem shrubby: leaves oblong, embracing, toothed, villose underneath. This is an umbelled plant, with the leaves radical, subpetioled, cordate, coriaceous, white-tomentose underneath; umbels at the ends of the stem and branches, peduncled, compound.—Native of the Cape.

2. Hermas Gigantea. Leaves lanceolate-ovate, lanuginose above, underneath tomentose, entire, a foot in length, and a span in breadth; stem four feet high, with a small leaf or two towards the lower part; the axils villose. The wool scraped from the leaves is used at the Cape of Good Hope (where it is a native) for tinder, like that obtained from the Artemisia in China and Japan.

3. Hermas Capitata. Stem tomentose; leaves subcordate, serrate; umbels capitate; heads three, alternate, peduncled, composed of florets, scarce visibly pedicelled, as in the flowers of the class Syngenesia.—Native of the Cape.

4. Hermas Quinquedentata. Stem smooth; leaves ovate, five-toothed, tomentose underneath; umbel solitary. This is very distinguishable from the rest, by its small leaves with five fine deep serratures.—Native of the Cape.

5. Hermas Ciliata. Stem smooth; leaves ovate, ciliate, tomentose underneath; umbels several.—Discovered by Thunberg at the Cape of Good Hope.

Hernandia; a genus of the class Monœcia, order Triandria.—Generic Character. *Male Flowers*, by pairs, lateral in each umbel. *Calix:* involucre partial, four-leaved, three-flowered; leaflets ovate, obtuse, spreading very much; perianth none. *Corolla:* petals six, subovate, spreading, the three inner ones narrower; nectary six glands, round-headed, placed round the filamenta. *Stamina:* filamenta three, shorter than the petals, inserted into the receptacle; antheræ upright, oblong, large. *Female Flower*, intermediate. *Calix:* involucre common with the males; perianth inferior, one-leafed, bell-shaped, entire, permanent, (according to Gærtner, inflated.) *Corolla:* petals six or eight, of which four are interior and narrower, all sitting on the germen; nectary glands four, obovate, alternate with the interior petals. *Pistil:* germen roundish; style filiform; stigma oblique, somewhat funnel-shaped, large. *Pericarp:* drupe dry, ovate, eight-furrowed, one-celled, enclosed in a very large, inflated, roundish, fleshy, coloured perianth, with the mouth entire. *Seeds:* nut globular, slightly depressed. Essential Character. *Male. Calix:* three-parted. *Corolla:* three-petalled. *Female. Calix:* truncate, quite entire. *Corolla:* six-petalled. *Drupe:* hollow, with an open mouth, and a moveable nucleus. (*Nut:* superior, clothed with the calix, inflated. *Seeds:* globular, and bony, according to Gærtner.) ——The species are,

1. Hernandia Sonora; *Whistling Hernandia.* Leaves peltate. This is an upright lofty tree, with an elegant head; the flowers are of a pale yellow colour, in panicled racemes; the calices of the fruit are yellow. It is very common in the West Indies, in gullies, near rills of water; the English there call it *Jack-in-a-box*, and the French *Myrobolan.* Dr. Patrick Browne says it is common in Barbadoes and Montserrat, where it grows to a considerable size; but that he had not seen it in Jamaica, though he had been credibly informed that it is frequent in the parish of Portland. He attributes the whistling noise which the motion of these plants produces to the cups that sustain and partly envelop the nuts, which, he adds, are very large, and, as they move in the wind, produce sound enough to alarm unwary travellers. The seeds are very oily.—Sow the well-ripened seeds of these plants in a hot-bed

in the spring; when the plants are two inches high, transplant each into a separate pot, filled with fresh rich earth, and plunged into the hot-bed again, observing to water and shade them until they have taken root; after which admit air to them in proportion to the warmth of the air, or the heat of the bed, and water them frequently. As the plants advance, remove them into larger pots, being careful not to break the roots, and to preserve a good ball of earth to them: if their leaves hang, screen them from the sun until they have taken new root. Shift them in July, that they may be well rooted before the cold approaches. Keep them constantly in the bark-stove; in winter give them a moderate share of heat, and in summer plenty of air when the weather is hot. With this management, the plants will grow to the height of sixteen feet or more, and the leaves being very large, will make a beautiful appearance in the stove.

2. Hernandia Ovigera; *Egg-fruited Hernandia.* Leaves ovate, petioled at the base. A tree, with leaves six inches long; fruit the size of an egg, and similar in structure to that of the first species.—Native of the East Indies.

3. Hernandia Guianensis. Leaves heart-shaped, oblong, pointed, folded; bractes whorled. This tree is sixty feet in height, and has a light aromatic wood, and leaves longer in proportion than the last species: it is rendered very conspicuous by its very numerous grayish flowers.—Native of Guiana. The inhabitants use the kernels as a purgative.

Herniaria; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, five-parted, sharp, spreading, coloured within, permanent. *Corolla:* none. *Stamina:* filamenta five, subulate, minute, within the parts of the calix; antheræ simple; there are also five barren filamenta, alternating with the segments of the calix. *Pistil:* germen ovate; style scarcely any; stigmas two, acuminate, the length of the style. *Pericarp:* capsule small, in the bottom of the calix, covered, scarcely gaping. *Seed:* solitary, ovate-acuminate, shining. Essential Character. *Calix:* five-parted. *Corolla:* none. *Stamina:* five, barren, besides the fertile ones. *Capsule:* one-seeded.——The species are,

1. Herniaria Glabra; *Smooth Rupturewort.* Herbaceous and smooth. It is chiefly distinguished from the next species by the smoothness of its habit: the stalks are trailing and many, forming a little tuft, the length of the finger, or at most six inches, round, with many alternate branches; leaves ovate or ovate-lanceolate, something like those of Wild Thyme, opposite, sessile or subsessile, smooth, bright green; flowers axillary, glomerate, sessile, six or eight together, at the joints of the stem and branches. This plant was formerly in some reputation, not only for curing ruptures, but the stone, gravel, and dropsy; it was also given in disorders of the eyes, but has now fallen into utter disuse. Withering and Pollich, however, still aver that it increases the secretions by the kidneys, and that the juice will remove specks from the eyes. It is saltish and astringent, and, according to Krocker, is agreeable to sheep. Mr. Miller remarks, that the herb-women used commonly to bring the Parsley-Breakstone, or Aphanes Arvensis, to market instead of this plant.—It is common in the sandy soils of Switzerland, Sweden, Denmark, Germany, France, Italy, Carniola; with us in England, at the Lizard Point, Cornwall, flowering in July.

2. Herniaria Hirsuta; *Hairy Rupturewort.* Herbaceous and hairy. The general opinion concerning this plant is, that it is a mere variety of the former; but whether specifically distinct or not, it is easily distinguished by the whole plant being hairy.—It flowers in July and August, and is a native of Germany, Switzerland, Italy, Carniola, and has been found with us close to Colney Hatch, near Barnet.

3. Herniaria Fruticosa; *Shrubby Rupturewort.* Stems shrubby; flowers four-cleft. This has stalks trailing on the ground, with small hairy leaves like the second sort; the flowers also bear a great resemblance to that. It is perennial, and may be propagated by cuttings.—Native of Spain.

4. Herniaria Alpina. Leaves obovate, acute, fringed at the margin; flowers densely clustered, five-cleft, hairy; root extremely long, and simple.—Native of the hills of Dauphiny.

Hesperis; a genus of the class Tetradynamia, order Siliquosa.—Generic Character. *Calix:* perianth four-leaved; leaflets lanceolate-linear, from parallel converging, at top incumbent, at bottom gaping, deciduous: of these, two opposite ones are gibbous at the base. *Corolla:* four-petalled, cruciform; petals oblong, the length of the calix, a little bent back obliquely, contrary to the sun's apparent motion, ending in attenuated claws, the length of the calix. *Stamina:* filamenta six, subulate, the length of the tube, two of them shorter by half than the others; antheræ linear, upright, reflex at the tip; an acuminate honied gland between each shorter stamen and the germen, and surrounding the stamen. *Pistil:* germen the length of the calix, prismatic, four-cornered; style none; stigma two-parted, placed on the inside, oblong, upright, forked at the base, converging at the tip, withering. *Pericarp:* silique long, pressed flat, stiff, and straight, two-celled, two-valved; the valves of the same length with the partitions. *Seeds:* very many, ovate, compressed. Essential Character. *Petals:* bent obliquely; a gland within the shorter stamina. *Siliqua:* stiff. *Stigma:* with a forked base and converging tip. *Calix:* closed.——The species are,

1. Hesperis Tristis; *Night-smelling Rocket.* Stem hispid, branched, spreading. The leaves of this sort are much larger than those of the Garden Rocket, and of a paler green, the stalks are closely set with bristly hairs; the flowers grow in loose panicles at the top of the stalk, and appear about the same time as the Garden Rocket. It is much cultivated on the Continent, for the great fragrancy of its flowers in the evening. The German ladies place pots of it in their apartments; whence it has obtained the name of Dame's Violet.—Native of the outskirts of woods and shrubby ditches, in Germany, flowering in May. It is propagated by seeds in the same way as the Garden Rocket; which see. It is not quite so hardy, being very subject to rot in winter, especially in a moist soil or in rich land; it should be planted therefore in a dry poor soil and a warm situation. If some plants be set in pots, and placed under a common frame in winter, it will be sure to preserve them.

2. Hesperis Matronalis; *Garden Rocket.* Stem simple, upright; leaves ovate-lanceolate, toothletted; petals emarginate, with a point. It rises with an upright stalk a foot and half high, with spear-shaped leaves, which sit close to the stalk, and are slightly indented on their edges, ending in acute points; the flowers are produced in a loose thyrse on the top of the stalks; the petals are roundish, and indented at the points, of a deep purple colour, and smell very sweet, especially in the evening, or in cloudy weather. The Garden Rocket with purple flowers was formerly more plentiful in England, and has been neglected merely because the flowers are single and make but little show, although their scent is so grateful that they deserve a place in every good garden.—This grows naturally in Italy. There are several varieties of this plant; one with white flowers, but having less scent; another with double white flowers, mentioned by Johnson in 1633; and a third called the Siberian Rocket, which is nearly the same in all its parts with the common Garden Rocket. Mr. Ray

observed the wild single sort between Salerno and Naples. The Siberian Rocket is very fragrant.—This being biennial, young plants should be raised every year, to supply the place of those which decay: if the seeds are permitted to scatter, the plants will come up without trouble in the spring; but if they are sown, the best season for it is in the autumn; because those sown in the spring often fail when the season proves dry, or will remain long in the ground before they vegetate. It will thrive better in a loamy undunged soil than in rich land.

3. Hesperis Inodora; *Scentless Rocket.* Stem simple, upright; leaves subhastate, toothed, blunt. It rises with an upright stalk nearly two feet high; the flowers grow in loose spikes on the top of the stalks; in some they are white, in others purple, and sometimes both colours striped in the same flower; but having no odour, they are not so deserving of being introduced into gardens. From this species the double white and purple Rockets have been accidentally obtained: they are much esteemed for the beauty of their flowers; and if they also possessed the agreeable odour of the Garden Rocket, they would be some of the best furniture for the borders of the flower-garden, for, though scentless, many highly esteem them for the beauty of their flowers. This sort being naturally biennial, the plants with single flowers rarely survive the second year; nor will those with double flowers continue much longer; so that unless young plants are annually raised to supply the place of the old ones, there will soon be a scarcity of them. There should be some strong roots of each sort kept apart for this purpose, which are not intended to flower: when these have shot up their flower-stalks about six inches high, they should be cut close to the bottom; each of these may be divided in the middle to make two cuttings, which should be planted in a soft, gentle, loamy soil, to an east exposure, where they may have only the morning sun. They may be planted near together, so as to be covered with hand or bell glasses, which should be put over them after the cuttings have been well watered, and closely shut down, drawing the earth round the rim of the glasses to exclude the air; then the glasses should be shaded with mats every day when the sun is hot; and if the cuttings be gently refreshed with water once in seven or eight days, it will be sufficient, for too much moisture would rot them. After they are watered, the glasses should be shut down closely as before. In five or six weeks the cuttings will begin to put out roots, and will shoot up; then the glasses should be gradually raised on one side to admit the air to them, that they may be hardened, and prevented from drawing up weak. When they have made good roots, they should be carefully removed, and planted in an east border about eight or nine inches asunder, observing to shade and water them till they have again taken root; after which they will only require to be kept clean till autumn, when they may be transplanted into the borders of the pleasure-garden where they are designed to flower. The roots which are thus cut down, will send up more stalks than before; and when these are of a proper height, they may be cut off, and treated in the same way: so that when the roots are sound, two or three crops of these cuttings may be taken from them, and thus the old roots may be continued much longer than if they were permitted to flower, which will always secure a supply of good plants for the flower-garden.

4. Hesperis Africana; *African Rocket.* Stem very much branched and diffused; leaves lanceolate, petioled, sharply toothed, scabrous; siliques sessile; the stem, leaves, and pods of this plant, are rough with three-barbed hairs; the flowers are flesh-coloured, with narrow, sublanceolate, bluntish petals.—It is annual, and a native of Africa. If the seeds be permitted to scatter, the plants will come up without care, and only require to be kept clean from weeds; or they may be sown in the spring or autumn where they are to stand, for they do not bear transplanting well.

5. Hesperis Verna; *Early-flowering Rocket.* Stem upright branched; leaves cordate, stem-clasping, serrate, villose; the stalk rises nine inches high, branching towards the top; the flowers are produced in loose panicles at the ends of the branches, they are of a lively purple colour; and those plants which rise in the autumn, flower in the spring.—Native of the south of France. The seeds sown in the autumn succeed much better than those sown in the spring.

6. Hesperis Lacera. Leaves runcinate; siliques tricuspidate, knotted. It is a low annual plant, with pointed leaves, having the borders indented as if torn; the corolla is purple, and the flower has an unpleasant smell.—Native of Portugal and the south of France. If the seeds be sown in the spring upon sheltered borders where the plants are to remain, and they are thinned and kept clean from weeds, the plants will flower in July, and produce ripe seeds in autumn.

7. Hesperis Laciniata. Stem branched; leaves unequally jagged; corolla sulphur-coloured; root biennial; the whole plant villose with short hairs; stalks round.—Native of Piedmont, about La Briga and Sospello, on rocks exposed to the sun.

8. Hesperis Pinnatifida. Leaves serrate, superior, lanceolate, inferior, winged on the under side. It flowers in June.—Native of the shady woods of Kentucky and Tennessee.

Heuchera; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, rounded, narrow; clefts obtuse. *Corolla:* petals five, inserted into the edge of the calix, oval-linear, the length of the calix. *Stamina:* filamenta five, subulate, upright; antheræ roundish. *Pistil:* germen roundish, half five-cleft, ending in straight styles, the length of the stamina: (according to Gærtner, permanent, subulate-setaceous, long, diverging;) stigmas blunt. *Pericarp:* capsule ovate, acuminate, half five-cleft, two-beaked, two-celled, the beaks bent back; (according to Gærtner, inferior, closely barked by the calix, opening by a hole within the styles.) *Seeds:* many, small. Essential Character. *Petals:* five. *Capsule:* two-beaked, two-celled.—These plants are propagated by parting the roots in autumn, and should be planted in a shady situation: they will bear the open air in England.——The species are,

1. Heuchera Americana; *American Heuchera,* or *Sanicle.* Scapes almost naked; thyrse elongated; root-leaves seven-lobed, on long petioles, doubly and sharply crenate; root perennial; scapes a foot high, dividing at top into a loose panicle, sustaining many small hairy flowers of an obsolete purple colour. Perennial.—It flowers in May; ripens seed in August; and is a native of Virginia.

2. Heuchera Dichotoma. Stem branched; peduncles two-flowered, axillary; leaves linear-lanceolate, opposite, entire on the stem. This species, in the appearance of the flower, recedes a little from the characters of the genus, but not so much as to justify the institution of a new genus for it. The whole plant is hairy; peduncle emerging laterally from the bosom of the divarications of the branches, erect, long, dilated at the base, two-flowered, with two small pedicels, of which one is longer than the other; seeds many, minute.—Native place uncertain.

Hibiscus; a genus of the class Monadelphia, order Polyandria.—Generic Character. *Calix:* perianth double; outer many-leaved, permanent; leaflets linear, more rarely one-leafed, many-cleft; inner one-leafed, cup-shaped, half-five-cleft, permanent, or five-toothed, deciduous. *Corolla:*

petals five, roundish-oblong, narrower at the base, spreading, fastened at the bottom to the tube of the stamina. *Stamina:* filamenta very many, united at bottom into a tube, at top (in the apex and surface of this) divided and loose; antheræ kidney-form. *Pistil:* germen roundish; style filiform, longer than the stamina, five-cleft at top; stigmas headed. *Pericarp:* capsule five-celled, five-valved; partitions contrary, doubled. *Seeds:* solitary or several, ovate-kidney-form. ESSENTIAL CHARACTER. *Calix:* double, the outer of many leaves or segments. *Stigmas:* five. *Capsule:* of five cells, with several seeds.——The species are,

1. Hibiscus Moschentos; *Musk Hibiscus.* Leaves ovate, acuminate, serrate; stem very simple; petioles floriferous; root perennial; stalk single, two feet high, or more; flowers large, purple. It is remarkable in this species, that the flower springs from the petiole of the leaf, as in *Turnera Ulmifolia.* —Native of Virginia and Canada; though Cornutus informs us, that it originally came from the woods of Africa. This, the second, twenty-second, thirty-fifth, and fortieth species, are hardy enough to bear the open air in England; but the two first, and thirty-fifth, seldom flower in the open air of our climate, unless in very warm summers, though the roots will live when planted in a sheltered situation. The only way to have these plants flower here, is to keep the roots in pots, and to shelter them under a frame in winter, and in the spring plunge them into a gentle hot-bed, which will cause them to put out their stalks early, and when the stalks are so high as to reach the glasses, the pots may be removed into a glass-case; where, if they are duly supplied with water, and have plenty of air in hot weather, they will flower very well in July, and in warm seasons will ripen their seeds.

2. Hibiscus Palustris; *Marsh Hibiscus.* Stem herbaceous, very simple; leaves ovate, slightly three-lobed, tomentose underneath; flowers axillary; root perennial; the peduncles come out singly from the axils of the upper leaves; they are longer than the petiole, but do not spring from it, are jointed, and support one very large bright purple-coloured flower.—Native of moist ground in Virginia and Canada: flowers here in July and August. For its propagation, see the first species.

3. Hibiscus Micranthus; *Minute-flowered Hibiscus.* Leaves roundish, entire, serrate; corollas reflex, oblique; root annual; stem round, upright, simple, a foot high; flowers minute, on the summit of the stem; seeds lanuginous.—Found by Kœnig in the East Indies. This plant, like the majority of those belonging to this genus from warm countries, must be kept in the bark-stove, where some of them will make a most splendid appearance. The principal mode of propagating them is by seeds, sown on a good hot-bed in the spring. The plants should be afterwards removed into pots filled with light earth, and plunged into a fresh hot-bed, treating them afterwards in the same way as the Amaranths. The more tender sorts must be plunged in autumn in the tan-bed, there to remain, and to be treated like other tender plants from the West Indies, and allowed but little water in winter. The perennials may be propagated by cuttings.

4. Hibiscus Microphyllus; *Minute-leaved Hibiscus.* Leaves oval, rough-haired, serrate in front; stem shrubby; peduncles axillary, solitary, the length of the leaves, jointed towards the top, thicker.—Native of the Cape.

5. Hibiscus Urens. Tomentose: leaves kidney-shaped, crenate; calices woolly. This herb is slightly stinging; peduncles usually longer than the leaf; flowers axillary, two or three together, subsessile, glomerate; corolla small in proportion to the calix, purple.—Native of the Cape of Good Hope. This, together with the sixth, the twenty-fourth, twenty-eight, and thirty-ninth species, require the protection of the green-house, Cape-stove, or glass-case.

6. Hibiscus Præmorsus; *Round-leaved Shrubby Hibiscus.* Leaves roundish, tooth-serrate, retuse, pubescent: the leaves are as it were truncate in the middle, crenulate, five-nerved, and soft; the flowers are small and yellow; the capsules small, five together, tubercled, with a point.—This beautiful shrub flowers from June to August, and is a native of the Cape of Good Hope. For its propagation and culture, see the third and preceding species.

7. Hibiscus Cordifolius; *Heart-leaved Hibiscus.* Arboreous, tomentose: leaves cordate, ovate, serrate; flowers peduncled, terminating; calix many-leaved, linear, long: the flower is middle-sized.—Native of South America. For its propagation and culture, see the third species.

8. Hibiscus Rigidus. Suffruticose, hirsute: branches simple; leaves oblong, serrate; limb of the corolla reflex; seeds woolly; the twigs are long, filiform, quite simple, stiff, the stipules erect, bristle-shaped, stiff; and the peduncles axillary, one-flowered.—Native of Ceylon. For its propagation and culture, see the third species.

9. Hibiscus Sororius. Leaves cordate, crenate, scabrous; outer calices round, dilated at the end; stem herbaceous or suffruticose, columnar, hairy all over, supported by trees; peduncles axillary, the length of the leaves, solitary, pubescent, one-flowered.—Native of Surinam. For its propagation and culture, see the third species.

10. Hibiscus Cancellatus. Stem weak, rough with hairs; leaves cordate, serrate; calices globular, having twenty subulate rays, rough with hairs; peduncles axillary, one-flowered, longer than the petioles.—Native of Surinam. For its propagation and culture, see the third species.

11. Hibiscus Populneus; *Poplar-leaved Hibiscus.* Leaves cordate, quite entire; stem arboreous. It is a tree fifteen feet or more high, with a trunk larger than a man can compass; capsule globular, berried, and closed; outer calix three-leaved, caducous; inner obscurely five-toothed, permanent. The wood is white and soft, and the bark like that of the Lime-tree; the branches long and spreading; corolla large, yellowish-white, inclining to green, becoming red as it decays, without scent.—Native of sandy soils in the East Indies, where it produces flowers plentifully during the greatest part of the year. For its culture and propagation, see the third species.

12. Hibiscus Tiliaceus; *Lime-tree-leaved Hibiscus.* Leaves cordate, roundish, undivided, acuminate, crenate; stem arboreous; outer calix one-leafed, ten-toothed. This rises with a woody, twisted, pithy stem, from eight to ten, twelve, and fifteen feet high, but has rather a smaller trunk than the preceding species, dividing into several spreading branches towards the top, which are covered with a brown bark and a woolly down: the flowers are produced towards the upper part of the twigs, from the axils, on peduncles an inch long, branched, and supporting several flowers, forming all together loose spikes; in figure and colour they resemble the foregoing, but they are smaller, and roughish on the outside, nor are they so curled and wrinkled; on the lower part of the neck, instead of the five-leaved rose which there is in that, we have a large round spot of a dusky red purple colour.—Native of the East Indies, and of almost every country within the tropics. This plant flowers in the second year, if brought forward; otherwise not before the third or fourth. It will bear the open air in summer in a warm situation, but will not make any great progress. In the island of Otaheite they make matting of the bark; also ropes and lines, from the size of an inch to that of a small packthread; and fishing-nets. They also suck the bark

for food when the bread-fruit fails: and in New Caledonia the inhabitants frequently subsist on it, though it is insipid food, affording very little nourishment. These accounts are attested by Hawksworth and Forster.

13. Hibiscus Simplex. Leaves cordate, three-lobed, repand, quite entire; stem arboreous, entirely simple.—Native of Asia. Propagated in the same way as the third species.

14. Hibiscus Ovalifolius. Leaves oval, and subangular; outer calices five-leaved. The flowers have the size and appearance of those of the thirty-third species; seeds villose. For its propagation and culture, see the third species.

15. Hibiscus Rosa Sinensis; *Chinese-Rose Hibiscus.* Leaves ovate-acuminate, serrate; stem arboreous. In India it attains to the size of an ordinary tree; with us it is a round-stemmed, erect shrub with alternate spreading branches, that are wand-like, leafy, brownish green, and nearly smooth; flowers axillary, solitary, peduncled, large, of a deep scarlet colour; peduncles twice as long as the petioles, round, straight, thicker towards the top, with a joint beyond the middle.—It is extremely common in the gardens of China and the East Indies, but its native country is unknown. Loureiro however affirms that it is spontaneous, as well as cultivated, both in China and Cochin-china; and that it is so common in the latter, that they have entire hedges of it to their gardens. It has been long known from its appearance on Chinese screens and paper-hangings. The variety with double flowers is most frequently cultivated both in the East and in European hot-houses; it is indeed rarely seen with single ones. Loureiro remarks also, that the double-flowered white variety is more difficult to cultivate, and differs a little from the others in having gash-serrate leaves. He likewise mentions another variety with large, double, brick-coloured flowers. But in so favourite a plant, we should not be surprised if there were many more varieties. Rumphius says, that the white-flowered variety is not esteemed in the East, for the inhabitants of India are extremely partial to whatever is red, which they consider as a colour tending to exhilarate. They form these handsome flowers into garlands and festoons on all occasions of festivity, and even in their sepulchral rites. They are put also to a use which seems very inconsistent with their elegance and beauty, that of blacking shoes, from which they derived the name of Rosæ Calceolariæ, and Shoe-flower. The women employ them to colour their hair and eye-brows black. Mr. Miller, who cultivated this flower as far back as the year 1731, informs us that he had never seen it with single flowers, which even now are rarely met with in our stoves. With double flowers it is common, thrives well, and is in blow during the greatest part of the summer. The single flowers are certainly of short duration, but that defect is compensated by their curious and beautiful structure.—This most splendid and beautiful plant is perennial, and may be propagated by cuttings, but requires the protection of a hot-house or of the bark-stove.

16. Hibiscus Brasiliensis; *Brasilian Hibiscus.* Leaves cordate, toothletted; outer calix double the length of the other; stem shrubby; branches rough with hairs; stipules awl-shaped; peduncles one-flowered, longer than the leaves.—Native of Brazil. For its propagation and culture, see the third species.

17. Hibiscus Hirtus; *Hairy Hibiscus.* Leaves lanceolate-ovate, acuminate, serrate; branches scabrous; stem herbaceous. This is a small plant, with a purple corolla and woolly seeds.—Native of the East Indies. For its propagation and culture, see the third species.

18. Hibiscus Phœniceus; *Purple Hibiscus.* Leaves ovate, acuminate, serrate; peduncles jointed, thickened above the joints; lobes longer; calices naked; seed woolly.—Linneus has called this a variety of the preceding, but it appears to be a distinct species. It is a very beautiful shrub, blows in our stoves the whole summer, and is highly ornamental with its deep red flowers. For its propagation, see the third species.

19. Hibiscus Mutabilis; *Changeable Rose-Hibiscus.* Leaves cordate, five-angled, obscurely serrate; stem arboreous, pale, single, smooth, spreading out wide into leafy branches at top, the wood resembling that of the Fig; petioles rough, thick, three or four inches in length; peduncles thicker towards the top, sometimes tinged with red, sustaining large handsome flowers, which alter their colour; for at their first opening they are white, then they change to a blush rose colour, and as they decay turn to a purple. In the West Indies all these changes take place in one day; but in England, where they last nearly a week, the changes are not so sudden.—It is a native of the East Indies and Japan. The French first carried the seeds to their settlements in the West Indies; and the inhabitants of the British colonies there, being supplied with the seeds from them, have given it the name of Martinico Rose. It varies with double flowers, from which the single is frequently produced; but the seeds of the single seldom vary to the double. It blows in our stoves in November and December, and is much cultivated in the gardens of China and Cochin-china.—The plants of this sort should not be quite exposed to the open air the first season; and the first winter will require the warmth of a moderate stove; but as they acquire more strength, they will need less care, for they will bear the open air in summer in a warm sheltered situation, and will survive the winter in a good green-house, provided they have not too much moisture; but the plants thus hardily treated will not make so great progress nor flower so well, as with a little additional warmth; and if too tenderly managed, will draw up weak, and be less likely to flower.

20. Hibiscus Spinifex; *Prickly-fruited Hibiscus.* Leaves cordate, crenate, undivided; capsules set with spines standing out. It flowers here in July.—Native of the West Indies. For its propagation and culture, see the third species.

21. Hibiscus Solandra; *Maple-leaved Hibiscus.* Leaves subcordate, three-cusped, serrate; calices uncalicled; root annual; stalk upright, branched on every side, round, hollow, a foot and a half high; racemes terminating, upright, villose, two inches long; flowers alternate, stiff, four or five lines wide; peduncles upright, round, villose, jointed at the tip, becoming twice or thrice longer when in fruit; filamenta shorter than the corolla. It flowers in July and August.—Native of the Isle of Bourbon. For its propagation and culture, see the third species.

22. Hibiscus Syriacus; *Syrian Shrubby Hibiscus,* or *Althæa Frutex.* Leaves wedge-form, ovate, gash-serrate towards the end; stem arboreous. It rises to the height of six or seven feet, sending out many woody branches covered with a smooth gray bark; the flowers come out from the wings of the stalk at every joint of the same year's shoot; they are large, and shaped like those of the Mallow, having five large roundish petals, which join at their base, spreading open at the top in the shape of an open bell: they appear in August, and if the season be not over warm, there will be a succession of flowers during a part of September. It is commonly called Althæa Frutex by the nursery gardeners, who propagate the shrubs for sale: there are four or five varieties, which differ in the colour of their flowers; the most common has pale purple flowers, with dark bottoms; another has bright purple flowers with black bottoms; a third, white flowers with purple bottoms; a fourth, variegated flowers with dark bottoms; a

fifth, pale yellow flowers with dark bottoms; but the last is very rare at present in English gardens; and a sixth with double flowers. There are also two sorts with variegated leaves, which by some are much esteemed.—It is a native of Syria, and very much cultivated for hedges in Japan and Cochin-china. It is propagated by seeds, which should be sown in pots filled with light earth at the latter end of March, and plunged into a gentle heat to forward the growth of the seeds. When the plants appear, they must be inured to the open air, and in May the pots may be plunged into the ground in a border exposed to the east, where they may have the morning sun. They will require nothing but weeding and watering during the first summer, but in autumn it will be proper to remove the pots under a common frame, to screen them from the frost; or, where there is not such conveniency, they may be plunged close to a hedge, pale, or wall, or to a good aspect; and in severe frosts they should be covered with mats, straw, or other light covering; for although these plants, when they have obtained strength, will resist the cold of our winters, yet the young plants, the shoots of which are tender, frequently receive injury from the first frost in autumn; so that if they are not screened the first year, they are often killed to the ground. Towards the latter end of March will be a good time to transplant them. The spot of ground prepared to receive them should then be divided into beds four feet broad, with paths of two feet broad between them. The plants must then be shaken out of the pots with the earth adhering to them, and carefully separated, for their roots are very tender and apt to break with little force, and replanted about nine inches asunder in the beds; so that if four rows be planted in each bed, there will be six inches allowed between the outside rows and the paths. The ground should be gently closed about the roots, to prevent the air penetrating to them; and if a little old tanners' bark or mulch is laid over the surface of the beds, it will prevent the earth from drying, and be of great use to the plants. During the succeeding summer they must be kept free from weeds; and should the next winter prove severe, it will be prudent to cover the plants again in autumn, especially if they shoot late in the season, or the autumn prove cold and moist, for then the plants will be in great danger of having their tops killed. In these beds they may remain two years, by which time they will be fit to transplant to where they are intended to remain; for if kept longer in the nursery, they will not remove so well. The best time for transplanting these plants is the end of March, or the beginning of April, for they seldom begin to shoot till the end of April, or the beginning of May; they should have a light soil, not too wet, for in strong land their stems grow mossy, and they never thrive after. They may also be propagated by layers; and by cuttings, which, if planted the latter end of March, in pots filled with light earth, and plunged into a gentle heat, will take root; but the plants thus raised are not so good as the seedlings. The several varieties may be increased by grafting upon each other, which is the common method of propagating those with striped leaves.

23. Hibiscus Ficulneus; *Fig-leaved Hibiscus.* Leaves palmate, five-cleft; stem prickly; flowers peduncled. The flowers come out singly from the axils; they hang down, are small, and white with purple bottoms, and are succeeded by short obtuse capsules; they open only when the sun shines, and that but for a few hours in the morning; for about noon they nod or hang down, and the petals spread irregularly. It flowers from June to August.—Native of Ceylon. For its propagation and culture, see the third species.

24. Hibiscus Speciosus; *Smooth Hibiscus.* Leaves palmate, smooth; segments lanceolate, serrate; stem, peduncles, and calices, even.—It is a native of South Carolina, and flowers in September. Perennial. See the third and fifth species.

25. Hibiscus Sabdariffa; *Various-leaved Hibiscus.* Leaves serrate, the lower ovate, undivided, the upper seven-parted; stem unarmed, one to three feet high, of a blood-red colour; root annual, single, descending; flowers sessile, axillary, solitary, largish; petals veined, of a very pale sulphur colour, with a dark blood-red bottom.—It is a native of India, and has been long known in England. Gerarde and Parkinson call it *Thorny Mallow.* It flowers from June to September. In the West Indies it is known by the name of *Red Sorrel.* The calices and capsules, freed from the seeds, make very agreeable tarts; and a decoction of them sweetened and fermented is commonly called there *Sorrel cool drink,* which is a small diluting liquor, much used in our colonies, and reckoned very refreshing in those sultry climates. For its propagation and culture, see the third species.

26. Hibiscus Cannabinus; *Hemp-leaved Hibiscus.* Leaves serrate, the upper palmate, five-parted, having one gland underneath; stem prickly, five feet high or more; root annual; flowers sessile, axillary; the corolla large, of a pale sulphur colour, with a dark purple bottom. The bark of this and of the foregoing species is full of strong fibres, which the inhabitants of the Malabar coast prepare and make into cordage, and it seems as if it might be wrought into fine strong thread of any size.—Native of the East Indies. For its propagation and culture, see the third species.

27. Hibiscus Surattensis; *Prickly-stalked Hibiscus.* Prickly, with prickles curved back; leaves five-lobed; outer calices appendicled; stipules half-cordate; flowers peduncled; stem round, upright, stiff, two feet high, spotted with purple towards the top; corolla yellow, with a dark purple base.—The leaves are gratefully acid, and are eaten in the East Indies and Cochin-china, where it is a native: they also assist in dissolving hard tumours, &c. but for that purpose the roots are thought to be most efficacious. Annual: flowers with us in July. See the third species.

28. Hibiscus Pedunculatus. Hirsute: leaves five-lobed, toothed; peduncles axillary, one-flowered, elongated.—Native of the Cape of Good Hope. For its propagation and culture, see the third and fifth species.

29. Hibiscus Manihot; *Palmated-leaved Hibiscus.* Leaves palmate-digitate, seven-parted; stem and petioles unarmed. It rises with an herbaceous smooth stalk, three or four feet high. The flowers are produced from the wings of the stalks towards the top, standing on short peduncles; they are composed of five large sulphur-coloured petals, which, when open, spread five inches wide; they have a dark purple bottom; and are succeeded by large, pyramidal five-cornered, erect seed-vessels, which are filled with pretty large seeds, having little smell or taste. In Japan the mucilage of the root of this plant is employed to give consistence to paper. It flowers in July and August.—Native of China and Japan. This species will produce flowers and perfect seeds in the first season. The plants may be preserved by a moderate warmth through the winter, though few persons will take that trouble after they have ripened their seeds, as the young plants make a better appearance.

30. Hibiscus Abelmoschus; *Target-leaved Hibiscus.* Leaves subpeltate, cordate, seven-angled, serrate; stem hispid, herbaceous, three or four feet high, sending out two or three side-branches, all of which, as well as the stem, are hairy. The flowers come out from the wings of the stalk upon pretty long peduncles, which stand erect; they are large, of a sulphur-colour, with dark purple bottoms, and are succeeded by pyramidal five-cornered capsules, filled with large seeds,

of a very musky odour, so that a few of them are sufficient to perfume a whole room. They may undoubtedly be used in scenting powders and pomatums, instead of the animal musk, which is a scarce and dear commodity; and are accordingly put to that use in Paris. In Arabia and Egypt, they grind these seeds, and mix the powder with their coffee, to render it more agreeable to the head and stomach. The officinal names are, *Abelmoschus*, from the Arabic *Ab-el-mosch*, grain or seed of musk; and *Bammia Moschata*. These seeds seem to have a claim, as a medicine, to the cordial and nervine virtues, experienced from most other substances of that class. In its native country it is biennial, but seldom survives a year here.—Native of the East and West Indies.

31. Hibiscus Esculentus; *Eatable Hibiscus*. Leaves five-parted, pedate; inner calices bursting at the side. This rises with a soft herbaceous stalk, from three to five feet high, dividing at top into many branches. The flowers are axillary, of a pale sulphur colour, with dark purple bottoms; small, and of a very short duration, opening with the rising sun, but fading long before noon in warm weather. The capsules are of different forms, in some not thicker than a man's finger, and five or six inches long; in some very thick, but not so long; in some erect, and in others inclined.—It is common in the West Indies, where the inhabitants cultivate it for the capsules, which they gather green, to put into their soups and pepper-pots. They are generally boiled separately, and added just before the messes are taken off the fire: but the seeds may be boiled in broth, like barley, or any other ingredient, for they are not so mucilaginous. The pods, boiled and buttered, make a rich dish: but they are used only in private families in this form. They are full of a nutritive mucilage. It is known in Jamaica by the name of the *Okro* plant; in China and Cochin-china, it is cultivated in gardens, for the beauty and colour of the flower, which is nevertheless void of scent: with us it is annual, and flowers in June and July. It will live in a warm border, and thrive for a time in a good season; but with the first cold or bad weather, the leaves drop off: it seldom flowers, and never perfects seeds; so that it requires shelter, especially in cold wet weather.

32. Hibiscus Clypeatus; *Shielded Hibiscus*. Leaves cordate, angular; capsules turbinate, truncate, hispid. This shrub is the height of a man; stem upright, branched, round, pubescent; peduncles one-flowered; corollas pale, sometimes dusky yellow. It is found, but not in abundance, in coppices near the coast of the island of Jamaica, where it is commonly called *Congo Mahoe;* the negroes affirming, that it came originally from Africa. See the third species.

33. Hibiscus Vitifolius; *Vine-leaved Hibiscus*. Leaves five-angled, sharp, serrate; stem unarmed, a foot and half high, somewhat tomentose; flowers drooping; peduncles axillary, solitary, one-flowered, leafless, the length of the leaves; corolla large, yellow, with a dark purple base: annual.—Native of the East Indies. See the third species.

34. Hibiscus Zeilanicus. Leaves cordate-hastate; peduncles alternate, one-flowered, jointed; corolla flesh-coloured. —Native of the island of Ceylon. For its propagation and culture, see the third species.

35. Hibiscus Virginicus. Lower leaves cordate, acuminate, serrate, upper hastate; stem green, upright; peduncles one-flowered, solitary, axillary, forming something of a naked raceme at top.—Native of salt marshes in Virginia. See the first species.

36. Hibiscus Pentacarpus; *Five-seeded Hibiscus*. Lower leaves cordate, angular; upper subhastate; flowers nodding a little; pistil drooping; root perennial; stem three feet high, narrow; peduncles axillary, on the top of the plant, solitary, naked, longer than the petiole, one-flowered; corolla spreading, pale red, nodding a little; capsule globular.—It grows near Venice, in marshy places, and was also found near Astracan. Though the roots will live in the open ground, yet our summers are not warm enough to bring it to flower: the seeds therefore should be sown in a hot-bed, and when the plants are fit to remove, they should each be planted in a separate small pot, and plunged into a moderate hot-bed, allowing them sufficient air in warm weather. It may stand in the open air in summer, but will seldom flower, unless kept in a deep frame, where it will continue, and flower for several years.

37. Hibiscus Hastatus. Hoary: leaves oblong, simple, three-lobed at the base, quite entire; raceme terminating.—Native of the Society Isles. See the third species.

38. Hibiscus Fraternus. Leaves three-lobed; outer calices with round rays, mucronate and concave at the tip; stem herbaceous, smooth and even, as is the whole plant; corolla yellow.—Native of Surinam. See the third species.

39. Hibiscus Æthiopicus; *Dwarf Wedge-leaved Hibiscus*. Leaves subcuneate, slightly three-toothed, the upper ones opposite. This is a small shrub: flowers terminating, peduncled, solitary, the peduncles shorter than the leaf.—Native of the Cape of Good Hope. For its culture and propagation, see the third and fifth species.

40. Hibiscus Trionum; *Bladder Hibiscus*. Leaves three-parted, gashed; capsule ovate; inner calix inflated; seeds several. It rises with a branching stalk, a foot and a half high, having many short spines, which are soft. The flowers come out at the joints of the stalks, upon pretty long peduncles; each flower is composed of five petals, which spread open at the top, and form an open bell-shaped flower: these have dark purple bottoms, but are of a pale sulphur colour above, tinged sometimes partially with pale purple on the outside, where they are also ribbed; the corolla becomes wholly purple after it has folded up again. This is an annual plant, growing naturally in some parts of Italy and Austria. —It has been long known in the English gardens by the title of *Venice Mallow:* Gerarde and Parkinson call it *Mallow*, or *Flower of an Hour*, and *Good Night at Noon*, or *Good Night at Nine*, for they say it opens about eight o'clock, and shuts up again at nine. The flowers are certainly of short duration, and in hot weather continue but a few hours open: however, there is a succession of them daily for a considerable time, in June, July, and August. There are several varieties: two are natives of the Cape of Good Hope. This plant is propagated by seeds, which should be sown where the plants are designed to remain; for they do not bear transplanting well. If the seeds are sown in autumn, the plants, coming up early in the spring, will flower in the summer, and those which are sown early in the spring, will succeed them; so that by sowing them at three different seasons, they may be continued in succession till the frost stops them. They only require clearing from weeds, and thinning them where they are too close; and if the seeds are permitted to scatter, the plants will come up full as well as when sown, so that it will maintain its situation, unless it be weeded out.

41. Hibiscus Elatus. Leaves cordate, roundish, entire; peduncles very short, one-flowered; calix ten-toothed. This is a tree, growing to a considerable size; the wood is of a dark olive colour; the bark pretty smooth, and the trunk tall and straight: the flowers are large and open, not unlike those of the yellow Lily either in size or appearance. It is reckoned excellent timber. All the tender parts of the tree abound with a delicate mucilage, which may be used instead of the more common medicines of this tribe. The bark

is made into ropes of all sorts.—Native of Jamaica, where it is called *Mahot* or *Mahoe-tree*. See the third species.

42. Hibiscus Clandestinus. Stem virgate, rough with hairs, shrubby, three feet high; leaves ovate, sharp, somewhat three-lobed; flowers minute, closed, axillary, solitary: peduncles longer than the leaf, upright, jointed, and thicker towards the tip; corolla whitish, villose, scarcely larger than the calix, becoming violet-coloured as it withers; petals ovate, never expanding; seeds blackish, with a very white wool drawn over them.—Native of Senegal.

43. Hibiscus Tomentosus. Leaves heart-shaped, angular, serrate, tomentose; stem arboreous, seven or eight feet high, covered with a whitish bark.—Native of the West Indies.

44. Hibiscus Cordifolius. Leaves heart-shaped, hirsute, crenate; flowers lateral, of a bright yellow colour; stem arboreous, branched.—Native of the West Indies.

45. Hibiscus Bahamensis. Leaves oblong-cordate, smooth, toothletted, hoary underneath, with very large flowers. It has a perennial root, but annual stalks, four feet high, at the tops of which the flowers are produced: they are very large, and of a light purple colour, with dark bottoms, and are succeeded by short capsules.—Native of the West Indies.

Hickery. See *Juglans.*

Hieracium; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common imbricate, ovate; scales several, linear, very unequal, longitudinal, and incumbent. *Corolla:* compound, imbricate, uniform; corollules hermaphrodite, numerous, equal; proper monopetalous, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindric, tubulous. *Pistil:* germen subovate; style filiform, the length of the stamina; stigmas two, bowed back. *Pericarp:* none; calix converging, ovate. *Seeds:* solitary, obtusely four-cornered, short; down capillary, sessile. *Receptacle:* naked. Essential Character. *Calix:* imbricate, or caliculate, ovate. *Down:* simple, sessile. *Receptacle:* naked. —Most of the plants of this genus are reputed to be weeds, and very few of them are cultivated, except in botanic gardens. If their seeds be permitted to scatter, they will in general propagate themselves; and, being mostly perennial, they may all be increased by parting the roots. The seeds should be sown on a border with an eastern aspect, in March; and when the plants come up they must be kept clean from weeds, till they are strong enough to remove, which will be by the beginning of June; then they should be transplanted to a shady border of undunged ground, at six inches' distance; observing to water them if the weather should prove dry, till they have taken new root; after which, if they are kept clean from weeds, they will require no other culture; in the autumn they should be transplanted where they are designed to remain; in the following summer they will flower and produce ripe seeds, and the roots will continue some years, if not planted in a rich moist soil, which frequently occasions their rotting in winter. They may also be propagated by parting the roots in autumn.——The species are,

* *With a one-flowered Scape.*

1. Hieracium Incanum; *Hoary Hawkweed.* Leaves quite entire, somewhat toothletted, lanceolate, scabrous; root thick, perennial, blackish on the outside, white within; stems round, upright, twice or thrice the length of the leaves; corolla yellow.—Native of the mountains of Austria, Carniola, and the Palatinate: flowering in May.

2. Hieracium Pumilum; *Dwarf Hawkweed.* Leaves ovate; petioles dilated; scapes with one or two flowers; roots perennial, creeping, branched; stems half a foot in height, generally procumbent and reddish; corolla pale yellow, broadish, with five teeth at the end.—Found upon the Alps, and Glaciers, in Switzerland, Savoy, and Dauphiny, among the pebbles and fragments of rocks.

3. Hieracium Alpinum; *Alpine Hawkweed.* Leaves oblong, entire, toothed; scape almost naked; calix hairy. This species is chiefly distinguished by the whole of the plant, but especially the calix, being covered with long white hairs; and the scales of the calix being remarkably loose: root perennial and fibrous; stalk about five inches high, generally terminated by one large flower, but seldom more than two; corolla pale yellow. It flowers in July and August.—Native of Lapland, Switzerland, Dauphiny, Savoy, Carniola, Silesia, and the mountains both of Wales and Scotland.

4. Hieracium Taraxaci. Leaves lanceolate, toothed, smooth; scape almost naked; calix hirsute; stalk six inches high, smooth towards the base, but hairy near the top, bearing a single yellow flower; perennial: flowering in July. —Native of the mountains of Switzerland, Scotland, and Wales.

5. Hieracium Alpestre. Leaves lanceolate, toothed, smooth; scape with a leaf and a flower or two; calix hirsute, cylindric; root-leaves on short petioles, having large teeth about the edge, almost linear, broader at the end; corolla short, not large, yellow; perennial.—Native of Austria and Silesia.

6. Hieracium Venosum; *Vein-leaved Hawkweed.* Leaves wedge-shaped, rough with hairs; scape very thick, upright; stem branched, leafless; flowers small, yellow.—Native of Virginia and Maryland.

7. Hieracium Pilosella; *Mouse-ear Hawkweed.* Leaves quite entire, ovate, tomentose underneath; stem throwing out runners; root perennial, creeping; flowers early, an inch in diameter; corolla pale yellow, or sulphur colour, composed of about fifty florets, the outer having a broad purple stripe on the under side; each floret has five teeth at the end. According to Linneus, the flowers of this plant commonly open at eight in the morning, and close about two in the afternoon. An insect of the coccus or cochineal kind is found at its roots; but it has not been observed in England. It differs from other milky plants of this class, in being less bitter, and more astringent. On account of this astringency it was admitted into the shops as a medicine, under the name of Auricula Muris, or Mouse-ear; but it is now little regarded. Culpeper says, that the green leaves bruised, and applied to any cut or wound, will soon heal it; and Meyrick and Hill both recommend it as an excellent astringent, and say that the powder may be given in immoderate menstrual discharges, and other bleedings, whether internal or external. A strong decoction of it is good in purges attended with bloody stools, also for the bleeding of the piles; and the leaves boiled in milk are a good external application for the same purpose. It flowers from May to September, and is very common on dry pastures, sunny banks, and walls.

** *With a many-flowered Scape.*

8. Hieracium Dubium; *Creeping Hawkweed.* Leaves entire, ovate-oblong; runners creeping. There is a diversity of opinion among botanists concerning this plant. It appears considerably to resemble the foregoing species, but is larger, and has the leaves hairy, not tomentose underneath; corollas pale yellow on both sides. Kroker distioguished it from the Mouse-ear, by its having fewer (only two or three) flowers; by its lesser stature; entire leaves, on very short petioles; having very few long hairs; and being in other respects smooth. It flowers in July and August. Sheep are reported to eat this plant, although the Mouse-ear is reputed to be

injurious to them.—Native of Sweden, Switzerland, Germany, Dauphiny, and in moist places upon the mountains of England, as near Rydall in Westmoreland.

9. Hieracium Auricula; *Narrow-leaved Hawkweed.* Leaves quite entire, lanceolate; runners creeping; root præmorse, with numerous simple fibres; scape upright, naked, scarcely half a foot high, having a few scattered hairs on it; flowers in a panicle, from three to six. It may be distinguished from the preceding species, by its having a higher stalk, and more flowers; longer, narrower leaves, more hirsute, with shorter hairs; the flowers sulphur-coloured; the calix, like the stalk, having black bristles scattered over it: it flowers in July, and is perennial.—Native of Lapland, Sweden, Switzerland, Germany, Dauphiny, and England, upon mountains: it is found on Dalehead, not far from Grass-mere, Westmoreland.

10. Hieracium Cymosum; *Small-flowered Hawkweed.* Leaves lanceolate, entire, hairy; scape almost naked, hairy at the base; flowers in a kind of umbel; root præmorse. According to Villars, this species is easily distinguishable. The atem is straight, about a foot high, terminated by a cyme of flowers so close that the peduncles are seen with difficulty, though they are branched. He mentions two varieties; one with red flowers, and another with from three or four to six scattered flowers, as large again as the common sort. Perennial. Flowering in June.—Native of Russia, Denmark, Germany, Switzerland, and Dauphiny.

11. Hieracium Præmorsum; *Truncate-root Hawkweed.* Leaves ovate, somewhat toothed; scape branched, upper flowers coming out first; root perennial, fibrous; flowers in a panicle containing frequently from sixteen to twenty; they are small, each supported on a simple pedicel, which has a lanceolate stipule at the base, forming altogether a sort of spike. This herb watches from seven o'clock in the morning to six in the evening, when the panicle of flowers also nods. It flowers in May and June.—Native of Sweden, Germany, Switzerland, and Siberia.

12. Hieracium Aurantiacum; *Orange-flowered Hawkweed.* Leaves entire; stem almost naked, quite simple, hairy, corymbiferous; root perennial, creeping; stipules very small, lanceolate; flowers eight or ten, on short pedicels, forming a short panicle; corolla dark red. It flowers from June to autumn, and forms large tufts if planted in shady places, and varies much in the colour of the flower, from red to orange, and several shades of yellow. It is called by our old writers *Golden Mouse-ear;* and, when of a dark colour, *Grim the Collier.*—Native of Austria, Switzerland, Silesia, Dauphiny, and Piedmont.

13. Hieracium Gronovii; *Gronovius's Hawkweed.* Stem panicled, almost naked; root-leaves obovate, quite entire, hairy.—Native of Virginia.

14. Hieracium Gmelini; *Gmelin's Hawkweed.* Stem panicled; root-leaves ovate, serrate, smooth; calix simple; scales eight or ten.—Native of Siberia.

15. Hieracium Sanctum; *Palestine Hawkweed.* Leaves lyrate, blunt, toothed; root thick, long, like *Navews*, with one or two branches; corollas yellow.—Native of Palestine, the south of France, and the county of Nice.

16. Hieracium Capense; *Cape Hawkweed.* Lower peduncles higher; leaves oblong, toothed, scabrous; scape a foot high, even, with a few very small awl-shaped leaves alternately scattered over it; flower terminating, from the axil of the leaves.—Native of the Cape of Good Hope.

*** *With a leafy Stem.*

17. Hieracium Montanum; *Mountain Hawkweed.* Stem with one or two flowers; leaves lanceolate, toothed; root perennial, single, deep, blackish; flower large; corolla yellow.—Native of the mountains of Savoy and Dauphiny, in pastures.

18. Hieracium Paniculatum; *Panicled Hawkweed.* Stem upright; leaves alternate, lanceolate, naked, toothed; panicle capillary, terminating, variously branched, with very slender divaricating peduncles; bractea at the ramifications, very short, bristle-shaped; flowers small.—Native of Canada.

19. Hieracium Porrifolium; *Leek-leaved Hawkweed.* Stem branched; leaves lanceolate-linear, almost entire; root-leaves lanceolate, upright, with one or two sharp teeth, even, having a few villose hairs along the keel; stem-leaves minute, very few; corolla yellow. The whole plant, says Villars, has the smell of the Wild Lettuce in a greater degree than any of the Hawkweeds. Perennial.—Native of the south of France, the Valais, Austria, Silesia, and Italy.

20. Hieracium Chondrilloides; *Gum-succory Hawkweed.* Stem branched; stem-leaves elongate-toothed, smooth; root-leaves lanceolate, entire; peduncles from the upper axils of the leaves, the same height with the stem, solitary, almost naked, one-flowered; corolla yellow.—It flowers in June and July, and is a native of the south of France, Austria, and Silesia.

21. Hieracium Murorum; *Wall Hawkweed.* Stem branched; root-leaves ovate, toothed; stem-leaf smaller. This plant varies exceedingly, as appears from the different figures which are given of it. The general appearance is as follows: Root simple, producing one slender stem, a foot or fifteen inches high, cylindrical, having soft hairs scattered over it, slightly striated, reddish towards the base; sometimes naked or nearly so, sometimes clothed with leaves nearly similar to the others, only more acute; flowers in a branched panicle, on separate peduncles, with each an awl-shaped bracte; calix of numerous, unequal, linear, lanceolate leaves, the lower one spreading; corolla yellow; seeds nearly cylindrical, furrowed, smooth, dark purple, crowned with a sessile down, as long as the seed: ray simple, the length of the calix. Linneus observes, that the flowers open about six in the morning, and close about two in the afternoon. Lightfoot says, that about eighteen days elapse between the first expansion of the flower and the ripening of the seed. Our old authors call it *French* or *Golden Lungwort.* There are many varieties.—Common in various parts of England.

22. Hieracium Humile. Stem few-flowered, scarcely higher than the lower leaves, which are hirsute and gashed.—Native place unknown.

23. Hieracium Paludosum; *Marsh Hawkweed.* Stem panicled; leaves clasping, toothed, smooth; calices hispid; root perennial; flowers single; peduncles smooth. The flowers open at six in the morning, and close again at five in the afternoon. Possibly it may be only a variety of the twenty-first species, though it has acquired from its place of growth so very different an appearance.—Native of many parts of Europe, in moist meadows and woods, and by the sides of mountains, rivers, and rivulets. It is found in several parts of the northern counties of England, and also in Scotland.

24. Hieracium Lyratum; *Siberian Hawkweed.* Stem many-flowered; leaves lyrate, smooth; calix and peduncles hispid. Nearly allied to the foregoing.—Native of Siberia.

25. Hieracium Cerinthoides; *Honeywort Hawkweed.* Root-leaves obovate, toothletted; stem-leaves oblong, half-clasping; root perennial, black, branched, frequently ending abruptly; plant evergreen; peduncles one-flowered, ash-coloured, and hispid, with long hairs, single from the axils. Gouan remarks, that it varies in its native place, with a stem scarcely a hand in height, with two flowers, and a single leaf, if any.—Native of the Pyrenees.

26. Hieracium Amplexicaule; *Heart-leaved Hawkweed.* Leaves stem-clasping, heart-shaped, somewhat toothed; peduncles one-flowered, hirsute; stem branched, a foot high. The panicle has a pile between the hairs, by which it is almost tomentose. The constant characters of the species, in all its varieties, are,—the great quantity of glandular hairs, which give it the smell of Baum, or new honey; the openness of the lower scales of the calix; the russet colour of the whole plant; and the hairs of the egret brittle, and elbowed at the base.—Native of the Pyrenean mountains.

27. Hieracium Pyrenaicum; *Pyrenean Hawkweed.* Leaves stem-clasping, obovate-lanceolate, toothed backwards; stem simple; calices loose. This species varies so much as not to be easily determined. One variety has a root perennial, fibrous, forming a tuft, whence spring several stems a foot and half high; peduncles several, solitary, from the upper axils, each terminated by one large yellow flower, in which the florets are separated and dispersed. Native of Dauphiny.—Another has the stem two feet high, upright, slightly striated, hairy, branched only at top; peduncles or branches three inches long, axillary, alternate, clothed at top only with very small, loose, wandering scales; corolla yellow. Native of the Pyrenean mountains.—In a third variety, from a woody, perennial, brown, divided root, arise a few simple, round, upright stalks, striated, and more or less hispid at top, annual, from a foot to a foot and a half in height; peduncles three or four, (sometimes only a single terminating one,) axillary, solitary, almost of the same height, upright, hispid, striated, leafless, or having only one or two ciliate bractes; flower large and elegant, yellow. It flowers in August, and is a native of Austria.—A fourth variety, has the stem-leaves much sagittate, with very acute earlets; peduncles long, one-flowered, swelling below the flower, black with hairs; down simple, sessile.—Native of Switzerland.

28. Hieracium Molle; *Soft-leaved Hawkweed.* Leaves lanceolate, almost entire, soft, the lower ones petioled; flowers on peduncles, forming a kind of corymb; root perennial, blackish, bitten, and furnished with long, white, round fibres: it produces annually a simple, upright, striated, purplish, somewhat hairy, leafy stem, of about a foot or two in height; the top of which is divided into a few single-flowered footstalks of about an inch and half long, and a little hairy; corolla deep yellow, with antheræ and stigma of the same colour. It grows about the borders of the subalpine woods, flowering in July, and producing seeds in August: but when cultivated in a garden, it flowers about the end of May or beginning of June, and grows more branchy from the bosoms of the leaves; but in other respects does not change its habit.—Native of Austria: found also in Scotland in the year 1780.

29. Hieracium Stipitatum. Stem branched, with only a leaf or two; leaves toothed; down stiped. This plant grows a foot high or higher. From a perennial, bitten, oblique round roof, of about an inch and half long, and the thickness of a quill, of a palish brown colour, and increased by small fibres, it produces annually a solitary, round, somewhat striated, fistulous stem, smooth below, and above rather hispid, with scattered dark hairs; the corollules are yellow, and five-toothed; antheræ brown. It is found on hilly meadows, flowering in June, and seeding in July.—Native of Austria.

30. Hieracium Villosum; *Villose Hawkweed.* Stem branched; leaves hirsute; root-leaves lanceolate-ovate, toothed; stem-leaves clasping, heart-shaped; root-leaves lanceolate, broadish. It varies, says Jacquin, so much in different soils, that it is difficult to give such a description as will agree with every individual. Root knobbed, unequal, blackish, perennial, with round whitish fibres; flowers large, handsome, yellow; calix loose, with black dots, and much white wool; seeds short, with a sessile simple egret, appearing toothed with a magnifier. The hairs on this plant are almost all very white, long, and feathery; there are some, however, shorter, and terminated by a gland.—Both it and its varieties are natives of Dauphiny, Switzerland, Austria, Bohemia, and Silesia, in mountain pastures. It has also been found on the moist rocks of Ben Nevis, a high mountain in Scotland.

31. Hieracium Glutinosum; *Clammy Hawkweed.* Leaves lanceolate, runcinate, somewhat scabrous; flowers in umbels; stem striated; root annual.—Native of the south of France.

32. Hieracium Kalmii; *Kalm's Hawkweed.* Stem upright, many-flowered; leaves lanceolate, toothed; peduncles tomentose at the top of the stalk, alternate, commonly simple and one-flowered; with fewer linear bractes; flowers small, terminating, upright.—Found by Kalm in Pennsylvania.

33. Hieracium Undulatum; *Wave-leaved Hawkweed.* Stem branched; leaves elliptic, toothed, waved, hairy; hairs plumose.—Native of Spain.

34. Hieracium Sprengerianum; *Branched Hawkweed.* Stem branched; leaves half stem-clasping, oblong, repand, hispid; calices terminating, several, peduncled, scatteringly haired.—Native of Portugal.

35. Hieracium Spicatum; *Hairy Hawkweed.* Stem many-flowered; leaves stem-clasping, hairy, thinly toothed. The smallness and great number of flowers in this plant, joined to their conical form, and the disposition of the branches, which subdivide and divaricate at right angles, distinguish it from all the known Hieraciums.—Native of Switzerland, Dauphiny, and Piedmont. Found also in woods in the south part of Scotland.

36. Hieracium Sabaudum; *Shrubby Hawkweed.* Stem upright, many-flowered; leaves ovate-lanceolate, toothed, half stem-clasping; root fibrous, perennial, yellowish ash-colour on the outside, white within; branches subdivided, and the last subdivisions one-flowered; peduncles erect, whitish, with pubescence, a little thicker at top, having scales scattered over them forming a thin corymb; flowers yellow, an inch and half in diameter. They open at seven in the morning, and close between one and two in the afternoon, in July, August, and September. It varies with leaves covered with a short and just perceptible down, so as to have the appearance of being smooth; with one flower only on a stem; and with broad lanceolate leaves on short footstalks.—Native of most parts of Europe; not common in Great Britain.

37. Hieracium Umbellatum; *Umbelled* or *Bushy Hieracium.* Leaves linear, somewhat toothed, scattered; flowers in a kind of umbel; root perennial, præmorse or truncate, yellow on the outside, white within, having many fibres in bundles; stem from two to four feet high, upright, simple, round, striated, hollow, nearly smooth, green, frequently dotted with red alternately, especially towards the top, dividing into branches; flower large, yellow, containing as far as ninety-seven florets. This species is often confounded with the preceding, by intermediate individuals partaking of the characters of both, and perhaps they are more distinguishable by the eye than by the specific differences. Mr. Curtis thinks, that the most obvious character of this species consists in the shortness of its leaves. It is a strong-smelling plant; and in Scania is used as a dye, communicating to wool an elegant and beautiful colour. It flowers in July, August, and September.—Native of dry pastures in most parts of Europe. It is not common in England, but is found on the sandy or gravelly heaths about Hampstead, Barnet, and Charlton; in the neighbourhood of London; and near Hildersham and Gamlingay, in Cambridgeshire.

**** *Other species from Villars and Allioni.*

38. Hieracium Halleri. Leaves lanceolate, toothed, obscurely villose; stem somewhat branched, stiff, six or eight inches high, straight, stout, terminated by one, two, or three flowers, hirsute, with long lanuginose hairs, and others that are smaller, placed on a black base, which gives a roughness to the stem; calix oval; scales lanuginose, separate, dirty gray, a little viscid.—Native of Switzerland, Savoy, &c.

39. Hieracium Valde Pilosum. Stem straight, almost simple; leaves stem-clasping, woolly; calices imbricate. This is thought to be a variety of the thirtieth species.

40. Hieracium Cydoniæfolium. Stem straight, branching from the axils; leaves oblong-elliptic, half stem-clasping, toothed; calices hispid, blackish; flowers middle-sized, in a gray and blackish calix; perennial.—Native of Dauphiny.

41. Hieracium Scorzoneræfolium. Leaves linear-lanceolate, glaucous, and hairy; stem oblique, hairy and hoary, few-flowered; root oblique, truncated, and perennial.—Native of the beds of torrents in the Alps, and in Dauphiny.

42. Hieracium Glaucum. Leaves lanceolate, glaucous; stem branched, stiff, a foot or eighteen inches high, having little, oval, acuminate, sessile leaves at the division of the branches; flowers middle-sized.—Native of Dauphiny.

43. Hieracium Staticifolium. Stem almost naked; leaves ligulate, obtuse; flower sulphur-coloured; root very thick and deep, frequently forked at the upper part, perennial; flowers large, pale-yellow or sulphur-coloured, turning green in dying.—Native of Dauphiny, Piedmont, and Switzerland.

44. Hieracium Saxatile. Leaves roundish, quite entire; stem almost naked, a few inches high, terminated by a few flowers; seeds blackish, their receptacle manifestly villose.—Native of Dauphiny and Italy.

45. Hieracium Lawsonii. Leaves oblong, villose, quite entire; stem straight, many-flowered; root thick, truncate, perennial, covered with russet membranes: the pedunncles have two scales near the calix, and one leaf at their base: the hairs of the calix are in part glandular.—Native of Dauphiny; found also in the north of England.

46. Hieracium Andryaloides. Leaves densely tomentose, curled or sinuate at the base; stem spreading; root oblique, thick, perennial.—Native of Dauphiny.

47. Hieracium Liottardi. Leaves lanceolate, toothed; stem upright, two-flowered. This plant, which is cottony, like the last, and small, is distinguished by its lanceolate toothed leaves.—Native of Dauphiny.

48. Hieracium Jacquini. Leaves pinnatifid at the base, hirsute, green; calicine hairs glandular; stem with about two flowers; root thick, oblique, fibrous, truncated, perennial; calix villose, blackish, with a few glandular hairs; egret sessile, with simple hairs, slightly toothed.—Native of Dauphiny.

49. Hieracium Lanceolatum. Stem straight, stiff; leaves lanceolate, toothed; flowers in a kind of corymb, in a blackish calix; root perennial.—Native of Dauphiny.

50. Hieracium Pulmonaroides. Leaves lanceolate, toothsinuate, those on the stem sessile; peduncles proliferous; root perennial, oblique, thick, covered with scales; stem about a foot high, terminated by several middle-sized flowers in a calix.—Native of Dauphiny, on walls.

51. Hieracium Albidum. Leaves gnawn, ligulate, hispid; stem subdichotomous, few-flowered; root perennial, long, oblique, simple, woody; flowers large, reddish on the outside, pale yellow within; seeds short, brown, crowned by a sessile egret of simple hairs, but toothed and russet: the whole plant is rough, of a yellowish green, and covered with glandular hairs, that give it a disagreeable smell.—Native of sunny pastures, on the high mountains of Dauphiny and Savoy.

52. Hieracium Pappoleucon. Leaves lyrate-spatulate, toothed; stem-leaves with two ears, embracing the stem on both sides; stem striated, viscid, two-flowered, a foot long, firm, thick; root perennial, simple, thick, dividing at top into two parts, one of which produces a stem without leaves at the base, and the other a bundle of root-leaves without stem for the most part. The stem is terminated by one, two, three, and even as far as fourteen pretty large flowers, which are all on separate pedunncles.—Native of Dauphiny, where it is found in alpine meadows.

53. Hieracium Florentinum. Stem brachiate, few-flowered; leaves lanceolate, long-haired; calices smooth. This plant is about a foot high, with an upright stem, not putting out runners; calix very smooth; flowers small, heaped on the top of the stem: perennial.—Native of Switzerland, the Valais, and Piedmont.

54. Hieracium Capillaceum. Stem almost naked, one-flowered; leaves nerved, grassy, quite entire; root thick, black, perennial; scape a hand in height, almost naked, simple, one-flowered.—Native of the county of Nice, about Sospello.

55. Hieracium Succisæfolium. Leaves smooth, quite entire; root-leaves elliptic, on long petioles; stem-leaves clasping, with blunt hooks; root perennial; calix black and hairy.—Native of Switzerland and Piedmont.

High-Taper. See *Verbascum.*

Hillia; (so named in honour of Sir John Hill, M.D.) a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth double; lower six-leaved; leaflets opposite, unequal, oblong, entire; the two inner smaller, embracing the germen, deciduous, coloured: upper two to four leaved; leaflets lanceolate, acute, erect, permanent. *Corolla:* monopetalous; tube cylindric, very long, striated, towards the border ventricose; border six-cleft; clefts long, reflex, contorted, revolute. *Stamina:* filamenta six, very short, inserted below the border into the belly of the tube; antheræ oblong, two-celled within the throat of the corolla. . . *Pistil:* germen inferior, oblong, obscurely six-cornered; style filiform, thick, the length of the tube; stigma thickened, compressed, bifid. *Pericarp:* capsule elongated, angular, two-celled, opening longitudinally into two valves, crowned with the leaflets of the upper calix. *Seeds:* numerous, pappose, round a linear receptacle; down capillary. Essential Character. *Calix:* double; lower six-leaved. *Corolla:* very long, contorted. *Capsule:* two-celled, two-valved, crowned. *Seeds:* downy.——The species are,

1. Hillia Longiflora. Corollas six-cleft, clefts lanceolate, revolute; leaves ovate, acute. This is a shrub with an ascending stem, a fathom in height, branched, loose, smooth, brittle, covered with an ash-coloured shining bark; branches simple, leafy, round, smooth, brittle; flowers terminating, sessile, solitary, very long, white, and very sweet.—Native of Jamaica and Martinico, in wet coppices upon the mountains. It is not parasitical, but creeps among old mossy wood; flowering in summer.

2. Hillia Triandra. Corollas four-cleft, four-stamined; clefts ovate; leaves obovate, wedge-shaped at the base. This shrub is three or four feet high; with creeping roots, throwing out long fibres. The flowers are terminal and axillary, sessile, solitary, yellowish-white.—It is a native of Jamaica.

Hippia; a genus of the class Syngenesia, order Polygamia Necessaria. *Calix:* common, hemispherical, somewhat imbricate, with ovate scales. *Corolla:* compound, discoid; flosculos male, several in the disk; females ten in the circumference: proper of the males funnel-form, five-cleft, upright; of the females obsolete, tubulous, slightly three-cleft.

Stamina: in the males, filamenta five, very short; antheræ cylindric, shorter. *Pistil:* in the females, germen margined, large; style bifid; stigmas upright. *Pericarp:* none; calix unchanged. *Seeds:* in the females oval, with a very wide rim all round, naked. *Receptacle:* naked. ESSENTIAL CHARACTER. *Calix:* hemispherical, subimbricate. *Corollets* of the ray ten, obsolete, subtrifid. *Seeds:* with a broad margin, naked. *Down:* none. *Receptacle:* naked.——The species are,

1. Hippia Integrifolia; *Annual Hippia.* Hispid, erect: leaves ovate, serrate, five-nerved; racemes terminating.—Native of the East Indies.

2. Hippia Minuta; *Minute Hippia.* Herbaceous, procumbent, creeping, smooth: leaves pinnate; peduncles axillary, one-flowered; stems procumbent, jointed, putting out rooting fibres at every joint; flowers small.—Native of South America.

3. Hippia Frutescens; *Shrubby Hippia.* Shrubby, villose: leaves pinnatifid; flowers corymbed; stem shrubby, five or six feet high, sending out branches on every side the whole length. The flowers are produced in small roundish bunches at the ends of the branches: they are of a sulphur colour, and appear in May: but there is a succession of flowers on the same plant during great part of the summer.—Native of the Cape. The seeds of this plant rarely ripen in England; but it is easily propagated by cuttings planted in a bed of loamy earth, during any of the summer months. Shade them from the sun until they have taken root, and refresh them frequently with water; take them up with balls of earth about their roots, plant them in pots, and place them in a shady situation until they have taken new root; then remove them to a sheltered place among other hardy exotics, and in October put them into shelter. This plant requiring only protection from frost, must not be too tenderly treated.

Hippocratea; a genus of the class Triandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, five-parted, very small; leaflets roundish, spreading, incumbent, smaller than the corolla. *Corolla:* petals five, ovate, spreading, permanent, excavated at the tip, villose. *Stamina:* filamenta three, contiguous to the germen and style, awl-shaped, reflex at the tip; antheræ roundish, with a transverse groove. *Pistil:* germen roundish; style three-sided, awl-shaped, longer than the stamina; stigma blunt. *Pericarp:* capsules three, obcordate or elliptic, compressed, large, with two-valved cells; valves keeled and compressed. *Seeds:* in fives or sixes, oblong, with a membranaceous wing, at first soft, but afterwards hardening like nuts, with oblong kernels. ESSENTIAL CHARACTER. *Calix:* five-parted. *Petals:* five. *Capsule:* three, obcordate, or elliptic.——The species are,

1. Hippocratea Volubilis. Racemed, corymbed: leaves ovate-lanceolate, serrate. This is a scandent plant, and not twining, growing to the height of eight or ten feet, with very slender stalks; flowers terminating, subsessile, crowded, greenish white, minute.—Native of Carthagena in New Spain, and several of the West India islands. Swartz says it flowers in the spring; Jacquin saw it flowering both in April and December, and gathered the fruit in July. He informs us, that in the dry season, when all the trees lose their leaves, this plant, with the Capers and a few others, continue flourishing.

2. Hippocratea Comosa. Panicles comose; peduncles multifid, capillary; leaves ovate, acuminate, entire.—Native of Hispaniola, flowering in February.

3. Hippocratea Indica. Panicles axillary, opposite, peduncled; leaves opposite, short-petioled, oval, sawed, smooth, shining, about two inches long.—A large twining shrub, native of forests, hills, and uncultivated places on the coast of Coromandel.

Hippocrepis; a genus of the class Diadelphia, order Decandria.—GENERIC CHARACTER. *Calix:* umbel simple; perianth one-leafed, five-toothed, (the upper toothlets joined, and less divided,) permanent. *Corolla:* papilionaceous; banner heart-shaped, with a claw the length of the calix; wings ovate-oblong, blunt; keel lunulate, compressed. *Stamina:* filamenta diadelphous, simple and nine-cleft, ascending; antheræ simple. *Pistil:* germen slender, oblong, ending in a subulate ascending style; stigma very simple. *Pericarp:* legume compressed and membranaceous, very long, curved inwards, one of the sutures many times cut almost to the top into roundish sinuses, and hence consisting of several joints obtusely triangular, connected by the upper suture. *Seeds:* solitary in each joint, oblong, incurved. *Observe.* The ESSENTIAL CHARACTER consists in the horse-shoe form of the *Legume.* These plants are propagated by seed, which should be sown in the autumn wherever the plants are intended to remain; when they are come up, weed them, and thin them where too close, which is all the culture they require.——The species are,

1. Hippocrepis Unisiliquosa; *Single-podded Horse-shoe Vetch.* Legumes sessile, solitary, straight. This is an annual plant, which sends from the root several trailing stalks a foot long, that divide upwards into smaller branches. Leaves pinnate, composed of four or five pairs of narrow small leaflets terminated by an odd one. From the wings of the stalk come out single flowers, which are yellow, and are succeeded by single pods sitting close to the stalks, which are about two inches long, and a third of an inch broad, bending inwards like a sickle, and divided into many joints, shaped like a horse-shoe. This flowers in June and July, and ripens seed in autumn, soon after which it decays.—Native of Italy, and the south of Europe. Observed by Ray near Leghorn and Naples.

2. Hippocrepis Multisiliquosa; *Many-podded Horse-shoe Vetch.* Legumes peduncled, crowded, circular, smooth, lobed on the outer margin; leaves and calices smooth: the trailing stalks of this plant bear a great resemblance to those of the preceding, but its flowers are produced on long axillary peduncles; they are small, yellow, and many clustered together.—Native of the south of Europe. Like the preceding it is annual, and decays in autumn after the seeds are perfected.

3. Hippocrepis Balearica; *Shrubby Horse-shoe Vetch.* Legumes peduncled, crowded, smooth, lobed on the outer margin; leaves and calices somewhat hairy; stems ancipital; root short, woody, the thickness of a finger: the flowers have a small degree of sweetness; corolla yellow. It flowers in May and June.—Native of Minorca. The roots will last two or three years in good ground in a green-house.

4. Hippocrepis Comosa; *Tufted Horse-shoe Vetch.* Legumes peduncled, crowded, arched, rugged, sinuated on both margins; root perennial, thick, woody, fibrous, yellow on the outside, white within. The whole plant is smooth; stems trailing, ascending, grooved, from two to nine inches long, much branched; leaves pinnate, of numerous obovate emarginate leaflets, with an odd one; peduncles axillary, from two to five inches long; flowers six to eight or ten, disposed in a circle round the top of the peduncle, after flowering bent down; corolla yellow.—It flowers from April to July, and is found in the calcareous soils of Germany, Italy, France, Austria, and England.

5. Hippocrepis Barbata; *Bearded Horse-shoe Vetch.* Le-

gumes pedunculated, straight; spike oblong, terminating; stem suffruticose, four feet high, upright, round; leaves ovate, entire, smooth, ternate, the middle leaflet larger; flowers purple.—Native of Cochin-china. It has not yet been introduced into the gardens of Europe.

Hippomane; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male Flowers*, in a terminating ament. *Calix:* perianth one-leafed, roundish, bellying, with the mouth converging, emarginate. *Corolla:* none. *Stamina:* filamenta single, filiform, twice as long as the calix; antheræ four, roundish, fixed crosswise to the sides of the filamentum towards the tip. *Female Flower*, terminating, solitary, in the same plant. *Calix:* perianth three-leaved, withering; leaflets roundish, concave, blunt, converging. *Corolla:* none. *Pistil:* germen ovate, large; style very short; stigma slightly seven-cleft, sharp, reflex. *Pericarp:* drupe globular, very large, one-celled, crowned with the permanent stigmas; or a tricoccous capsule. *Seed:* nut woody, irregular, acuminate, excavated with little pits and apophyses, seven-celled, seven-valved; kernels solitary, roundish. Essential Character. *Male Ament. Perianth:* bifid. *Corolla:* none. *Female. Perianth:* trifid. *Corolla:* none. *Stigma:* three-parted. *Drupe*, or *Capsule:* three-grained.—These plants can never be expected to rise to any great height in Europe, though in the stoves they may be easily raised from good seeds. They must be sown upon a hot-bed, and when the plants come up, they should be each planted in a small separate pot filled with light sandy earth, and plunged into a good bed of tanners' bark. They require the same treatment as other tender plants; but must not have much wet, for they abound with an acrid milky juice, and it is certain that most plants which do, are soon killed by much moisture. These plants must be removed into the stove and plunged into the tan-bed, in autumn, where they may be suffered to remain in winter, giving them very little water; but plenty of air in summer, when they may be watered once or twice a week: this management may raise them to the height of five or six feet, and their green shining leaves form a pleasing variety during winter in the stove. ——The species are,

1. Hippomane Mancinella; *Manchineel Tree.* Leaves ovate, serrate, biglandular at the base; stalks half as long as the leaves. The trunk is of a middling size, with a gray, even, thick, milky bark, and a hard wood, which is yellowish, with gray or blackish veins; flowers in aments or spikes; fruit a drupe, the colour, size, and form of an apple, smooth, with a soft spongy flesh, a sweet smell, and an insipid caustic taste. Within is a nut with from three to five cells, with a single seed in each, which is three-cornered, covered with a shining silvery skin, and having the taste of a hazel-nut. Mr. Miller describes the fruit as about the size and shape of a Golden Pippin, turning yellow when ripe. The European nations have, with little variation, given it the Spanish name of *Mancanilla*, or little apple. It drops from the tree in great quantities, not rotting, but drying up, and does not seem to be eaten by any animal, except perhaps by a species of crab, which resorts to these trees in incredible quantities, but probably rather for shelter than for food. Dr. Patrick Browne informs us, that he has known many people who have ignorantly eat of this fruit, which they had mistaken for crab-apples: they generally vomited in a short time, and continued to complain of a burning heat in the mouth, throat, and stomach, for many hours after. The juice of the buds of the White Cedar is esteemed an antidote to this poison, and is generally used with some success; but oily mixtures and emulsions are the most effectual assistants, and seldom fail to afford relief. He adds, that he has never known any to die by this poison, though he has seen some who have eaten nine or ten of the apples at a time. Long says, that though the green fruit may be destructive in considerable quantities, yet small quantities may be taken without danger, and it is too disagreeable from its acrimony to excite any desire of eating it, and even when ripe is too insipid to raise any pleasure; though goats, sheep, and macaws, feed greedily upon it in that state. The first accounts of this tree were very much exaggerated. It was said to be dangerous to sit or lie under it, and that the rain which falls from the leaves will raise blisters in the skin. Professor Jacquin informs us, that he and his companions reposed upwards of three hours under a Manchineel-tree, without receiving any injury, and that he experienced rain dropping from the leaves to be perfectly innocent. Long also says, that the negroes do not suffer any inconvenience from drops of the juice accidentally falling on their skin when felling this tree, or hacking off the limbs; but if it chance to fly into their eyes, it will give them a severe pain for several hours: and Jacquin likewise acknowledges, that a drop of that milky juice with which the whole tree abounds, falling on any part of the hand, except the palm, will immediately raise a blister. The wood of this tree is frequently of a fine grain, and very beautifully clouded. It will take a fine polish, and being very durable, and not subject to be eaten by the worm, it is much esteemed in the West Indies for making cabinets, bookcases, &c. The wood-cutters are said to make a fire round the body of the tree before they venture to fell it, to avoid the danger of losing their sight by the caustic juice flying into their eyes. If the juice fall upon linen, it will turn it black; and when the linen is washed, it falls into holes. The carpenters generally cover their faces while working at this wood, for if any of the saw-dust get into their eyes, it will produce an inflammation. The Indians are said to poison their arrows with the juice of this tree; and it exudes a gum which has been given medicinally instead of gum guaiacum.—The Manchineel-tree is common on the sandy coasts of America and the West Indies, generally growing at some small distance from the surf. It flowers in May, and the fruit ripens in July. Jacquin says it is a lofty handsome tree, with a very branching spreading head, having something of the air of a Pear-tree.

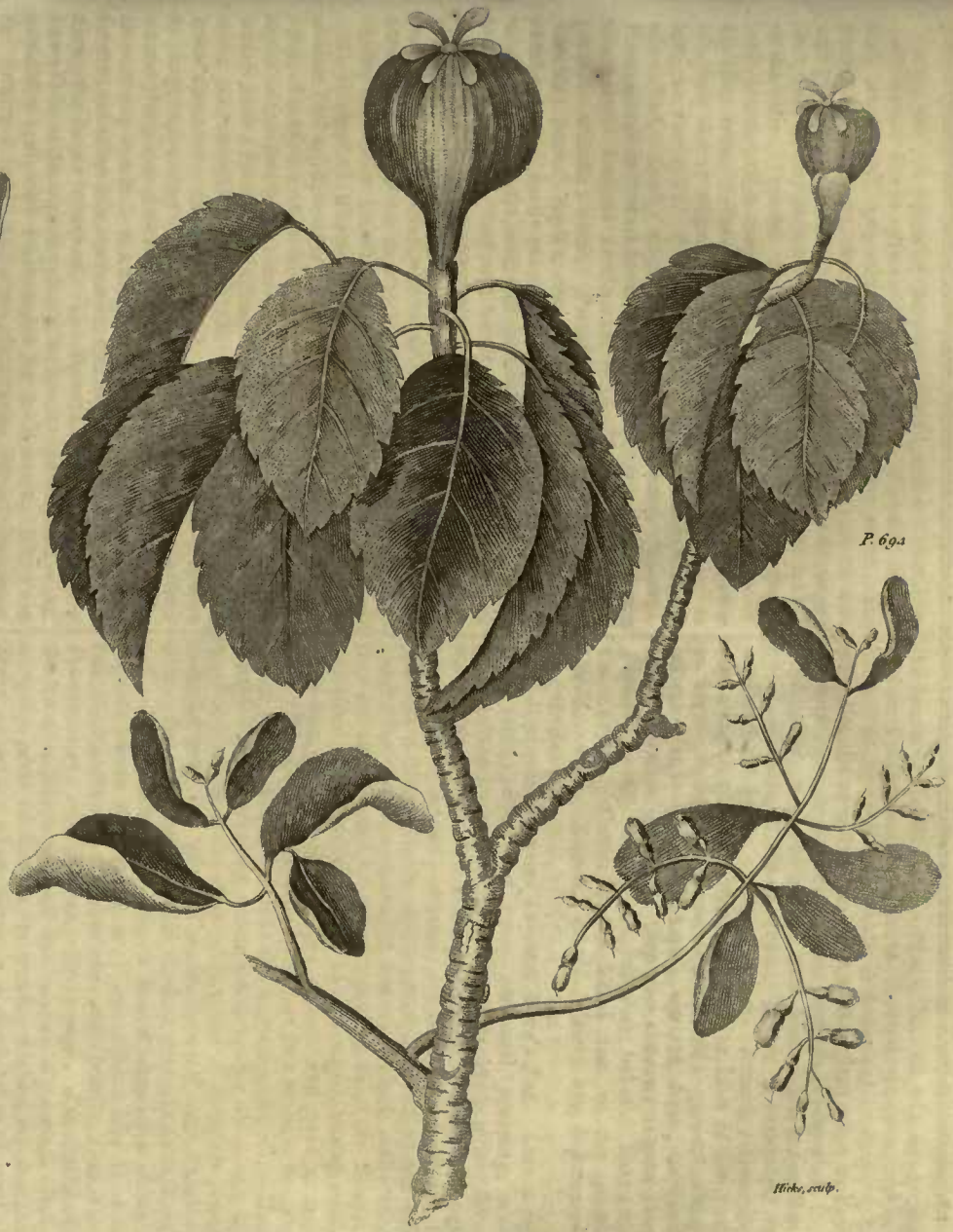
2. Hippomane Biglandulosa; *Gum Tree.* Leaves ovate, oblong, biglandular at the base. This tree is from twenty to fifty feet high, with an even, brownish, ash-coloured bark; spikes terminating and lateral, clustered, rather to be called aments. A single ament of male flowers, at the beginning of the flowering time, springs among other small ones, flowers, and falls: thick scales like glands cover the ament, commonly a pair opposite to another pair, ovate, thick, pressed close, adnate; perianth from the sinus of two scales, tubular, irregularly four-cleft, blood-red. The whole tree contains a great quantity of milky juice, which becomes a resin or gum of a thick sticky consistence, dirty colour, opaque, and of little or no smell: this generally serves for the boiling-house lamps, in every part of the country where the tree is frequent, and is much used for birdlime. The wood is soft and coarse, and not much esteemed; it is used however for making hogshead staves. The flowers appear in March and September.—Native of mountains on the continent of America, and in the West India Islands: found also in New Spain.

3. Hippomane Spinosa. Leaves subovate, tooth-spiny. This is seldom more than twenty feet high. The leaves greatly resemble those of the Holly; they are set with sharp prickles at the end of each indenture, and are of a lucid green, continuing all the year.—Native of South America.

P. 727

HYACINTHUS ORIENTALIS.—*Eastern Hyacinth.*

P. 694



Hicks, sculp.

HIPPOMANE MANCINELLA.—*Manchineel Tree.*

Published by Henry Fisher, Caxton, London, 1823.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Hippophæ; a genus of the class Diœcia, order Tetrandria. —Generic Character. *Male. Calix:* perianth of one leaf, two-parted, two-valved, with the bottom entire; the parts roundish, blunt, concave, upright, converging at the tips, and gaping on the sides. *Corolla:* none. *Stamina:* filamenta four, very short; antheræ oblong, angular, almost the length of the calix. *Female. Calix:* perianth one-leafed, ovate-oblong, tubular, club-shaped, with the mouth cloven, deciduous. *Corolla:* none. *Pistil:* germen roundish, small; style simple, very short; stigma thickish, oblong, upright, twice as long as the calix. *Pericarp:* berry superior, subglobular, one-celled. *Seeds:* single, oblong, hard, shining. *Observe.* Hermaphrodite flowers have sometimes been observed among the males. Essential Character. *Male. Calix:* two-parted. *Corolla:* none. *Female. Calix:* tubular, cloven. *Corolla:* none. *Style:* one. *Berry:* one-seeded.—These shrubs may be easily propagated by suckers from the root, taken off in autumn, and transplanted into a nursery. After one year's growth they will be fit to transplant where they are to remain. They may also be increased by layers, but the roots spread, and put out such abundance of suckers, that there is no necessity to be at this trouble. There being little beauty in these shrubs, it will be sufficient to have one or two of them in plantations.——The species are,

1. Hippophæ Rhamnoides; *Common Sea-Buckthorn,* or *Sallow Thorn.* Leaves lanceolate, scattered, about two inches long, of a silvery white beneath. It rises with shrubby stalks eight or ten feet high, sending out many irregular branches, which have a brown bark silvered over. The branches spread wide, are straight, stiff, and thorny at the ends, the lesser ones numerous, scattered, short, and spreading. Flowers solitary, appearing before the leaves, generally abortive, unless the shrub grows in its natural situation. The female flowers are sessile in the axils of the lower leaves: the male flowers are subsessile, somewhat spiked, disposed in four rows along the lesser branches. The flowers come out from the branchlets of the former year. The berries are very abundant, gratefully acid, and much eaten by the Tartars. They are the principal food of the peasants upon Mount Caucasus. The fishermen of the Gulf of Bothnia prepare a rob from them, which imparts a grateful flavour to fresh fish. In sunny situations this shrub is planted for hedges; and is used for dyeing yellow. Cows refuse it; goats, sheep, and horses, eat it. It varies with red berries. Miller says, that he has observed it only with yellow berries in England, but that he had seen it on the sand-banks in Holland with red berries. The Germans call it *Haftdorn;* the Dutch, *Duinbessen;* the Swedes and Danes, *Haftorn;* the French, *Argoussier;* the Spaniards, *Espino Amarillo;* the Russians, *Rakitnik.* It flowers in April and May; Ray says in June, and Miller in July.—Native of many parts of Europe, on sandy sea-coasts. In England it is found near Sandwich, Deal, Folkstone, and the Isle of Shepey in Kent; upon Cley and Sheringham cliffs, and between Yarmouth and Winterton, in Norfolk; in Lincolnshire; and at Whitby and Lyth, in Yorkshire.

2. Hippophæ Canadensis; *Canadian Sea Buckthorn.* Leaves ovate. This has the appearance of the preceding species, but the leaves are broader, and only half the length; the branches are opposite; and the racemes simple among the first leaves, upright, and shorter by half than the leaves. —Native of Canada.

3. Hippophæ Argentea. Leaves ovate, obtuse, glabrous on both sides. This shrub resembles *Elæagrus Orientalis* so much, that they might easily be mistaken for each other when without fruit: but this species bears really a berry different from the drupe of the other genus.—Found by Mr. Lewis on the banks of the Missouri. Mr. T. Nuttall, who has recently travelled through various parts of North America, and is as skilful as he is indefatigable in botanical researches, has added to the specific description of this plant given by Lewis, the important particular, that the perianth is four-cleft.

Hippuris; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix:* a two-lobed rim, crowning the germen. *Corolla:* none. *Stamina:* filamentum one, upright, placed within the anterior lobe of the calix; antheræ roundish, compressed. *Pistil:* germen oblong, inferior; style one, awl-shaped, upright, from the hinder lobe of the calix, longer than the stamen; stigma sharp. *Pericarp:* none. *Seed:* one, roundish, naked. Essential Character. *Calix:* a two-lobed rim to the germen. *Corolla:* none. *Stigma:* simple. *Seed:* one, inferior.—— The species are,

1. Hippuris Vulgaris; *Common Mare's Tail.* Leaves eight at a joint, awl-shaped; root perennial, creeping, white, jointed; the joints furnished with numerous capillary fibres: stems numerous, a foot and half or more in height, upright, quite simple, smooth, striated, round, jointed, spongy; the pith like a thread in the centre, compact, and in the roots tough; flowers axillary, sessile, one to each leaf, in the whorls that are above water. Linneus remarks, that the flower of this plant is as simple as can be conceived, having neither calix nor corolla, only a single stamen and pistil, and one seed. The situation also of the leaves, in whorls, is not usual in European plants, except in the natural order of stellatæ. At the beginning of the summer, the flowers are mostly hermaphrodite, but at the close of it many of them are female. Gerarde calls this plant, *Female Horse-tail,* and Parkinson *Marsh Barren Horse-tail:* Mr. Hudson first named it *Mare's-tail.* The French call it *Pesse d'Eau,* a translation of one of its old names *Limnopeuce* or *Water Pine.* The Germans call it, *Schafthalm, Tannenwedel;* the Dutch, *Kattestaart, Paardestaart;* the Danes, *Hesterumpe, Van-Studeknæa;* the Swedes, *Hastvans;* and the Italians, *Hippuride.*—Native of many parts of Europe, in ponds, ditches, marshes, and rivers, especially where there is a depth of mud, and the frost cannot reach the roots. In quiet waters it grows upright, in running waters it bends with the stream, but in large lakes rises to the height of several feet. In some countries it is a troublesome weed in rivers, and chokes up the ditches; but by absorbing a great quantity of inflammable air, it is reputed to assist in purifying the putrid air of marshes. Gmelin says, that the wild ducks in the north feed upon it. Goats are also said to eat it. We do not know that it is of any other use. It flowers from May to August, and is not very common in England, though found in several parts of Cambridgeshire, Oxfordshire, Westmoreland, Staffordshire, Leicestershire. Near London it is more rare: Blackstone found it in Harefield river, and upon Uxbridge moor; Hudson, in the New River near Hornsey; and Dr. Milne, near Stoke Newington and Highgate.

2. Hippuris Tetraphylla; *Four-leaved Mare's Tail.* Leaves four at a joint, oblong, blunt. This is always very distinct from the preceding, by its only having four leaves to a whorl, and their being spatulate-ovate and blunt. It has the appearance of *Elatine Alsinanstrum,* and is clearly a gynandrous plant.—Native of Sweden; first discovered by Schulsen near Abo in Finland.

3. Hippuris Indica; *Indian Mare's Tail.* Scape naked, four feet high, very straight and simple, round, striated; root tuberous. This is a stemless plant, with a fibrous creeping root, having many roundish, scattered, small, black, hairy tubers, which are eatable.—Native of the marshes of Cochin-china.

Hip (or *Hep*) *Tree.* See *Rosa Canina.*

Hiræa; a genus of the class Decandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, upright, very small, permanent. *Corolla:* petals five, roundish, concave, with long claws. *Stamina:* filamenta ten, capillary, united at the base, the outer ones shorter; antheræ roundish, upright. *Pistil:* germen roundish; styles three, simple, upright; stigmas bifid, blunt, spreading. *Pericarp:* capsules three, upright, keeled on the back; each having a single spreading wing on the outside at the base, and a double one at the tip, not gaping. *Seeds:* solitary, roundish. *Observe.* Swartz says, that this genus is too nearly allied to *Triopteris:* differing in having three two-winged capsules, instead of a three-celled capsule with three wings. Essential Character. *Calix:* five-leaved. *Petals:* roundish, with claws. *Capsules:* three, closed, single-seeded, with two or three unequal wings. *Seeds:* two; (Jacquin says, solitary.)——The known species are,

1. Hiræa Reclinata. This is a small tree, seldom exceeding fifteen feet in height, and dividing into round, long, smooth, bending and reclining branches, by which it supports itself on neighbouring shrubs; bark ash-coloured; leaves oblong, a little broader at top, blunt at both ends, quite entire, smooth underneath, having soft, decumbent, scarcely conspicuous hairs on the upper surface, and being from three to six inches long; the petiole has two upright bristly stipules at the base; common peduncles thick, very short, and numerous, beautifully surrounding entire and very long branches, and, by means of twelve semioval short bractes, finish in a quadrilocular top; the partial peduncles being one-flowered, an inch long, solitary, and therefore four to each common peduncle; flowers beautiful, but without scent, yellow, an inch in diameter.—Native of woods in Carthagena, New Spain: flowering in June, and ripening seeds in September.

2. Hiræa Odorata. A shrub: leaves ovate, acute, opposite, entire, veiny; smooth above, downy beneath; clusters copious at the ends of the branches, axillary, forming a terminal leafy panicle, with downy stalks; flowers fragrant.—Found in Guinea.

Hirtella; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts subovate, reflex, unequal, permanent. *Corolla:* petals five, roundish, concave. *Stamina:* filamenta three or five, bristle-shaped, flattish, very long, permanent, at length rolled in spirally; antheræ orbiculate. *Pistil:* germen roundish, compressed, and declining, villose; style filiform, almost the length of the stamina, arising from the depressed side of the germen; stigma simple. *Pericarp:* berry oval, broader at top, a little compressed, obscurely three-cornered, at whose base, in front, lie a villose germen and style. *Seed:* one, large, of the same form with the pericarp. Essential Character. *Petals:* five. *Filamenta:* very long, permanent, spiral. *Style:* lateral. *Berry:* one-seeded.——The species are,

1. Hirtella Americana. Leaves ovate-lanceolate; branchlets hirsute; racemes upright, simple; flowers five-stamined. This is a tree, with a trunk from twenty-five to thirty feet in height, and a ferruginous bark; petals rounded, with claws, emarginate, bluish; germen rounded, villose; berry obovate, compressed, hairy, rough, dry.—Native of Cayenne.

2. Hirtella Triandra. Leaves oblong, acuminate; racemes compound, loose; flowers three-stamined. This is a branching tree, which sometimes rises twenty feet high, but is generally less. The flowers have no scent; the stamina and style are placed cross-wise. The calicine segments are ovate, roundish, concave, equal, reflex; petals spreading, equal, deciduous, white; stigma simple.—It flowers in April and May, and is found in Jamaica, Martinico, and St. Domingo.

3. Hirtella Pendula. Clusters compound, terminal, long, pendulous, hairy; leaves oblong, pointed, heart-shaped at the base, downy beneath; stamina three.—Grows in the W. Indies.

4. Hirtella Paniculata. Leaves elliptic, shining, with hairy subcoriaceous racemes, upright; flowers five-stamined; branches round, with a purplish bark, rough-haired at top; stipules awl-shaped, very rough-haired; pedicels copious, alternate, solitary, or sometimes, but seldom, two together; bractes ovate, frequently two on the pedicel, hirsute on the outside, and others lanceolate at the base of the pedicel; filamenta five, long; style hirsute at the base.—Native of Cayenne.

Hoeing,—is beneficial to plants: first, for destroying weeds; secondly, because it disposes the ground better to imbibe the night dews, keeps it in a constant freshness, and adds a vigour to the plants and trees, by which their fruit becomes more abundant, as well as more nutritious. This operation is performed by the hand. Of the instrument called a Hoe, (and well known to every gardener,) there are several sizes. The smallest, called an Onion Hoe, is used not only to cut up young weeds, but to thin the Onions, by removing all such as are too close. The next size is nearly four inches and a half broad, and is called a Carrot Hoe, from being used for Carrots, or any other crops where the same distance is required to be left between the plants. The largest size is about seven inches broad, and is frequently called a Turnip Hoe, from its being used in hoeing Turnips, but which is generally employed by the Kitchen-gardeners for hoeing between all their crops which are planted out, or stand so far asunder as to admit an instrument of this breadth to pass between the plants. Besides these sorts of hoes, which are contrived to draw *towards* the person who uses them, there is another of a different form, which is called a Dutch Hoe, designed to be pushed *from* the person using it, so that he does not tread over the ground which is hoed. This is a very proper instrument for scuffling over the ground to destroy weeds, whenever the plants will admit of its being used; and a person will go over a much greater space of ground with one of these instruments, than with the common hoe; but they are not so proper for hoeing our crops so as to leave the plants at a proper distance, nor will it penetrate the ground so far; therefore the other sort of hoe is to be preferred to this, because it stirs the ground and loosens the surface, thereby promoting the growth of the plants. There has been of late years another instrument introduced into the field culture, called the Horse Hoe, which is a sort of plough with the share set more horizontally than that of the common plough. The utility of Horse-hoeing is, first, in proportioning the number of plants which the ground is supposed to be capable of nourishing; the second is, that by frequently stirring the surface of the land, all weeds which rob the crop of its nourishment are destroyed, and the clods of earth divided and pulverized, so that the roots of the plants can more easily penetrate them, and search their proper food; besides, the dew and moisture are easily imbibed in the loose ground, whereby the plants receive a greater share of nourishment. There are few persons who properly consider of what consequence the stirring and breaking of the ground is to all crops growing therein. It has frequently been tried, when the crop has been so bad as to be thought not worth standing, which has been occasioned by the great quantity of rain binding the surface of the ground so closely that the plants could find no nourishment, but have changed from their usual verdure to a purple colour, and made no progress: yet when the clods have been broken, and the ground hoed, they have put forth new roots,

and flourished exceedingly. From many repeated trials of this kind, it is evident that if the Wheat in general were sown in rows, so that the plough might be brought between the rows in the spring, to loosen the ground, which by the winter's rains may have been too closely bound, the crop would more than double what is the common produce. And by this method of husbandry we can affirm, that all crops will be so much improved, as doubly to repay the difference of expense, while less than a sixth part of the seed will be enough for the same ground. The common swing plough answers all the ends of Horse-hoeing.

Hoffmannia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, four-toothed, superior; teeth upright, sharp. *Corolla:* monopetalous, salver-shaped; tube so short as to be next to none; border four-parted; parts lanceolate, spreading. *Stamina:* filamenta none; antheræ four, fixed to the base of the tube, linear-subulate, upright, pressed close to the style. *Pistil:* germen inferior, oblong-four-cornered; style subulate, the length of the stamina; stigma blunt, scarcely emarginate. *Pericarp:* berry oblong, slightly four-cornered, crowned, two-celled, two-valved. *Seeds:* numerous, roundish, fixed to receptacles in each cell. Essential Character. *Calix:* four-toothed. *Corolla:* salver-shaped, four-parted. *Filamenta:* none. *Berry:* two-celled, many-seeded.——The only known species is,

1. Hoffmannia Pedunculata. Stem herbaceous, two or three feet long, branched, smooth; branches round and hairy; leaves stalked, opposite, ovate, pointed, entire; calix coloured; corolla yellowish at the points, striated with red at the bottom of the segments.—Native of Jamaica.

Hog Plum. See *Spondias.*

Hog's-Fennel. See *Peucedanum.*

Hog-weed. See *Boerhavia Heracleum,* and *Polygonum.*

Holcus; a genus of the class Polygamia, order Monœcia. —Generic Character. *Hermaphrodite Flowers,* sessile. *Calix:* glume one-flowered, two-valved, subovate, obtuse, coriaceous, awnless; outer valve large, concave, slightly three-toothed at the tip, embracing the inner valve, which is oblong, rolled up on the sides. *Corolla:* glume two-valved, tender, villose, less than the calix; outer valve smallest, placed within the inner calicine valve, in most of the species bifid at the tip, and awned; awn from the cleft of the glume, long or short, jointed, twisted, sometimes none; nectary three-leaved, two of the leaflets cartilaginous, truncate, the third opposite, ovate, or lanceolate, villose. *Stamina:* filamenta three, capillary, very tender; antheræ oblong, bifid. *Pistil:* germen ovate; styles two, capillary, diverging; stigmas oblong, feathered. *Pericarp:* none, but the glumes of the corolla and calix are rolled about the seed, and enclose it. *Seed:* solitary, ovate, covered, armed with the awn of the corolla, which however easily falls off. *Male Flowers,* peduncled, solitary, or in pairs, accompanying the hermaphrodite, smaller. *Calix:* glume two-valved; valves ovate-lanceolate, sharpish, chaffy, awnless; the outer valve concave, embracing the inner, which is narrower. *Corolla:* glume two-valved, smaller, more tender; outer valve within the inner valve of the calix, shorter, two-toothed, awnless; the inner valve doubled up on the edges; nectary as in the hermaphrodites. *Stamina:* filamenta three, as in the hermaphrodites. *Pistil:* germen small, angular, abortive; styles two, bristle-shaped; stigmas none. Essential Character. *Hermaphrodite. Calix:* glume one or two flowered. *Corolla:* glume awned. *Stamina:* three. *Styles:* two. *Seed:* one. *Male. Calix:* glume two-valved. *Corolla:* none. *Stamina:* three.——The species are,

1. Holcus Spicata; *Spiked Holcus.* Glumes two-flowered, awnless; flowers in pairs, involucred with a pencil; spike ovate-oblong; culm two feet high, and about the thickness of a swan's quill.—An annual grass; and a native of the East Indies.

2. Holcus Bicolor; *Two-coloured Holcus.* Glumes smooth, black; seeds globular, white-awned. This is an annual grass, greatly resembling the next species, but still very distinct from it, by its black calices, and seeds of a snowy whiteness. —Native of Persia.

3. Holcus Sorghum; *Indian Holcus,* or *Millet.* Glumes villose; seed compressed, awned; panicle contracted, ovate, upright, but drooping as it ripens. There are several varieties of this species; the most remarkable is the red-seeded one cultivated among the Caffres. Of this, the calix when ripe is cartilaginous, pale chestnut-coloured, very smooth, shining, only half the length of the seed, which is naked, obovate, globular, much acuminated towards the base, red, not shining. Miller describes this and the sixth species together, and indeed they differ so little as scarcely to merit being considered as a distinct species. According to him, the stalks of these plants rise five or six feet high, are strong, reedy, and like those of the Maize or Turkey Wheat, but smaller. The leaves are long and broad, having a deep furrow through the centre, where the midrib is depressed on the upper surface, and is very prominent below. The leaves are two feet and a half long, and two inches broad in the middle, embracing the stalks with their base. The flowers come out in large panicles at the top of the stalks, resembling at first appearance the male spikes of the Turkey Wheat: these are succeeded by large roundish seeds, which are wrapped round with the chaff.—They are both natives of India, where the grain is much used to feed poultry, and is frequently sent to Europe for the same purpose. This is much cultivated in Arabia, and most parts of Asia Minor. It has been introduced into Italy, Spain, Switzerland, and some parts of Germany. In China, Cochin-china, and the West Indies, where it grows to the height of five or six feet or more, and is esteemed a hearty food for labourers, it is called Negro Guinea Corn. Its long awns or bristles defend it from the birds. In Arabia it is called *Dora* or *Durra;* the flour is very white, and they make good bread of it. The bread made from it in some parts of Italy and Portugal is however dark and coarse. In Tuscany it is chiefly used for feeding poultry and pigeons; and even swine, cattle, and horses. Cæsalpinus says, however, that cattle when fed upon the green herb are liable to swell and die, although they thrive on it when dried; in which state brushes are made of it in Italy, some of which Mr. Ray observed in the Venetian shops. The Germans call this plant *Mohrhirse, Sorgsamen, Sorgsaat, Welsche Hirse,* and *Indianische Hirse;* the Dutch, *Gewoon Zorghzaad, Negerkoorn;* the French, *Houque Sorgo, Grand Millet;* the Italians, *Saggina Sagginella, Sorgo, Melica;* the Spaniards, *Alcandia, Melca;* the Portuguese, *Millo Lorgo;* the Tartars, *Myssur, Suburge;* the Japanese, *Sioku, Kibi;* and the inhabitants of Guinea, *Guiarnatt.*—The autumns of England are seldom dry and warm enough to ripen the seeds well in the field. Those who propagate them should sow the seeds on a warm border, or upon a gentle hot-bed, in March; and when the plants come up, they should be thinned, and planted at the distance of a foot asunder in the rows, which should be at three feet distance. The culture after this is to keep the ground clear from weeds, and draw the earth up with a hoe to the stems of the plants; if the season prove warm, their panicles will appear in July, and the grain will ripen in September, except in bad seasons, when it is liable to fail. It is

thought that if the seeds were procured from Germany and Switzerland, (climates not very different from our own,) that Sorghum might be advantageously cultivated upon some of the warmer soils of our island.

4. Holcus Halepensis; *Panicled Holcus*. Glumes smooth; hermaphrodite flowers awnless, female awned; culm smooth and even; panicle spreading, purple; awns white at the tip. To each female or hermaphrodite flower, there are two male flowers, which are pedicelled. The root is perennial, and increased by lateral runners, like the reed. Allioni says it grows wild near Turin, and other parts of Montserrat.—Native of Syria.

5. Holcus Nitidus. Glumes one-flowered, villose, all the flowers awnless; culm round, upright, with bearded joints; panicle upright; peduncles in a sort of whorl. It is smaller than the preceding in all its parts, but has the same habit.—Native of the East Indies.

6. Holcus Saccharatus; *Yellow-seeded Holcus*. Glumes villose, all the seeds awned; root biennial; panicle large, diffused. The male flowers scarcely open. The villosity of the calix is as inconstant as the colour, and is almost always lost in maturity; the colour generally changes to dark or black: these circumstances therefore are unfit to use for specific distinctions. This and the third species differ little in habit or any thing else, except the one having a naked, and the other an incrusted seed. Browne calls it Guinea Wheat, and says it had been lately introduced into Jamaica.—Native of the East Indies, and cultivated in China and Cochin-china. See the third species.

7. Holcus Mollis; *Soft Holcus*, or *Creeping Soft-grass*. Glumes two-flowered, almost naked: hermaphrodite, floret awnless; male with a knee-jointed awn. It resembles the next species. Mr. Curtis says it is usually a smaller plant, or, if it be as tall, that it has a much more scanty panicle. The spikelets have not that brilliant colour which marks those of the next species at their first appearance. This grass also rarely occurs, except in and about woods and in hedges; whereas the Lanatus is a very general grass in meadows. It flowers in July, and is a very troublesome weed with its creeping roots, especially in arable lands.

8. Holcus Lanatus; *Woolly Holcus*, or *Meadow Soft-grass*. Glumes two-flowered, villose: hermaphrodite, floret awnless; male with a recurved awn; root perennial, but not creeping; stems from two to three feet high, upright, round, pubescent, with three or four joints. The velvet-like softness of the whole plant, and the redness of the opening panicle, render this grass very conspicuous. It abounds in meadows, is frequent by road-sides, and sometimes grows on walls. It flowers in June and July. Haller speaks highly of this grass as food for cattle, but it is not at all esteemed among us. The seed however being easily collected, is sometimes sent to London in great quantities as pure grass-seed. Lightfoot says that the stalks are used for making ropes for fishing boats in the isle of Skye; but there are better grasses for this purpose. Young, in his *Annals*, says, that a gentleman's horses having been much disordered with a malady which caused an extraordinary discharge of urine; the hay on which they fed, being examined, was found to contain scarcely any other grass but this; and that on changing the hay, the distemper ceased. This fact should be well ascertained, before the Holcus Lanatus is recommended as one of the most valuable kinds of meadow-grasses, as it is by Dr. Anderson; though since he calls it Creeping Soft-grass, and talks of its running roots, he may mean the preceding species, which certainly is one of the vilest weeds in arable lands. On the other hand, Mr. Marshall, in his *Rural Economy of Yorkshire*, says, that it is far from an eligible grass for cultivation, is now entirely exploded by judicious husbandmen, and has been supplanted by Ray-grass; the growers of the seed being the only persons who have profited by its cultivation, eighty bushels having been produced from an acre. It is known in Yorkshire by the name of *White Hay Seeds*. In his *Minutes of the Midland Counties*, he says it ranks high as a pasture plant, at least for cattle; that a piece which abounds in it to one half, is esteemed excellent for cheese, favourable to the rearing of young heifers, and the fatting of Scottish bullocks; and that cattle of all kinds fare well upon it, except horses. For the propagation of this and the preceding species, see *Grass*.

9. Holcus Laxus. Glumes two-flowered, smooth, awnless, acuminate; panicle crowded, oblong; culms two feet high, narrow, somewhat nodding; peduncles usually two-flowered. This has the habit of Aira Cœrulea.—Native of Virginia and Canada. See *Grass*.

10. Holcus Striatus. Glumes two-flowered, striated, awnless, acuminate; panicle crowded, oblong.—Native of the marshes of Virginia. See *Grass*.

11. Holcus Serratus. Glumes two-flowered, pubescent, awnless; leaves serrate; root perennial, creeping, covered at top with sheaths of leaves in clusters; culms decumbent at bottom, branched, covered with the sheaths of leaves below, naked above, a foot high, even, quite simple, almost leafless.—Found at the Cape of Good Hope.

12. Holcus Odoratus; *Sweet-scented Holcus*. Glumes three-flowered, awnless, acuminate: hermaphrodite, flower two-stamined; root perennial, jointed, creeping; culm three feet high, with few joints. This grass has a sweet smell, and is collected into bundles, to lay among clothes and linen; and is hung over beds in some countries, with a view to procure sleep.—Native of wet pastures in the colder parts of Europe, and also of Canada, and Siberia. See *Grass*.

13. Holcus Redolens. Glumes three-flowered; side florets, male awned, hairy at the edge; the middle one subhermaphrodite, awnless; culm upright, a foot high, smooth, sheathed; panicle patulous, with filiform pedicels; stamina three, fertile in the males, barren in the middle flower.—Native of Terra del Fuego.

14. Holcus Latifolius. Glumes three-flowered, the first floret unarmed, two prickly at the edge; leaves subovate; culm even, scarcely a foot high.—Found in China.

15. Holcus Pertusus; *Perforated Holcus*. Spikes digitate; glumes with the outer valve punched with a hole in the middle; culm jointed, even, ascending, branched, about a foot high.—Native of the East Indies.

16. *Guinea Grass*, (so called from its having been originally introduced into the West Indies from the coast of Africa,) according to Browne, is a species of Holcus. The characters of it, he says, agree pretty well with those of Panicum in general, but the flowers commonly grow very luxuriant, and though often hermaphrodite, are generally observed to be male and female distinct, surrounded by separate involucres, and standing on distinct pedicels within the same calix. The blades of this grass, when flourishing, appear not unlike those of Wheat, only rather longer and broader; and the stalks, during the first growth, are also much like those of Wheat, but they get weaker and less the oftener the grass is fed upon or cut, till at last it becomes a fine, rich, and entire swath. It appears capable of thriving in any situation, climate, or soil, and can bear the effects of dry or wet weather in a most remarkable manner. In wet weather it may be cut once in a fortnight, and sometimes oftener, when the land is new or fertile. In dry weather it is long before it withers; and, when reduced to such a state as to seem totally destroyed, will revive in a

few hours after a slight shower; so that when so little rain falls as to be of no service to common pastures, this will be fit for use in a few weeks; and in some situations, not exposed to the sun, it will flourish from occasional dews only. When ready to feed, it is from six to eight feet high, but it is generally fed on or cut when only three or four. It seems to have reached all parts of the world, and to be every where esteemed for its great usefulness.—In the West Indies it is cultivated by making the land perfectly bare by hoeing, and then digging holes from three to five feet distance, according to the quality of the soil. The holes should be large, and deep enough to bury a few roots of the grass at a good depth. These roots are procured from a neighbouring nursery or field, and the grass being topped within three or four inches, they are put into the holes, well covered with earth, and pressed down with the foot: care is taken to keep the plants free from weeds by repeated hoeings. The best months for planting are April and May, for the grass will then seed in September and October, at which time it produces in abundance. The ground must be quite clean when the seed is ready to drop; and if the spaces between the roots are then stirred by the hoe, it will be found very beneficial. When the seed is all fallen, stock are turned in, to tread it into the ground, and feed upon the grass. In very rich and new land, the grass at first will grow so rank as to produce very thick stalks, which, by running up the noses of the stock, will prevent them from eating it so close as they otherwise would. When, however, it is eaten as near the ground as possible, the remaining grass, with the roots which were planted, are dug out with the hoe, and burnt off. After this, the grass, if favourable rains come, will grow from the seed, and, by covering the ground, in May following will be perfectly established for several years, according to the quality of the land, to be cut for hay, or to stand for pasture. Whenever the grass grows thin, holes may be opened in such places, and roots again planted to supply it; and, by this attention, a field will scarcely ever be so totally worn out, as to require the labour of entirely replanting it at any one time. If a little care only be taken of this grass in its infancy, it will soon overcome all other grasses and weeds; and in ground full of stones and rocks, though planted at random, and at great distances, as the soil admits, it will spread itself about them in a few months, and at last entirely cover them. If the stalks of this grass be buried a few inches deep, each joint of it will take root, and grow luxuriantly; or it may be propagated directly from sowing the seed, the ground being previously prepared for that purpose; but the seed will lie many months in the ground before it makes its appearance. Some planters do not stock up the roots which are planted, when the grass has seeded; and others depend upon what they afford, by continually feeding or cutting the grass when at a certain height, without ever suffering it to seed.

Hollow Root. See *Adoxa* and *Fumaria.*

Holly. See *Ilex.*

Holly, Knee. See *Ruscus.*

Holly, Sea. See *Eryngium.*

Hollyhock. See *Alcea.*

Holm Oak. See *Quercus.*

Holm, Sea. See *Eryngium.*

Holosteum; a genus of the class Triandria, order Trigynia.—Generic Character. *Calix:* perianth five-leaved; leaflets ovate, permanent. *Corolla:* petals five, two-parted, blunt, equal. *Stamina:* filamenta three, filiform, shorter than the corolla; antheræ roundish. *Pistil:* germen roundish; styles three, filiform; stigmas bluntish. *Pericarp:* capsule one-celled, subcylindric, gaping at the tip. *Seeds:* very many, roundish. *Observe.* In the third species, the petals are subtrifid, less than the calix. In the fifth species the petals are three or two-toothed; stamina three or five; styles three or four; capsule six-valved at the tip. Essential Character. *Calix:* five-leaved. *Petals:* five. *Capsule:* one-celled, subcylindrical, opening at top.——The species are,

1. Holosteum Cordatum; *Heart-leaved Holosteum.* Leaves subcordate; stems decumbent, creeping, somewhat rigid at bottom; peduncles lateral, elongated, ascending, seven-flowered, one in the middle, and three on each side, from a peduncle farther branched.—Native of Jamaica and Surinam. In the former it is common, and thrives very luxuriantly. Browne calls it the Larger American Chickweed, and says that it grows in tufts, and seldom rises above ten or twelve inches from the ground; that the smaller birds feed much upon the seeds, which are seldom put to any other use, except that large wads of the fresh plant, heated over a gentle fire, are sometimes applied to hard and painful swellings, in order to relax the parts, and dispose the obstructions to a resolution.

2. Holosteum Diandrum; *Two-stamined Holosteum.* Stems procumbent, very rigid; leaves roundish; flowers two-stamined; capsule roundish. This plant is very small, seldom rising above six or seven inches from the ground.—Annual, and a native of Jamaica.

3. Holosteum Succulentum; *Succulent Holosteum.* Leaves elliptic, fleshy; petals white, subtrifid, smaller than the calix.—Native of New York.

4. Holosteum Hirsutum; *Hairy Holosteum.* Leaves orbiculate, hirsute.—Native of Malabar.

5. Holosteum Umbellatum; *Umbelled Holosteum.* Flowers umbelled; root annual, slender, a little branched, fibrous, running perpendicularly down; stems numerous, filiform, jointed, round, perfoliate, upright, from two or three, to six inches high, having mostly three joints; the space between the two lowest is smooth, the others for the most part viscous and hairy; calix never opening, marked at the base with black dots; petals white, or blush-coloured tinged on the outside, converging, concealed within the calix, so that the tips only peep out. Villars makes two species of this: 1. smooth, with triandrous flowers; 2. hairy, with decandrous flowers. The first smooth, smaller, and greener; the second very villose, larger, ash-coloured, green all over; the peduncles and calices not clammy as in the other, which is more common. Hudson and Withering place it among the *Cerastia:* whilst Swartz would remove the *Alsine Media*, or Common Chickweed, into this genus. It is an annual plant, flowering in April and May.—Native of Spain, Italy, France, Germany, Switzerland, and England; where it was first noticed on the walls of Norwich, and also upon walls and banks in the neighboorhood: it has also been found near Bury in Suffolk.

Homalium; a genus of the class Polyandria, order Trigynia.—Generic Character. *Calix:* perianth one-leafed, six or seven cleft; clefts ovate-lanceolate, sharp, spreading very much. *Corolla:* petals six or seven, ovate, flat, a little longer than the calix, spreading very much; nectary-glands six or seven, flat, alternate with the petals. *Stamina:* filamenta eighteen or twenty-eight, subulate, upright, the length of the corolla, of which three or four are inserted into the receptacle among the glands before the base of the petals; antheræ roundish, small. *Pistil:* germen roundish, villose, immersed in the base of the calix; styles three, upright; stigmas simple. *Pericarp:* capsule woody, ovate, one-celled. *Seeds:* very many, and very small. Essential Character. *Calix:* six or seven parted. *Corolla:*

six or seven petalled. *Stamina:* twenty-one, in three bodies. *Pericarp:* one-celled, many-seeded.——The species are,

1. Homalium Racemosum. Leaves serrate; racemes axillary, and terminating; flowers peduncled. This is a lofty branching tree, with the habit and leaves of the Elm.—Native of Martinico and Jamaica.

2. Homalium Racoubea. Leaves toothed, coriaceous; racemes terminating; flowers subsessile. This is a shrub, with a trunk of about three or four feet high, and four or five inches in diameter; the bark is whitish; the branches tortuous and spreading, and seven or eight feet long. The flowers are borne on spikes springing from the bosoms of the upper leaves; they are sessile, and of a yellow colour.—Native of Guiana, flowering in May.

3. Homalium Angustifolium. Leaves elliptic-lanceolate, slightly waved, entire; partial flower-stalks very short; petals obovate; clusters axillary, simple, scarcely the length of the leaves; flowers nearly sessile, and essentially distinguished by the obovate petals.—Native of Sierra Leone.

Honesty. See *Lunaria.*

Honewort. See *Sison.*

Honey-flower. See *Melianthus.*

Honeysuckle. See *Lonicera.*

Honeysuckle, French. See *Hedysarum.*

Honeywort. See *Cerinthe.*

Hooded Milfoil. See *Utricularia.*

Hooded Willow-herb. See *Scutellaria.*

Hop. See *Humulus.*

Hopea; a genus of the class Polyadelphia, order Polyandria.—Generic Character. *Calix:* perianth one-leafed, bell-shaped, five-cleft; clefts ovate, blunt, permanent. *Corolla:* petals five, oblong, concave, connected at the base by the intervention of the bunches of stamina. *Stamina:* filamenta very many, bristle-shaped, longer than the corolla, connected at the base in five bodies; antheræ quadrangular. *Pistil:* germen inferior, roundish; style gradually thickening, the length of the corolla, permanent; stigma thickish, obliquely depressed. *Pericarp:* drupe dry, oval-cylindric, gibbous, crowned with the calix. *Seed:* nut smooth, three-celled, protracted by a blunt tip. Essential Character. *Calix:* five-cleft, superior. *Corolla:* five-petalled. *Stamina:* many, connected in five bodies. *Style:* one. *Drupe:* with a three-celled nut.——The only known species is,

1. Hopea Tinctoria. This is a tree, with alternate, petioled, simple, oblong, lanceolate-ovate, subserrate, shining, nerveless, sweet leaves. The peduncles burst forth from buds upon the topmost branchlets, eight or ten together, before the leaves, and are disposed in a very short spike, on very short one-flowered pedicels, clothed with small, concave, villose leaflets. The flowers are succeeded by subsessile fruits, below the leaves, in a very short spike. It flowers early in the spring, and is then extremely sweet. The juice or decoction of the leaves will dye linen and silk of a bright yellow colour.—Native of Carolina.

Hordeum; a genus of the class Triandria, order Digynia.—Generic Character. *Calix:* common receptacle lengthened into a spike; glume six-leaved, three-flowered; flowers sessile; leaflets distant, in pairs, linear, acuminate. *Corolla:* two-valved; lower valve bellying, angular, ovate-acuminate, longer than the calix, ending in a long awn; inner valve lanceolate, flat, smaller; nectary two-leaved; leaflets ovate, sharp, ciliate. *Stamina:* filamenta three, capillary, shorter than the corolla; antheræ oblong. *Pistil:* germen ovate-turbinate; styles two, villose, reflex; stigmas similar. *Pericarp:* none: the corolla grows round the seed, without opening. *Seed:* oblong, bellying, angular, acuminate on both ends, marked with a groove on one side. *Observe.* In some of the species all the three flowers contained in an involucre are hermaphrodite, and fertile; in others the side flowers are males, and the middle one only is hermaphrodite and fertile. Essential Character. *Calix:* lateral, two-valved, (valves narrow, acuminate, distant, all together forming a six-leaved involucre,) one-flowered, by threes, at each toothlet of the rachis.——The species are,

1. Hordeum Vulgare; *Spring Barley.* All the florets hermaphrodite, and awned in two very upright rows. Of the Spring Barley, which is principally cultivated in England, the farmers make two sorts, viz. the Common, and the Rath-ripe Barley, which are in fact the same: for the Rath-ripe is only that which has been long cultivated upon warm gravelly lands. The seed of this, when sown in a cold or strong land, will the first year ripen near a fortnight earlier than the seeds taken from strong land; therefore the farmers in the vales generally purchase their seed-barley from the warm land; for, if saved in the valves two or three years, it will become full as late in ripening as the common Barley of their own product; and the farmers on the warm lands are also obliged to procure their seed-barley from the strong land, to prevent their grain from losing its bulk and fulness. This sort of Barley is easily distinguished by the two orders of beards, or awns, which stand erect; the chaff being also thinner than that of the second and fourth sorts, it is esteemed better for malting.—The second description, Winter or Square Barley, Bear, or Big, is rarely cultivated in the southern parts of England; but in the northern counties and in Scotland is generally sown, being much hardier than the other species, and will bear the cold. It has its grains disposed in six rows: the grain is large and plump, but it is not so good for malting, which is the reason for its not being cultivated in the southern parts of the island, where the other sorts thrive well, and are better adapted to that purpose. The third sort, is the Common, or Long-eared Barley, which is cultivated in many parts of England, and is an exceedingly good sort, though some farmers object to it, because the long and heavy ears, they say, are more apt to lodge. This has the grains regularly ranged in a double row, lying over each other like tiles on a house, or the scales of fishes. The husk or chaff of this Barley is also very thin, and is much esteemed for malting.—The fourth kind is generally called Sprat or Battledore Barley: it has shorter and broader ears than any of the other sorts; the awns or beards are longer, and the grains are placed close together, and the awns being long, the birds cannot so easily get out the grain. This seldom grows so tall as the other species; and the straw being shorter and coarser, does not make very good fodder for cattle. In Spring Barley, the lower flowers are frequently imperfect; the spike is as it were distinct, though there are several rows; in all the flowers the two glumes or chaffs of the calix are shorter than the flower, awl-shaped, and end in a short awn or beard; the outer corolline chaff is much hollowed, with the sides folded in, the back ciliated, and the tip continued into an awn three inches in length; the inner chaff is awnless. It is not known where this, or any other sort of grain, grows wild. Cardan pretended that Barley was a native of Athol in Scotland. Reidesel says the same of Sicily: and it has lately been affirmed to be found on the banks of Samara, a river of Tartary. Diodorus Siculus ascribes the first culture of Barley to Osiris, who discovered it in a wild state. The ancients fed their horses with Barley as we do with Oats. It was eaten also in bread by the lower sort of people; and the gladiators were called Hordearii, or *Barley-men,* from their feeding on this grain. Some of the southern parts of Europe annually produce two crops of Barley: one sown in autumn,

and cut in May; and another sown in spring, and cut in autumn. In some of the northern parts of Europe it is called *Korn*, or Corn, exclusively, and is more cultivated because it ripens in less time than any other kind of grain. In Lapland, fifty-eight days only, or about two months, elapse between the sowing and cutting of it. But it is the Rath-ripe, or Patney Barley, which is annually sown in northern climates. *Hordeum Celeste*, or Siberian Barley, (called *Himmelgerste*, or *Himmelskorn*, by the Germans; *Himmelsbyg* or *Thorebyg*, by the Danes; *Himmelskiorn*, by the Swedes; and *Orge Celeste*, by the French,) was only introduced into England in May 1767. It has a broader blade, of a much deeper green, than common Barley at first coming up. The ears are shorter, having only from five to nine grains in length, whereas those of the common sort have from nine to thirteen; and in all stages it is a fortnight forwarder than common Barley. The two sorts being sown in the same field on the 28th of April 1774, to the quantity of three bushels of each, the common Barley produced thirty-six bushels and a half, weighing fifty-two pounds each, and the Siberian produced thirty-two bushels weighing fifty-eight pounds each. But the soil was very dry, and much inclined to a gravel, greatly to the disadvantage of the Siberian Barley, which requires a richer land.—*Propagation.* We shall now direct our attention to the propagation and culture of this most important article. The directions given apply generally to the four first species of this genus; all the sorts of which are sown in the spring of the year, in a dry time, in some very dry light land: the usual time is early in March, but in strong clayey soils, it is not sown till April, and sometimes not until the beginning of May; but when it is sown late, if the season does not prove very favourable, it will be late in autumn before the Barley become fit to mow, unless it be the Rath-ripe sort, which is often matured in nine weeks after the seed has been sown. Some sow Barley upon land where Wheat grew in the former year; but when this is practised, the ground should be ploughed in the beginning of October during dry weather, and laid in small ridges, that the frost may have more power over it; which will render it mellow, and greatly improve it. This should be ploughed again in January, or at the beginning of February: it will break and prepare the ground better; which should be ploughed a third time in March, and laid even where it is not very wet; but in strong wet lands, the ground should be laid round, and the furrows made deep to receive the wet. When this is finished, the common method is to sow the Barley-seed with a broad-cast at two sowings; the first being harrowed in once, the second is harrowed until the seed is buried: the common allowance of seed is four bushels to an acre. This is the quantity of grain usually sown by the farmers; but if they could be prevailed on to alter this practice, they would soon find their account in it; for if less than half that quantity be sown, there will be a much greater produce, and the corn will be less liable to lodge; for when corn or any other vegetable stands very close, the stalks are drawn weak, and incapable of resisting the force of winds, or bear up under heavy rains; but when they are at a proper distance, their stalks will be more than twice the size of the other, and are seldom laid. In fields where there has been a foot-path through the middle, the corn which came up thin on each side the path has been observed to stand upright, when all the rest on either side has been laid flat upon the ground: and whoever will observe these roots of corn near the paths, will find them tiller out, that is, have a greater number of stalks by four times than any other parts of the field. Experiments have been made by sowing Barley in rows, in divers parts of the same field, and the grains sowed thin in the rows, so that the roots were three or four inches asunder in the rows, and the rows a foot distance; the intermediate spaces of the same field were at the same time sown broadcast in the usual way; and the consequence was this, the roots which stood thin in the rows tillered out from ten or twelve to upwards of thirty stalks on each root; the stalks were stronger, the ears longer, and the grains larger, than any of those sown in the common way; and when those parts of the field where the corn was sown in the usual way have been lodged, the parts thinly sown have maintained their upright position against wind and rain, though the rows have been made not only lengthways but across the lands in several positions, so that there could be no alteration in regard to the goodness of the land, or the situation of the corn. Therefore where these experiments have been frequently made, and always attended with equal success, there can be no room to doubt which of the two methods is more eligible, since, if the crops were only supposed to be equal in both, the saving more than half the corn sown is a very great advantage, and deserves national consideration, for in scarce times such a saving might be of great importance to the public. It is true, farmers in general are very apt to complain if their corn does not come up so thick as to cover the ground green in a short time, like grass-fields: but it is often observed, that when, from the unfavourableness of the season, it has come up thin, or when part has been accidentally killed, the corn has been much stronger, the ears longer, and the grain plumper, so that the produce of those years has exceeded that of other years when it had come up thick; for the natural growth of corn is to send out many stalks from a root, and not to rise so much in height; therefore it is entirely owing to the roots standing too near each other, that the stalks are generally drawn up tall and weak. I have had (says Mr. Miller) eighty-six stalks upon one root of Barley, all of which were strong, producing longer ears and better-filled grain than any which I ever saw in the common method of husbandry, although the land upon which it grew was not remarkably rich: but I have frequently observed on the side of hot-beds in kitchen-gardens, where Barley-straw has been used for covering the beds, that some of the grains left in the ears having dropped out and grown, the roots have produced from thirty to sixty stalks each, every one three or four times larger than they ever grow in the common way: but to this, (continues Mr. Miller,) I know it will be objected, that although upon rich land in a garden these roots may probably have so many stalks, yet in poor land they will not produce so much, and therefore a greater quantity of seed must be sown to make the crop worth standing. Now this is one of the greatest fallacies that can be imagined, to suppose that poor land can nourish more than twice the number of roots in the same space as rich land; yet it is the general practice to act upon this absurd supposition, as if it were really true. A greater quantity of seed is allowed for poor land than for richer ground, the sower not considering that where the roots stand so close they will deprive each other of their nourishment, and starve themselves; which is always the case where the roots stand close. The truth of this will be evident to any person who will observe that part of a field where the corn happens to be scattered in sowing it, and those places where, by harrowing, the seed is drawn up into heaps; the latter will starve, and never grow to a third part of the size to which they attain wherever the seed happens to have been loosely sown: yet common as this is, our farmers surely cannot be aware of it, otherwise they would not continue their old mode of sowing: if they know it, their prejudice must be strong in the extreme.—When the Barley is sown, the ground should be rolled after the first shower of rain, to break the

clods and lay the earth smooth, which will render it better to mow, and also cause the earth to lie closer to the roots of the corn; which will be of great service to it in dry weather. Where Barley is sown upon newly-broken-up land, the usual method is to plough up the land in March, and let it lie fallow until June, at which time it is ploughed again, and sown with Turnips, which are eaten by sheep in winter. The dung of the sheep greatly improves the land; and in March following the land is ploughed up again, and sown with Barley as before. Many persons sow Clover with their Barley; some have sown Lucerne with it; but this is not judicious, for where there is a good crop of Barley, the Clover or Lucerne must be so weak as not to pay for standing; so that the better way is to sow the Barley alone without any crop among it, and then the land will be at liberty for any other crop when the Barley is taken off the ground: yet this custom of sowing Clover, Rye-grass, and other grasses, with corn, has been so long and universally established among farmers, that we have little hope of prevailing upon them to relinquish this absurd practice, which can only be defended upon the ground of its having been handed down to them by their predecessors. When the Barley has been up three weeks or a month, it will be a very good method to roll it over with a weighty roller, which will press the earth close to the roots of the corn, and thereby prevent the sun and air from penetrating the ground, which will be of singular service in dry seasons. This rolling of it before it stalks, will cause it to tiller out and produce a greater number of stalks; so that if the plants should be thin, it will cause them to spread so as to fill the ground, and likewise strengthen the stalks. The time for cutting Barley is when the red colour of the ears is off, the straw turns yellow, and the ear begins to hang down. In the north of England the Barley is always reaped and made up into sheaves like Wheat, by which method less corn is lost, and the whole may be more conveniently stacked. But this cannot be so well practised in rich lands like those in the neighbourhood of London, where there are weeds among the corn; and especially in moist seasons: in these cases the Barley must lie on the swathe till all the weeds are dead; and as it is apt to sprout in wet weather, it must be shaken up and turned every fair day after rain, to prevent it. When carried in, it ought to be thoroughly dry; for if stacked wet it turns musty, and if too green will burn in the mow. The common produce of Barley is two and a half or three quarters on an acre.—*Soil proper for Barley.* The best soil for Barley is the dry and heathy, rather light than stiff, yet of sufficient tenacity and strength to retain the moisture. If the land be poor, it ought also to be dry and warm; and if so, will often produce better corn than richer land in a cold and wet situation. Much Barley, however, is grown on heavy land, both after Wheat and on a fallow; but this is no proof of its being a good rule, for we have already shewn the unreasonable nature of several of the customary modes of cultivating this grain. Barley usually succeeds Wheat or Turnips, sometimes Vetches and other crops, or is put in on a fallow or on turf. After Wheat, the soil is winter-fallowed by three ploughings: first lengthways in November; the second across in March; and the last or seed-ploughing lengthways. The soil is harrowed between the two last ploughings, and the quick, if any, destroyed. In Norfolk, when Wheat-sowing is finished, the farmer begins to *scale* in his Wheat-stubbles for a winter fallow. If the land lies in narrow work, the ridgelets are split; if in warps, the ground is likewise ploughed clean, but very fleet. At the beginning of March the land is harrowed, and presently after the Wheat-stubbles are taken up by a full-pitch cross-ploughing; or if the season be wet, and the soil heavy, he reverses the ridges. In April he harrows, and begins stirring for Barley, with another full-pitch ploughing, lengthways; generally gathering the soil either into five-pace or ten-pace warps, in which it lies until seed-time; when it is harrowed, rolled, sown, ploughed fleet, reversing the warps, and *slading* down the furrows; so as to render the entire surface as even and level as may be. After Turnips the soil is generally broken up as fast as the Turnips are got off; if early in winter, by rice-balking; if late, by a plain ploughing. The general practice, if time will permit, is to plough three times; the first fleet or shallow, the second full-pitch, and the last a mean depth, with which the seed is ploughed in. But when it is late before the Turnips are got off, sometimes the ground is only ploughed once, and the seed sown above; but more frequently it is broken by three ploughings, as above, even when there is not more than a week to perform them in. Such is the practice in Norfolk, where the farmers are generally very skilful in the art of cultivating Barley. They seem fully aware of the tenderness of this plant in its infant state, and of its rootlings being unable to make the necessary progress in a compact or cold soil, and therefore exert every means in their power to make their soil friable and pulverous. To this intent it is sometimes two-furrowed, and even a fourth earth is given, especially in a cold wet season. Nor is this caution confined to Turnip-barley, but should be extended more or less to Stubble-barley, which certainly requires less care. As the soil is kept open by the indigested stubble, and the roots of grasses and other weeds, from which Turnip-fallows at least ought to be free, that will perhaps account for the superiority of Stubble-barley, over that produced by a Turnip-fallow, however well-timed and manured. In Essex they plough five times; four in the fallow-year, throwing the land on to the ridge for winter by the fourth; then they take the first opportunity of hard frosts to carry on their composts, at the rate of twenty or thirty loads to the acre. The compost consists of farm-yard dung mixed up with turf. They then take care, as soon as the land is dry enough, to plough and sow the Barley from the last week of February to the middle of April; but if the seed is not in the ground in March, they despair of a great crop. This Barley culture is very good. It is an excellent practice to plough and sow in the spring, instead of giving preparatory ploughings when the seed should be in the earth. When Barley is put on turf, or after hay or Clover, &c. the turf is generally broken by a winter fallow, and the soil treated in other respects as after Wheat. In very light dry soils it may be right to break the flag as little as possible, provided the grass be killed: in this case they do not break up the turf till after Christmas. With this process the Norfolk farmers sow the Barley above furrow. Barley is seldom manured for, except when sown after ley: after Wheat and Turnips no manure can be requisite, if the ground had been manured for the former; but on a fallow it is manured as for Wheat.—*Quantity of seed, preparation for, and method of sowing.* In addition to what has been already advanced on this head in the former part of the present article, we have to observe, that many farmers sow four bushels of seed on an acre, while some few sow no more than two bushels. Four bushels is very general, but in some places three bushels and a half, and in others three bushels, is the average or medium quantity of Barley sown. The following experiments confirm Mr. Miller's theory of sowing thinner on poorer soils. On an acre of poor land, worth three-and-sixpence per acre, two bushels of Barley were sown; on the next adjoining acre, three bushels; and on the next, four bushels. The result was, that the crop was best from two bushels, next best from three, and the worst from four; which is the greatest quantity of seed that ought ever to be sown,

Brining and liming seed-barley previously to sowing it, is a common practice, which is reprobated by some, who think even liming prejudicial. Such as are of the latter opinion, recommend the sprinkling a little soot in the water, to secure the seed from insects. It is certain that Barley which has been wetted for malting, and begins to sprout, will come up sooner in a dry seed-time; and in such a season this grain will not only lie long in the ground, but come up and ripen very unequally. To avoid these evils, and give the infant Barley an advantage over seed-weeds, and a chance of coming to market sooner, it seems a good method to steep the seed intended for sowing. This may be either done in clean water, or the drainings of the dung-heap, in which it may lie covered for twenty-four hours, or even longer, if the land be dry, and there be no likelihood of rain for ten days. Sow the grain wet from steeping, without any thing, or with sifted wood-ashes. The sower must put in a fourth or a third more seed in bulk than he would of dry grain, the seed being swelled in that proportion; and he may expect it up in a fortnight at farthest. The common method of sowing Barley is broadcast at two sowings; the first harrowed in once, the second twice. In Norfolk, almost all the Barley is sown under-furrow; that is, the surface having been smoothed by the harrow and roller, the seed is sown and ploughed under with a shallow furrow: a method admirably adapted to a light dry soil; and indeed to any soil which is light enough to produce good Barley, provided it be rendered sufficiently fine, and the seed be not buried too deep. However, if the season be wet, and the soil cold and heavy, good farmers not unfrequently sow Barley above, as is the general custom in other countries. And this seems to be a reasonable practice; for in a dry spring and light land, sowing under seems most eligible; and in a cold spring, or when the soil is rough with clods, sowing above appears to be equally good management. —*Drill-sowing.* Grain sown by hand *broadcast* must fall at unequal depths; the seeds constantly sprout at different times: that which is buried where the earth is moist soon appears, whilst such as is near the surface lies baking in the heat of the sun, and does not vegetate till plentiful rains have moistened the soil: hence that inequality of crop to which Barley is particularly liable. Of the two common methods of sowing Barley, ploughing-in buries too deep, and that sown under the harrow is too much exposed to birds; whereas by the *drill* the seeds are all regularly deposited at their proper depth. To this advantage peculiar to drilling, we may add the saving which is made in the seed, and the opportunity this plan affords of keeping the crop perfectly clean by hoeing. The quantity of seed used in drilling by different persons is from six pecks to three bushels; but it is bad economy in general to be too niggardly of seed, and therefore it is not advisable to sow less than two bushels on an acre. If, however, it should be thought proper to use even three bushels, that will secure a considerable saving. Drilling indeed cannot be so well practised on heavy soils; but it may have place on those which are light and friable, which are peculiarly adapted to Barley. Such soils as are not injured by horses going repeatedly on them, and being almost always under command, the horse-hoe may go over them whenever the farmer is most at leisure. Dr. Hunter, in his *Georgical Essays*, gives the following account of an experiment upon this subject. "In the spring of the year 1769, I sowed an acre of Barley in equidistant rows, with the drill-plough, in a field which was sown with the same grain, and upon the same day, broadcast. The broadcast took three bushels per acre; the drill required only six pecks. The drills were eight inches asunder, and the seed was lodged about two inches within the soil. The acre was drilled within the hour. In the course of growing, the drilled Barley seemed greener, and bore a broader leaf, than the broadcast. When the ears were formed throughout the field, the ear of the drilled Barley was plainly distinguished to be nearly half an inch longer than the broadcast, and the grains seemed fuller and better fed. Being at a loss to account for this, (continues Dr. Hunter,) I dug up some roots of both, and found that the pipe of communication between the seminal and coronal roots of the drilled Barley was considerably longer than in the broadcast. The produce of two hundred square yards of the broadcast and drilled Barley was carefully housed, and afterward threshed out. The drilled exceeded the other nearly one-fifth in measure, and was two pounds heavier per bushel."—*Time of sowing Barley.* The farmer is governed by seasons, and by other necessary work which he may have to perform; but to sow early when he can, is one of the most important precepts in the culture of Barley. If three ploughings can be given in time, it is best to get in the seed sometime in March at farthest; and some farmers, rather than defer the sowing, will throw in the crop on one earth. In Norfolk, they commonly sow on their light lands in April, and on the moist lands in May; and they think that, where they are much subject to weeds, they have the best crops when they sow late. Early sowing, however, has been gaining ground for some years past. And it appears from an experiment accurately made by a very intelligent cultivator, that more grain was produced from sowing in January, than at any other time. The land was a deep sand, valued at six or seven shillings the acre; it had been under Clover, and was ploughed as for Wheat in November, in the middle of which month two bushels of Barley were sown and harrowed in upon one earth only. The same quantity was sown in the middle of every month till the following May inclusive. The first sown came up a week sooner than the Wheats sown on the same day by the side of it, and was very flourishing till the first sharp frost set in, which damaged the blade, but did not seem to affect the root. The other sowings had two earths; one cast, or half the seed, was ploughed in, and the other half harrowed in; the second sharp frost killed some of the second sowing, and a good deal of the first; but both together, with the third sown in January, seemed to suffer still more by the sharp cutting winds in the month of March, when there was no snow to cover the blade. These three sowings, particularly the first, had their plants very much thinned by the frosts and winds; although the roots that were left stubbed very much in the spring, and had very long ears, with from thirty to thirty-six grains in each. The sowings in February and March lost few if any of their plants, and were both forward enough to be harvested on the same day with the preceding sowings. That sown in April was a full fortnight later, and the last, sown in May, was entirely destroyed by rooks, there being no other sown so late in the neighbourhood. It would have been the same with the early sowings, had not the evil been guarded against. However advantageous therefore early sowing may be, yet neither this nor any other laudable practice will be of any avail in open fields where lands are intermixed, unless where there is a general consent; and if one farmer only were to sow early, he must have as many keepers as he has pieces of land, and thus obtain better crops that his neighbours at a ruinous expense. The whole land sown in the above experiment was seventy-two square yards, or little more than two-thirds of an acre; and all the sowings were by the side of each other on the same piece of land. Three swaths of each sowing, twelve yards in length, where the soil was most equal, were threshed out, and each parcel was dressed and measured into

a sack separately as soon as threshed. All the Barley sown was of the Zealand stock, and the produce was as follows:

	Coomb.	Bush.	Peck.	Qrt.
1 November, 3 Pecks of seed per Acre produced	12	2	1	0
2 December, 3 Pecks 1 Pint	12	3	1	1½
3 January, 3 Pecks 4 Pints	13	0	0	6
4 February, 2 Pecks 14 Pints	11	2	2	2
5 March, 2 Pecks 10 Pints	10	3	3	7
6 April, 2 Pecks 2 Pints	8	3	2	3

Cultivation after seeding. Whether grass-seeds be sown over the Barley or not, the surface is harrowed presently after the last ploughing; and when the Barley is up, it is run over with a light roller, to break the clods, and close the earth about the roots. Of this, however, we have treated before, and have only to add, that in heavy lands, if the harrow leaves any clods, they are broken with the clodding-beetle, and if any quick is pulled up, it is destroyed. When the Barley has been up three weeks or a month, it is a good way to roll it again with a heavy roller, which will prevent the sun and air from penetrating the ground so as to injure the roots. It will also cause the Barley to tiller out, so that if the plants be thin, the ground will be filled, and the stalks strengthened. If the blade should grow too rank, mowing is a much better method than feeding it down with sheep; because the scythe takes off only the rank tops, but the sheep, being fond of the sweet end of the stalk next the root, will often bite so close as to injure its future growth.——There are two preparations of Barley to be met with in the shops; the one called French or Scotch, the other Pearl Barley. Two ounces of either of these, after being washed from the mealy matter which adheres to them, in cold water; then boiled a few minutes in about half a pint of water, which is to be thrown away; and, lastly, put into two quarts of boiling water, and the coction continued till one half is wasted; makes a most elegant and grateful beverage, which is extremely useful in the gravel, stone, strangury, and heat of urine; likewise in fevers of the ardent kind, and other acute disorders, where cooling and diluting fluids are necessary. A strong infusion of malt in boiling water is a pleasant, and frequently efficacious, remedy for worms in children.—For further particulars, see *Triticum.*

2. Hordeum Hexastichon; *Winter* or *Square Barley*, or *Bear*, or *Big*. All the florets hermaphrodite, and awned, the grains placed regularly in six rows. This has a much thicker spike than the common Spring Barley, and is also much shorter, but the number of grains in each ear or spike is greater in the proportion of at least three to two; forty-two grains being commonly counted, when common Barley had only twenty-two. The ear is seldom more than two inches in length; it is square, with two rows of grains on two of the sides; on the other two, a single row of grains runs up the middle, so that the former rows are awned only laterally, and the latter on the sides and along the middle also. The lower flowers are imperfect in both; the outer valve of the corollas has a rough awn or beard, from four to six inches in length.—This species is rarely cultivated in the southern parts of England, the grain, though large and plump, not being esteemed so good for malting as common Barley; but in the northern counties, and in Scotland, it is generally sown, because it will bear the cold much better. In some of the more southern parts of Europe it is sown in autumn.—For the best methods of cultivating it, see the preceding species.

3. Hordeum Distichon; *Common Barley.* Lateral florets male, and awnless; grains angular, imbricated. This essentially differs from the two preceding species; the spike or ear is very long, flatted, or transversely greater in breadth than thickness, with a double row of defective, or male, and consequently barren florets, on each flat side, and a single row of fertile florets at each edge. The valves of the calix, outer glume, husk, or chaff, are linear, and shorter by half than the corolla or inner chaff, which ends in an awn or beard that is straight, and sixteen times its own length: when ripe it is coriaceous, angular, and continues close about the grain; when this is taken off, the grain appears of an ovate form, grooved, and angular.—There is a variety which, according to Mortimer, was cultivated in Staffordshire; a sort of naked Barley, or Wheat-Barley, the ear shaped like Barley, but the grain like Wheat; it was much sown at Rowley, Hamstal, and Redmore, where they call it Brench Barley: he adds, that it yields well, and makes good bread and malt. As this grain is not noticed in Mr. Pitt's View of the Agriculture of this county, drawn up for the consideration of the Board of Agriculture, and printed in 1796, we may conclude that it is no longer cultivated in Staffordshire. Villars describes it as having a larger finer grain, of the size and weight of Wheat, and separating from the husk; from which it derives its name, *(Nudum.)* It is more difficult to cultivate, but yields a larger produce, and is of a better quality, than the common Barley. See the first species.

4. Hordeum Zeocriton; *Sprat* or *Battledore Barley.* Lateral florets male, awnless; grains angular, spreading, corticated. This differs from the common sort, in being of a lower stature, and in having a shorter and broader ear, with closer grains, standing out more from the rachis, and having shorter awns. Between the two rows of fertile flowers, are two other rows of male or barren flowers, as in the preceding species, but more conspicuous. For the cultivation of this, see the first species.—Under this last of the edible species of this genus, we shall subjoin the various names of the grain, which these first four sorts alike produce, and which the press of more important matter excluded from the particulars detailed in the first. It may be useful to know what names different nations call this important article of sustenance. The German name is *Gerste;* the Dutch, *Gerst;* the Danish, *Byg;* the Swedish, *Biugg*, *Kiorn*, or *Korn;* the French, *Orge;* the Italian, *Orzo;* the Spanish, *Cebada;* the Portuguese, *Cevada*, or *Sevada;* and the Russian, *Jetchschmen*, or *Jesmin.*

** *Grasses.*

5. Hordeum Bulbosum; *Bulbous Barley-grass.* Florets in threes, fertile, awned; involucres bristle-shaped, ciliate. This has obtained its name from its bulbous roots, wrapped up in whitish or brownish broad membranaceous fibrous coats, and having strong fibres hanging from them; culms two or three, from a foot or eighteen inches to three and even four feet high, in different situations, with four or five joints; leaves a span or a foot, sometimes only a hand long, a line and half or two lines wide; spike narrow, three or four, sometimes nearly six inches long, and three or four lines broad.—Native of Italy, and the Levant.

6. Hordeum Murinum; *Wall Barley-grass.* Lateral florets male, awned; middle involucres ciliate. Common Wall Barley-grass, Way-barley, Way-bennet, or rather Way-bent; called also Wild Rye, or Rye-grass; has an annual root; numerous stems a foot or eighteen inches in height, round, smooth, frequently branching at bottom, where they are procumbent, and bend at the joints; leaves from three or four to six inches in length, and a quarter of an inch in breadth, covered with a soft down on both sides; spikes from two to three inches long, pale green.—This is a very common grass by the side of paths and under walls, whence its trivial names both in Latin and English. It flowers during the

greater part of the summer; and is said to be well known to the innkeepers of the isle of Thanet, under the name of Squirrel-tail Grass. They find that, if horses feed on it some time, the beards stick into their gums, and make them so sore that they are in danger of being starved. This fact seems corroborated by the circulation of handbills, informing travellers that at such inns they might depend on having hay without any mixture of Squirrel-tail Grass: but as Wall Barley-grass is never found in the body of a meadow, it may be doubted whether it is not the next species which produced this bad effect; and if so, that cannot be recommended as fit for culture. It is an old notion, that this grass is Barley degenerated, though it bears most resemblance to Rye: the error is too vulgar and obvious to require refutation.

7. Hordeum Pratense; *Meadow Barley-grass.* All the florets awned, the lateral ones male; all the involucels rugged. Linneus supposed this to be a mere variety of the preceding: Ray however observes, that it differs in being much taller, and having shorter spikes and awns. Its height is almost double that of the other; the spike is greener, only half as long, and square, with the awns of the calix as long as those of the corolla. The middle floret is smooth; the two laterals, though they have a pistil as well as stamina, yet being minute, never come to maturity. Mr. Miller pronounces this to be a very good grass for pastures, and says it has perennial roots, with leafy stalks which do not become stiff and harsh; and that, if duly rolled, the roots will mat, and form a very close sward. It is, however, a late grass, and thought to be less productive than some others.—For *Ray-grass*, which is sometimes, but erroneously, called *Rye-grass*, and is very different from this, see *Lolium Perenne.*

8. Hordeum Maritimum; *Marsh Barley-grass.* Flowers awned, the lateral ones male; involucels rugged, the interior ones of the males semi-lanceolate. This grass at first sight resembles the common Wall Barley-grass, insomuch that it might be doubted, until experiments are made by culture, whether it be a distinct species; because salt water and sea air will alter the appearance of grasses. It differs, however, in having shorter pyramidal spikes, made up of a greater number of florets more crowded together, with the awns more standing out, those at bottom longest, and becoming gradually shorter towards the top of the spike.—This is marked as annual both by English and foreign botanists. Allioni says it evidently differs from the next species, and that in cultivation it acquires a loftier culm, with a spike twice or thrice as long as in the wild plant, but that the character of the incurved culm continues. It flowers in June and July.—Native of Barbary, and the southern parts of Europe, and of England, in salt marshes near the sea.

9. Hordeum Jubatum; *Long-bearded Barley-grass.* Awns and involucres bristle-shaped, and very long: the stem-leaves are four or five inches long, and a line or a line and a half wide, villose, with short hairs above; below, especially towards the top, rough if drawn downwards through the fingers. This has the habit of the sixth species, but the involucres and bristle-shaped awns are four times the length of the whole spike, which gives this grass a singular appearance. Linneus calls it a native of Canada, but subsequently a native of Smyrna; in which Scheuchzer coincides. The *Kew Catalogue* assigns it to Canada and Hudson's Bay, and calls it a biennial plant. There is much uncertainty concerning it.—For the three last species, see *Grass.*

Horehound, White. See *Marrubium.*
Horehound, Base. See *Stachys.*
Horehound, Black or *Stinking.* See *Ballota.*
Horehound, Water. See *Lycopus.*

Horn-beam, or *Horn-beech, Tree.* See *Carpinus.*
Horned Poppy. See *Chelidonium.*
Horned Rampion. See *Phyteuma.*
Hornwort. See *Ceratophyllum.*
Horse-beech. See *Carpinus.*
Horse-chestnut. See *Æsculus.*
Horse-eye Bean. See *Dolichos.*
Horse-mint. See *Mentha.*
Horse-pipe. See *Equisetum.*
Horse-radish. See *Cochlearia.*
Horse-shoe Vetch. See *Hippocrepis.*
Horse-tail. See *Equisetum.*
Horsetail, Shrubby. See *Ephedra.*

Hot-beds, are beds used in gardening, made with fresh horse-dung or tanners' bark, and covered with glasses, to defend them from cold winds. They appear to have been long known and used in our gardens. By the skilful management of them, we may imitate the temperature of warmer climates; by which means the seeds of plants brought from any of the countries within the torrid zone, may be made to flourish under the intense cold of the most inhospitable regions. Hot-beds should be formed in a dry piece of ground, under a sunny exposure, well fenced in either by walls or good ship planks, ten feet high to the north, and six feet high to the south, apart from the rest of the kitchen-garden, and as near to the stable dung-heap as possible, to avoid labour and dirt in barrowing. Sixty feet in breadth, and an hundred feet in length, will contain a sufficient extent of ground for winter framing for Mushroom-beds; forced Asparagus, Peas, Kidney-beans, Strawberries, Radishes, Salad-herbs, early Cucumbers and Melons; annuals for the flower-garden; to bring forward perennials and shrubs, as Pinks, Carnations, bulbous plants, Lily of the Valley, Roses, Honeysuckles, and innumerable others. Under the south fence there may be frames for forcing fruit, the management of which is directed under the respective articles. If the dung employed in making hot-beds be new and strong, there will be no necessity for mixing sea-coal ashes, leaves of trees, or tan, as Mr. Miller directs; these are of use only for strengthening the heat, and rendering it more durable, when the dung is in some measure exhausted by having been too long in the dung-heap. In fresh dung, these additions frequently render it too fierce and burning. The hot-beds commonly used in kitchen-gardens are made with new horse-dung mixed with the litter of a stable, and a few sea-coal ashes, when the dung is not fresh. This should remain six or seven days in a heap, and being then turned over, and the parts mixed well together, it should be again cast into a heap; where it may continue five or six days longer, by which time it will have acquired a due heat. The hot-beds are then made in the following manner. Dig out a trench of a length and width proportionable to the frames you intend it for; and if the ground be dry, let it be about a foot or a foot and a half deep; but if wet, not more than six inches: then wheel the dung into the opening, observing to stir every part of it with a fork, and lay it even and smooth all over the bed, placing the bottom part of the heap, which is commonly free from litter, upon the surface of the bed: and if it be intended for a bed to plant out Cucumbers for good, you must make a hole in the middle of the place designed for each light, about ten inches over and six deep; which should be filled with good fresh earth, thrusting in a stick to shew the places where the holes are; and then cover the bed all over with the earth that was taken out of the trench, to the depth of four inches; and put on the frame, letting it remain till the earth be warm, which commonly happens in three or four days after the bed is made, and

then the plants may be placed in it. But if the hot-bed be designed for other plants, there need be no holes made in the dung; but after having smoothed the surface with a spade, you should cover the dung about three or four inches thick with good earth, putting on the frames and glasses as before. In making these beds, care must be taken to settle the dung close with a fork; and if it be pretty full of long litter, it should be trod down equally on every part. During the first week or ten days after the bed is made, you should cover the glasses but slightly in the night, and carefully raise them to let out the steam; but as the heat abates, the covering should be increased; and as the bed grows cold, fresh dung should be added round the sides of it. The hot-bed made with tanners' bark, is however much preferable to that described above, especially for all tender exotic plants and fruits, that require an even degree of warmth to be continued for several months; which cannot be produced by horse-dung. The manner of making them is, first dig a trench about three feet deep in dry ground, and not above a foot in wet soils. This trench must be raised two feet above the ground. The length must be proportioned to the frames intended to cover it, but it should never be less than ten or twelve feet long, and six wide. The trench should be bricked or planked up round the sides, to the above-mentioned height of three feet, and filled in the spring with fresh bark, recently drawn out of the tanners' vats, and from which also all the moisture has been previously drained, by laying it in a heap for three or four days. As the bark is put in, beat it down gently, and equally, with a dung fork; but it must not be trodden, for that would prevent its heating, by settling it too close. When this is done, put on the frame, covering it with glasses; and in about ten days or a fortnight it will begin to heat; at which time plunge your pots of plants or seeds into it, observing not to tread down the bark in doing it. These beds will continue three or four months in a good temper of heat; and if you stir up the bark pretty deep, and mix a load or two of fresh bark with the old when you find the warmth decline, you will preserve its heat two or three months longer. Many persons lay hot horse-dung in the bottom of the trench, under the bark; but this ought never to be practised, unless the bed be wanted sooner than the bark would heat of itself, and even then there ought only to be a small quantity of dung at the bottom. The frames which cover these beds, should be proportioned to the different plants they are designed to contain. If they are to cover the Ananas or Pine-apple, the back part of the frame should be three feet and a half high, and the lower part fifteen inches, which will be a sufficient declivity to carry off the wet; and the back part will be high enough to contain the large fruiting plants, and the lower side will be sufficient for the shortest plants; so that by regularly placing them according to their height, they will not only have an equal distance from the glasses, but also appear much handsomer to the sight. And although many people make their frames deeper, that is certainly high enough to contain the plants without bruising their leaves, and is much better than allowing them a larger space; for the deeper the frame is made, the less will be the heat of the air enclosed therein, there being no artificial warmth but what the bark affords, which will not heat a large space of air: therefore as the pine-apple requires to be constantly kept very warm, in order to ripen the fruit well, it must follow, a greater depth will not be so favourable. But if the bed be intended for taller plants, then the frame must be made in depth proportionable thereto; but if it be for sowing seeds, the frame need only be about fourteen or sixteen inches high at the back, and seven inches deep in the front, by which means the heat will be much greater, and it is commonly the proportion of the frames usually employed in kitchen-gardens. Their length is generally according to the fancy of the owner; but they commonly contain three lights in each, and are generally about eleven feet long. They sometimes contain four lights; but this is too great a length for the boxes, for the frames thus made are not so handy to remove as when they are shorter, and are more subject to decay at the corners. Some indeed have them to contain but two lights, which is very handy for raising Cucumber and Melon plants while young; but is too short for a bark-bed, as it will not admit a sufficient quantity of bark to continue the warmth for any considerable time. Whenever frames are made very deep, it is much the better way to have them made to take asunder at the four corners, so that they may be removed with ease, and that the frame may not be spoiled by the difficulty in pulling it off, to put in new bark, or remove the old. Farther directions respecting hot-beds and their management may be found in the culture prescribed for Cucumbers and Melons under the article *Cucumis.*

Hot-House. See *Stove*, and vol. ii. p. 778.

Hottentot Cherry. See *Cassine Maurocenia.*

Hottonia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-parted; parts linear, from erect spreading. *Corolla:* one-petalled, salver-shaped; tube the length of the calix; border five-cleft, flat; clefts ovate-oblong, emarginate. *Stamina:* filamenta five, awl-shaped, short, upright, opposite to the clefts of the corolla, and placed on the tube; antheræ oblong. *Pistil:* germen globular-acuminate; style filiform, short; stigma globular. *Pericarp:* capsule globular, acuminate, one-celled; placed on the calix. *Seeds:* very many, globular; receptacle globular, large. Essential Character. *Corolla:* salver-shaped. *Stamina:* placed on the tube of the corolla. *Capsule:* one-celled.——The species are,

1. Hottonia Palustris; *Common Water Violet.* Peduncles in naked whorls of several flowers; leaves in whorls, pinnate. The root consists of numerous white capillary fibres, which strike deep into the mud. The stem is a scape a foot high, simple, upright; flowers pale purple or white, with a yellow eye, in several whorls one above another, forming altogether a handsome spike. This singular plant has the leaves under water, and the upper part of the flowering stem only above. The flowers are beautiful, and the leaves afford a refuge, perhaps even nourishment, to the fresh-water periwinkle and other small shell-fish.—A native of this country: it abounds in ditches and marshes, stagnant waters, and slow-running streams, flowering in May and June, and continuing a long time in flower. There is a variety with flowers of a deep rose-colour, and smaller leaves. The old writers call this plant *Millefolium*, from the abundance of its leaves; and *Viola*, which was a favourite name for the Stock-Gilliflower, and many other handsome-flowered plants besides the Violet. The English, besides Water Violet, call it Water-Milfoil or Yarrow, and Water-Gilliflower; the Germans nume it, *Wasserviole;* the Dutch, *Waterviolier;* the Danes, *Vandrollike;* the Swedes, *Vattenrolleka;* the French, *Plumeau*, *Plume d'Eau*, *Plumette*, *Violette Aquatique*, *Giroflée d'Eau*, *Millefeuille d'Eau*, *Hottone*; and the Italians, *Miriofillo Aquatico.*—This elegant species may be propagated in deep standing waters by dropping the seeds as soon as they are ripe into the water, where they are designed to grow; and if not disturbed they will appear and increase abundantly in the following spring.

2. Hottonia Indica; *Indian Water Violet.* Peduncles axil-

lary, one-flowered; leaves in whorls, trifid or thrice trifid; stem a finger's length, quite simple. Linneus says the genus of this plant is doubtful. It has been made into a new genus by Mr. Browne, under the name of *Limnophila*.—Native of Ceylon.

3. Hottonia Sessiliflora; *Sessile-flowered Water Violet.* Flowers in leafy whorls, sessile; leaves in whorls, bipinnate and trifid; stem simple, sometimes with a branchlet at top. —Found by Burmann in the East Indies.

4. Hottonia Littoralis; *Sea Water Violet.* Leaves ovate-oblong, opposite, quite entire; flowers solitary; stem commonly quite simple, about eight inches high, upright. The flowers are purple, axillary, and peduncled, resembling those of the second species, but the leaves are very different.—Native of Cochin-china.

Hovenia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, hairy at the base within, permanent, five-parted; parts ovate, reflex, deciduous. *Corolla:* petals five, obovate, very obtuse, patulous, rolled up, involving the stamina, inserted into the calix between the segments, and of the same length with them. *Stamina:* filamenta five, inserted into the base of the calix, and a little shorter; antheræ roundish, hid within the petals. *Pistil:* germen superior; style upright, much shorter than the calix; stigmas three, from patulous reflex, blunt. *Pericarp:* capsule ovate-globular, three-furrowed, three-celled, three-valved. *Seeds:* solitary, lens-shaped, very smooth. *Observe.* Sometimes, but seldom, the calix is four-parted, and there are only four stamina. Essential Character. *Petals:* five, convoluted. *Stigma:* trifid. *Capsule:* three-celled, three-valved.——The only known species is,

1. Hovenia Dulcis. Root perennial; stem arboreous, thick, nine feet high; branches round, smooth; leaves alternate, petioled, subcordate, ovate, acuminate, serrate, hanging down, nerved, smooth, a hand in length; flowers small, white, axillary, and terminating; panicle dichotomous, compressed; peduncles subcylindric, dichotomous, thickening after flowering-time, with a sweet red pulp, which is eaten by the Japanese, and tastes somewhat like a pear. The flowers, which readily fall off, appear from June to August, and ripen into fruit in November.—Native of Japan, near Nagasaki.

Hound's Tongue. See *Cynoglossum.*

Houseleek. See *Sempervivum.*

Houstonia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth very small, four-toothed, upright, permanent. *Corolla:* one-petalled, funnel-shaped; tube cylindric, long; border four-parted, spreading; parts roundish. *Stamina:* filamenta four, in the neck of the corolla, very small; antheræ simple. *Pistil:* germen superior, roundish, compressed; style simple, shorter than the stamina; stigma bifid, acute. *Pericarp:* capsule roundish, twin, gaping transversely at top, two-celled, two-valved; valves opposite to the partition. *Seeds:* few, (three or four,) small, ovate, adhering to the partition. (Jussieu observes, that the germen of the second species is certainly inferior.) Essential Character. *Corolla:* one-petalled, funnel-form. *Capsule:* superior, two-celled, two-seeded; (according to Gærtner, three or four seeds in each cell.—— The species are,

1. Houstonia Cœrulea; *Blue-flowered Houstonia.* Root-leaves ovate; stem compound; first peduncles two-flowered. This is a vernal plant, with terminating flowers. From a slender root it produces small, oblong, pointed leaves, spreading on the ground in a ring; among these, slender smooth stalks arise, at the height of two inches, forming a joint, and furnished with two or three small leaves; here they divide into two and sometimes three slender branches or peduncles, an inch or two in length, having at the end of each a single flower; flower of a fine pale blue, or almost white, with a yellow eye, jasmine-like, pretty, but scentless.—Native of Virginia, and other parts of North America. This species, says Mr. Curtis, is quite hardy in England, best cultivated in a pot, with plenty of moisture, and easily propagated by parting its roots. With a little attention, it flowers perpetually in spring, summer, and autumn.

2. Houstonia Purpurea; *Purple-flowered Houstonia.* Leaves ovate-lanceolate; corymbs terminating; flowers superior. This has leaves in pairs, resembling those of Chickweed or large Alsine. The flower is of a reddish purple.—Native of Maryland; where it is also found with a narrower leaf.

3. Houstonia Serpyllifolia. Stalk procumbent; leaves spathulate, obtuse; peduncles terminating, long, bearing each a single blue flower.—Found upon high mountains near rivulets and springs from Virginia to Carolina.

4. Houstonia Tenella. Stalk creeping, filiform; leaves orbiculate, acute, nervose; peduncles terminal, very long, bearing each a single purple flower. It much resembles the preceding species, though something smaller.—Found on high mountains in North Carolina.

5. Houstonia Angustifolia. Stalk erect, very branchy, glabrous; leaves linear; flowers terminal, fasciculated, subsessile, purple-coloured.—Found in sandy fields along the sea-coast from Carolina to Florida.

Houttuynia; a genus of the class Monœcia, order Monandria; according to Thunberg, class Polyandria, order Polygynia.—Generic Character. *Male Flowers. Calix:* spathe, four-leaved; leaflets ovate, concave, obtuse, coloured; spadix oblong, the length of the spathe, covered with fructifications. *Corolla:* none. *Stamina:* filamenta very many, intermixed with the germina, about seven round each germen, very short; antheræ twin, ovate. *Females. Calix:* spathe and spadix common with the males. *Corolla:* none. *Pistil:* germina very many, intermixed with the stamina; (according to Loureiro, germina three-cornered; style none; stigmas three, oblong, reflex.) *Pericarp:* capsule three-cornered, three-celled, three-valved, opening at the top. *Seeds:* many, ovate, small. Essential Character. *Calix:* four-leaved. *Corolla:* none. *Stamina:* mixed with the pistils, seven about each germen.——The only known species is,

1. Houttuynia Cordata. This plant has the habit of Polygonum, with stipules like that; root annual, fibrous; stems simple, herbaceous, grooved, flexuose, upright, a hand, a span, or a foot in height, smooth in all its parts; leaves alternate, petioled, cordate, cuspidate, entire, paler underneath; petioles striated, stipuled at the base, shorter than the leaf; flowers from the sheath of the petiole, solitary, peduncled; peduncle the length of the petiole. It is difficult to determine the number of stamina in this genus, because there is no calix, corolla, or scales, to separate the germina. It ought however to be referred to the class Polyandria, the stamina being scattered over an elongated receptacle, among several germina.—Discovered by Thunberg in Japan, where it is very common in the ditches between Miaco and Jedo, flowering in May and June. Loureiro also found it in the gardens of Cochin-china, where it is eaten in salads, and is esteemed attenuant, resolvent, and emmenagogue.

Hudsonia; a genus of the class Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth three-leaved, tubular, cylindric, with a patulous mouth; leaflets lanceolate-linear, blunt. *Corolla:* none. *Stamina:* filamenta fifteen, capillary, shorter than the calix; antheræ roundish. *Pistil:* germen superior, ovate; style filiform,

the length of the calix; stigma blunt. *Pericarp:* capsule cylindric, shorter by half than the calix, one-celled, three-valved. *Seeds:* three, rounded on one side, angular on the other. ESSENTIAL CHARACTER. *Calix:* five-leaved, tubular; (according to Jussieu, three-leaved above, three-parted.) *Corolla:* none; (petals five, and very small, according to Bergius.) *Stamina:* fifteen. *Capsule:* one-celled, three-valved, three-seeded.——The only species known is,

1. Hudsonia Ericoides. This is a shrub, with the appearance and habit of Heath. Branchlets filiform, scattered, imbricate; leaves subulate-acerose, hirsute; when tender still more hirsute and hoary, so that those on the extreme branchlets seem as if they had leafy gems scattered over them; peduncles from the leafy gems solitary, filiform, longer than the leaves; calix erect, pubescent.—Native of New Jersey and Virginia.

Hugonia; a genus of the class Monadelphia, order Decandria.—GENERIC CHARACTER. *Calix:* perianth one-leafed; segments ovate, acute, concave, coriaceous, permanent, the two outer ones larger; (Gærtner says, five-leaved.) *Corolla:* petals five, roundish, large, emarginate, spreading, narrowed at the base, fixed at the base by slender claws to the little pitcher or stamina. *Stamina:* filamenta ten, awl-shaped, equal, shorter than the corolla, connected at bottom into a little pitcher; antheræ roundish, furrowed, incumbent. *Pistil:* germen roundish; styles five, filiform, longer than the stamina; stigmas capitate, orbicular, flat. *Pericarp:* drupe globular, one-celled; (according to Gærtner, a berried drupe.) *Seed:* nut globular, deeply striated, ten-celled; kernels oblong, compressed, bowed at the back. *Observe.* The two outer segments of the perianth are wholly tomentose on the outside; the middle one is also tomentose, except that part where it is covered by one of the former, and there it is smooth and shining, as are the two inner ones, which are tomentose at the tip only. Five of the filamenta are a little shorter than the rest. The alternate kernels seem frequently to be abortive; which is perhaps the cause why Cavanilles makes the fruit to be five-celled. In the drupe which Schreber opened, there were more than five kernels. ESSENTIAL CHARACTER. Five-styled. *Corolla:* five-petalled. *Drupe:* with a striated nut.——One species only is known,

1. Hugonia Mystax. Spines opposite, revolute. This is a tree, with an irregular bark. Branchlets short, alternate, spreading, leafy at the end; leaves oval, quite entire, smooth, petioled, clustered; flowers several, in clusters from the ends of the branches, white; the fruit is a berried, spherical, succulent drupe; the skin is very thin, papery, tough, white, with a very polished shining surface. The root is esteemed useful as a topical application to inflamed or swelled parts, and even the bite of the hooded serpent. It is also given internally for febrile disorders in children, for the colic, worms, &c.—Native of the East Indies.

Humble Plant. See *Mimosa.*

Humulus; a genus of the class Diœcia, order Pentandria.—GENERIC CHARACTER. *Male. Calix:* perianth five-leaved; leaflets oblong, concave, blunt. *Corolla:* none. *Stamina:* filamenta five, capillary, very short; antheræ oblong. *Female. Calix:* involucre universal, four-parted, sharp; partial, four-leaved, ovate, eight-flowered; to each flower a perianth, one-leafed, ovate, very large, outwardly flat on one side, converging at the side. *Corolla:* none. *Pistil:* germen very small; styles two, subulate, patulous; stigmas sharp *Pericarp:* none. *Calix:* enclosing the seed at the base. *Seed:* roundish, covered with a coat. ESSENTIAL CHARACTER. *Male. Calix:* five-leafed. *Corolla:* none. *Female. Calix:* one-leafed, spreading obliquely, entire. *Corolla:* none. *Styles:* two. *Seed:* one, within a leafed calix.——The only species is,

1. Humulus Lupulus; *Hops.* Root perennial; stems weak and twining, not climbing by tendrils, but ascending a prop, trees, or shrubs, in a spiral, always with the sun, that is from right to left, or from east to west by the south; this direction it has in common with Tamus or Black Briony, Lonicera or Honeysuckle, and several others; but more turn the contrary way, or from left to right, as Phaseolus or Kidney Beans, and several other leguminous plants, Convolvulus, &c. The Hop stems are angular, striated, and rugged, with very minute prickles; leaves opposite, stalked, heart-shaped, undivided or three-lobed, often five-lobed, serrated, veiny and harsh; stipules two or four, cordate, bifid, at each joint; flowers greenish yellow; the males on branched peduncles; the females on a distinct plant, in axillary, stalked, ovate, drooping catkins.—Native of hedges and bushy places in a moist deep soil, in various parts of Europe, as well as in North America, blossoming in July.—*Propagation and Culture.* As we feel it our duty to afford every information which our limits will admit, concerning this invaluable plant, we shall first treat—*Of the choice of soil.* The Hop-planters esteem the richest and strongest grounds the most proper; and if it be rocky within two or three feet of the surface, the Hops will prosper well; though they will not thrive on a stiff clay, or spongy wet land. The Kentish planters account new land best for Hops: they plant their Hop-gardens with Apple-trees at a large distance, and with Cherry-trees between; so that when the land has done its best for Hops, which they calculate will be at the end of ten years, the trees may begin to bear. The Cherry-trees last about thirty years; and by the time the Apple-trees become large, they cut down the Cherry-trees.—As to the *situation* of a Hop-ground, one that inclines to the south or west is the most eligible; but if it be exposed to the south-east or north-west winds, there should be a shelter of some trees at a distance, because the north-east winds are apt to nip the tender shoots in the spring; and the south-west winds frequently break and blow down the poles at the latter end of the summer, and very much endanger the Hops. In the winter time provide your soil and manure for the Hop-ground against the following spring. If the dung be rotten, mix it with two or three parts of common earth, and let it incorporate together till you have occasion to make use of it in making your Hop-hills; but if it be new dung, then let it be mixed as before till the spring in the next year; for new dung is very injurious to Hops. Dung of all sorts was formerly more commonly made use of than at present, especially when rotted and turned to mould, and they who have no other manure must use it; which if they do, cows' or hogs' dung, or human ordure, mixed with mud, may be a proper compost, because Hops delight most in a manure that is cool and moist.—*Planting.* Hops require to be planted in a situation so open as that the air may freely pass round and between them, to dry up and dissipate the moisture, whereby they will not be so subject to fire-blasts, which often destroy the middle of large plantations, while the outsides remain unhurt. As for the preparation of the ground for planting, it should in the preceding winter be ploughed and harrowed even: then lay upon it in heaps a good quantity of fresh rich earth, or well-rotted dung and earth mixed together, sufficient to put half a bushel in every hole, to plant the Hops in, unless the natural ground be very fresh and good. The hills where the Hops are to be planted should be eight or nine feet asunder, that the air may freely pass between them, for in close plantations they are very subject to what the Hop-planters call the fire-blast. If the ground be intended to be ploughed with horses between the hills, it will be best to chequer them in squares; but if the ground be so small

that it may be done with the breast-plough or spade, the holes should be ranged in squares. Which way soever you make use of, a stake should be stuck down at all the places where the hills are to be made. Persons ought to be very curious in the choice of plants, as to the *kind* of Hops; for if the garden be planted with a mixture of several sorts of Hops that ripen at several times, it will cause a great deal of trouble, and be a great detriment to the owner. The two best sorts are the White and the Gray Bind; the latter is a large square hop, more hardy, and is a more plentiful bearer, besides ripening later than the former. There is another sort of the White Bind, which ripens a week or ten days before the common; but this is tender, and a less plentiful bearer, although it has the advantage of coming first to market. But if three grounds, or three distant parts of one ground, be planted with these three sorts, there will be this convenience, that they may be picked successively as they become ripe. The sets should be five or six inches long, with three or more joints or buds on them. If there be a sort of Hop you value, and would increase the plants and sets from, the superfluous binds may be laid down when the Hops are tied, cutting off the tops, and burying them in the hill; or, when the hops are dressed, all the cuttings may be saved; for almost every part will grow, and become a good set next spring. As to the *seasons* for planting Hops, the Kentish planters most approve the months of October and March, both which sometimes succeed very well; but the sets are not to be had in October, unless it be from some ground that is to be destroyed: and there is some danger also that the sets may be rotted, if the winter prove very wet; hence March is the most usual time of procuring them, when the Hops are cut and dressed. As to the manner of planting the sets, there should be five good sets planted in every hill, one in the middle, and the rest round about, sloping, the tops meeting at the centre; they must stand even with the surface of the ground; let them be pressed close with the hand, and covered with fine earth, and a stick should be placed on each side the hill to secure it. The ground being thus planted, all that remains to be done that summer, is to keep the hills clear from weeds, and to dig up the ground about the month of May, raising a small hill round about the plants. In June you must twist the young branches or binds together into a knot; for if they are tied up to small poles the first year, in order to have a few Hops from them, it will not countervail the weakening of the plants. A mixture of dung or compost being prepared for your Hop-ground, the best time for laying it on, if the weather prove dry, is about Michaelmas, that the wheels of the dung-cart may not injure the hops, nor furrow the ground: if this be not done, then you will be obliged to wait till the frost has hardened the ground, so as to bear the dung-cart; and this is also the time to carry on your new poles to recruit those that are decayed, and to be cast out every year. If you have good store of dung, the best way will be to spread it in the alleys all over the ground, and to dig it in the winter following. The quantity they will require will be forty loads to an acre, reckoning about thirty bushels to the load. If you have not dung enough to cover all the ground in one year, you may lay it on one part one year, and on the rest in another, or even a third year: for there is no occasion to dung the ground in this manner oftener than every three years. Those who have but a small quantity of dung, usually content themselves with laying on about twenty loads upon an acre every year: this they lay on the hills either about November or in the spring; which last some account the best time, when the Hops are dressed, to cover them after they are cut; but if it be done at this time, the compost or dung ought to be well rotted and fine.—*Dressing.* As to the dressing of Hops, when the Hop-ground is dug in January or February, the earth about the hills, and very near them, ought to be taken away with a spade, that you may come the more conveniently at the stock to cut it. About the end of February, if the Hops were planted the spring before, or if the ground be weak, they ought to be dressed in dry weather; but if the ground be strong and in perfection, the middle of March will be a good time; and the latter end of March or the beginning of April, if it be apt to produce over-rank binds, may be soon enough. Then having with an iron picker cleared away all the earth out of the hills, so as to clear the stock to the principal roots, with a sharp knife you must cut off all the shoots which grew up with the binds during the year preceding, and also all the young suckers, that none be left to run in the alley and weaken the hill. It will be proper to cut one part of the stock lower than the other, and also to cut that part low which was left highest the preceding year. By pursuing this method, you may expect to have stronger buds, and also keep the hill in good order. In dressing those Hops, which have been planted the year before, you ought to cut off both the young tops and the dead suckers which have sprung up from the sets, and also to cover the stocks with a fine earth a finger's length in thickness.—*Poling.* About the middle of April the Hops are to be poled, when the shoots begin to sprout up; the poles must be set to the hills deep into the ground, with a square iron picker or crow, that they may the better endure the winds; three poles are sufficient for one hill. These should be placed as near the hill as may be, with their bending tops turned outwards from the hill, to prevent the binds from entangling; and a space between two poles ought to be left open to the south, to admit the sun-beams. The poles ought to be in length sixteen or twenty feet, more or less, according as the ground is in strength; and great care must be taken not to over-pole a young or weak ground, for that will draw the stock too much, and weaken it. If a ground be over-poled, you are not to expect a good crop from it; for the branches which bear the Hops will grow very little till the binds have overreached the poles, which they cannot do when the poles are too long. Two small poles are sufficient for a ground that is young. If you wait till the sprouts or young binds are grown to the length of a foot, you will be able to make a better judgment where to place the largest poles; but if you stay till they are so long as to fall into the alleys, it will be injurious to them, because they will entangle one with another, and will not clasp about the pole readily. Maple or Aspen poles are accounted the best for Hops, on which they are thought to prosper, because of their warmth, or else because the climbing of the Hop is assisted by the roughness of the bark. But for durability, ashen or willow poles are preferable; but chestnut poles are the most durable of all. If, after the Hops are grown up, you find any of them have been under-poled, taller poles may be placed near those which are too short, to receive the binds from them.—*Tying.* As to the tying of Hops, the buds that do not clasp of themselves to the nearest poles when they are grown to three or four feet high, must be guided to it by the hand, turning them to the sun, whose course they will always follow. They must be bound with withered rushes, but not so closely as to hinder them from climbing up the pole. This you must continue to do till all the poles are furnished with binds, of which two or three are enough for a pole; and all the sprouts and binds that you have no occasion for are to be plucked up: but if the ground be young, then none of these useless binds should be plucked up, but should be wrapped up together in the middle of the hill. When the binds are grown

beyond the reach of your hands, if they still forsake the poles, you must employ a stand-ladder in tying them up. Towards the latter end of May, when you have made an end of tying them, the ground must have the summer dressing, which consists in casting up some fine earth with the spade into every hill; and a month after this is done, you must hoe the alleys with a Dutch hoe, and make the hills up to a convenient size.—*Gathering.* About the middle of July, Hops begin to blow, and will be ready to gather about Bartholomew-tide. A judgment may be formed of their ripeness, by their strong scent, their hardness, and the brownish colour of their seeds. When by these tokens they appear to be ripe, they must be picked with all the expedition possible; for if at this time a storm of wind should come, it would do them great damage, by breaking the branches and bruising and discolouring the Hops; and it is very well known, that Hops picked green and bright, will sell for a third more than those which are discoloured and brown. The most convenient way of picking them is into a long square frame of wood, called a *bin*, with a cloth hanging on tenter-hooks within it, to receive the Hops as they are picked. The frame is composed of four pieces of wood joined together, supported by four legs, with a prop at each end to bear up another long piece of wood, placed at a convenient height over the middle of the bin; this serves to lay the poles upon which are to be picked. This bin is commonly eight feet long, and three feet broad; two poles may be laid on it at a time, and six or eight persons may work at it, three or four on each side. It will be best to begin to pick the Hops on the east or north side of your ground, if you can do it conveniently, which will prevent the south-west wind from breaking into your garden. Having made choice of a plot of ground containing eleven hills square, place the bin upon the hill which is in the centre, having five hills on each side; and when these hills are picked, remove the bin into another piece of ground of the same extent, and so proceed till the whole Hop-ground is finished. When the poles are drawn up to be picked, you must take care not to cut the binds too near the hills, especially when the Hops are green, because that will make the sap flow excessively. The Hops must be picked very clean, that is, free from leaves and stalks; and, as there shall be occasion, two or three times in the day the bin must be emptied into a Hop-bag made of coarse linen cloth, and carried immediately to the kiln, or oast, in order to be dried; for if they should be long in the bin or bag, they will be apt to heat and be discoloured. In hot weather no more poles should be drawn than can be picked in an hour; and they should, if possible, be gathered in fair weather, when the Hops are dry, which will save some expense in firing, and preserve their colour better when they are dried. The crop of Hops being thus bestowed, you are to reserve the poles against another year. They should be laid up in a shed, with the haulm first stripped off from them; but if you have no shed, set up three poles in the form of a triangle, or six poles, if you please, wide at bottom: and having fixed them in the ground, and bound them together at the top, set the rest of your poles about them; and being thus disposed, those on the outside only will be exposed to the injuries of the weather, for all the inner poles will be kept dry except at the top, whereas if they were on the ground, they would receive more damage in a fortnight than by their standing all the rest of the year.—*Drying.* The best method of drying Hops is with charcoal on an oast, or kiln, covered with haircloth, of the same form and fashion that is used for drying malt. There is no need to give any particular directions for making these, since every carpenter or bricklayer, in those countries where Hops grow or malt is made, knows how to build them. The kiln ought to be square, and may be of ten, twelve, fourteen, or sixteen feet over at the top, where the Hops are laid, as your plantation requires, and your room will allow. There ought to be a due proportion between the height and breadth of the kiln and the beguels of the steddle where the fire is kept; thus, if the kiln be twelve feet square on the top, it ought to be nine feet high from the fire, and the steddle ought to be six feet and a half square, and so proportionably in other dimensions. The Hops must be spread even upon the oast, a foot thick or more, if the depth of the curb will allow it: but care should be taken not to overload the oast, if the Hops be green or wet. The oast ought to be first warmed with a fire before the Hops are laid on, and then an even steady fire must be kept under them; it must not be too fierce at first, lest it scorch the Hops, nor must it be suffered to sink or slacken, but rather be increased till the Hops be nearly dried, lest the moisture or sweat which the fire has raised fall back or discolour them. When they have lain about nine hours, they must be turned, and in two or three hours more they may be taken off the oast. It may be known when they are well dried, by the brittleness of the stalks and the easy falling of the Hop-leaves. It is found by experience, that the turning of Hops, though it be after the most easy and best manner, is not only an injury and waste to the Hops, but also an expense of fuel and time, because they require as much fuel and as long a time to dry a small quantity by turning them, as a large one. Now this may be prevented by having a cover, to be lowered down or raised at pleasure, to the upper bed whereon the Hops lie. This cover may also be tinned, by nailing single tin plates over the face of it; so that when the Hops begin to dry, and are ready to turn, that is, when the greatest part of their moisture is evaporated, then the cover may be let down within a foot or less of the Hops, like a reverberatory, which will reflect the heat upon them, so that the top will soon be as dry as the lowermost, and every Hop be equally dried.—*Bagging.* As soon as the Hops are taken off the kiln, lay them in a room for three weeks or a month to cool, give, and toughen; for if they are bagged immediately they will powder, but if they lie awhile, (and the longer they lie the better, provided they be covered close with blankets to secure them from the air,) they may be bagged with more safety, as not being liable to be broken to powder in treading; and this will make them bear treading the better, and the harder they are trodden the better they will keep. The common method of bagging is as follows: they have a hole made in an upper floor, either round or square, large enough to receive a Hop-bag, which consists of four ells and a half of ell-wide cloth, and also contains ordinarily two hundred and a half of Hops; they tie a handful of Hops in each low corner of the bag, to serve as handles to it; and they fasten the mouth of the bag so placed that the hoop may rest upon the edges of the hole. Then he that is to tread the Hops down into the bag, treads the Hops on every side, another person continually putting them in as he treads them, till the bag is full; which being well filled and trodden, they unrip the fastening of the bag to the hoops, and let it down, and close up the mouth of the bag, tying up a handful of Hops in each corner of the mouth, as was done in the lower part. When Hops are thus packed, after being well dried, and laid up in a dry place, they will keep good several years; but care must be taken that they be neither destroyed nor spoiled by the mice making their nests in them.——In order to have Hops of a good quality, 1st, They ought to be ripe before they are gathered, and in becoming so they pass from a green to a rich yellow colour. 2dly, They ought to grow on

a soil that, instead of enlarging the size of the Hop, grows them full of farina, or, as the country people call it, condition. 3dly, They ought to be very much, but slowly dried, and then packed for market in the thickest covering that can be found, to preserve their strength. The colour of Hops which hang till they are ripe, can never be so beautiful as if they were gathered green, for they are generally bruised by the equinoctial winds; but the quality of their bitter is of a superior flavour, goes further, and will never deceive in brewing; they will also keep good, when full dried, many years.—Having detailed the practice of the Kentish Hop-planter, we proceed generally to notice those which are of any importance in other countries. Though Mr. Miller mentions only three varieties of the Hop, yet in Surry they have what they call the Orchard Hop, which bears a long square strobile, and is perhaps the same with Mr. Miller's first sort; the Streaked Bind; two or three varieties of White Bind; Smooth and Rough Red Bind. The most esteemed are the Streaked and the White Bind. The Smooth Red is of little value; and, as to the last, it is generally eradicated whenever it appears. The White Canterbury Bind is mostly in use. The Golden Hop, with a white bind, which is probably the same with Mr. Miller's Oval Hop, ripens later than the other, and therefore on that account may be useful to the planter. There is also the Cluster Hop, produced from a White Bind, but having the Hops growing more in clusters than the others. The Streaked Bind is a desirable Hop, for a part at least of a plantation, being early, of a pleasant flavour, and generally of a good size. As to the term *garlick*, it is not appropriate to any one variety; for they will all acquire that sort of smell from distemper. In Surry they have not the practice of planting Cherry or Apple-trees, as in Kent. About Atton they generally plant their Hops six feet square; but about Farnham they plant much nearer: the superiority of their soil enables them to do this with success; but in blighted years they suffer more than the Atton planters, the circulation of air being much obstructed by the closeness of the hills. In Worcestershire, the Red, Green, and White Hop, are cultivated. A difference in the method of cultivation, is probably the real source of these distinctions. Two sorts, however, are in particular esteem both with the planter and merchant; the Golden Vine, brought from the neighbourhood of Canterbury; and the Mathan White, the name of which denotes it to be a native of this plantation, and of the parish of that name. The most hardy, and that which will flourish with the least attention, and is least liable to suffer from the seasons, is the Red; which is perhaps the original stock. The next is the Green, which is also the most productive. The tenderest, though at the same time the most valuable, is the White. The plantations of Worcestershire, are principally to the west of the Severn, increasing as they approach the banks of the Teame, and the confines of Herefordshire. The situations preferred are, a gentle descent, with a south, south-west, or western exposure, screened at a distance, to the north and east, by high ground, or plantations of timber, but not so as to prevent a free ventilation: the soil, a deep loamy land, or strong clay, after it has been thoroughly limed and manured; but, above all, a boggy soil, when completely drained, and duly meliorated, is said to produce the best Hops. When meadow or pasture land is broke up for this purpose, it is either dug, or, the sward being first pared thinly off by the paring plough, it is buried by the furrow plough working full ten inches deep. Old tillage, when converted into Hop-grounds, requires to be very completely cleared of weeds; to be thoroughly manured: and to have the ridges or lands entirely levelled. The different manners in which they are worked, are the tump, and the ploughed grounds; the former by hand, and the latter by plough: the first are laid out in the quincunx form, each tump or hill being at the distance of from five to seven feet from the centre of the other. On these, the distance between the stocks is from three to four feet; that between the rows, from seven to nine; the greater or lesser space always being ploughed, as the land is either richer or poorer. In the ploughed, if the circumstances of the ground will admit of it, the rows run mostly north and south, with a view to admit the sun more generally when it has most force; but it should be long and narrow, its greatest length extending east and west, which direction is to be preferred, for receiving the morning sun, by which means the chills of the night are soonest dissipated. The sets are procured from the sets or roots of the stocks, at the annual time of dressing, in the latter end of March or beginning of April. They must have two joints each, the roots striking from that in the ground, and the vine shooting from that above: four are planted to a stock, at the distance of about four or six inches from each other, all inclining or pointing, so as to meet together in the centre. Two methods are here observed in planting young Hop-grounds: The first and most general is, to plant the sets on the situation in which they are to remain, immediately after they are parted from the old stocks. In the second, the sets are planted in nurseries, in rows about three inches asunder, with about five or six inches between the rows; here they grow till the month of October, when they are transplanted into the Hop ground. Under this latter management, if the roots be good, one will be sufficient for a stock. In removing them, great care is taken to make the opening to receive them so large as not to confine the roots. When planted from the stocks, a hole made with a peg to place them in, is all that is required. The nursery has certainly great advantage; besides the saving of a considerable expense, where the sets are to be purchased, the land may be worked through the summer, to prepare it for the plantation. During the first year, the grounds are ploughed, hoed, or kerfed, three times: they produce no Hops; but a good crop of peas, beans, cabbage, or turnips, is obtained between the rows. The second year they are poled, and yield half a crop; and the third year produce in perfection. When they have reached this state, the management is uniformly as follows: They are gone over mostly four times with the plough or kerf at the beginning of March. The first business is to throw down the tumps and rows of the former year, and to work in the manure, previously brought on in the winter. This manure consists of fresh earth, rotten dung, or a compost of dung, earth, and lime, judiciously proportioned, according to the nature of the soil; each acre receiving no less than sixty cart-loads, for a good dressing: this is repeated as the nature of the land renders it necessary. The stocks are now pruned, and the remains of the old vines and superfluous shoots are removed with the Hop-knife. The second moulds up the tumps and rows; the succeeding ones complete moulding up the plants, and destroy the weeds. The tumps are formed round, flat at top, and about twenty inches in diameter, and somewhat broader at the bottom. The ploughed lands are thrown up much in the same manner as for Potatoes or Beans, only higher, and with more soil. The shoots begin to appear in April, and the poles are pitched at the latter end of the same month, or beginning of May. These are set two or three to a stock, at a foot distance from each other, with great regularity and exactness, and inclining a little outwards over the alleys. Some attention is necessary, in this part of the business, not to overpole

the plants, either in number or length of the poles, as it weakens them; and by drawing the vine out to too great a length, renders them less productive. About the close of this month, and at the beginning of June, women are employed to direct the vines to the poles, and tie them with dried rushes: this is continued till they are out of reach. The only care then remaining, is to keep under weeds, and to govern the plantations occasionally, to replace any vines that may stray, and repair any damage arising from the weather. When they have reached their full growth, which is in some measure regulated by the number and length of the poles, the side-shoots put out. The method of topping the vines, to promote lateral shoots, said to be practised in other plantations, is never used in this. About the second week of September they ripen, when the Hop-pulling begins. In a plentiful year it continues six weeks, more or less, according to the crop. The cribs are now placed, beginning on that part which lies most exposed to the sun, as being soonest ripe; one, two, or more, as the proprietor's plantation is large or small, and he has the convenience of kilns to dry them in. Each crib has eight or ten pickers, women and children, who, where they are industrious, and employed upon a tolerable crop, will gather from six to eight bushels a day; which about fills the sack in which they are carried green to the kiln; eight of these sacks, when dried, make about one hundred weight: but in some seasons, there is not half this quantity produced. The pickers come from the neighbouring counties, but most of them from Wales. From the cribs, the Hops are conveyed to the kilns, four or five of the sacks before alluded to at a time, on a horse, and are dried as soon as possible; as they damage considerably if suffered to lie long together before they are put in the kilns. They will heat in six or eight hours, and lose colour; to avoid which the kilns are kept constantly employed day and night. The time the Hops take in drying, is from eight to twelve hours, according as they are ripe and dry. Great attention and considerable judgment are necessary in this part of the business; the whole of the year's expenses and labour, and, at times, property to some amount being at stake on a single kiln, it is usually entrusted to those who have been long used to the practice. The general principle on which they proceed, is to begin with a very gentle fire, till warmed through; the heat is then gradually increased, and continued till the cove or fruit-stalk is quite sunk and dry. They are then removed, and thrown together in a heap, in a corner of a large room appropriated to this purpose, and frequently turned from one side to the other, in order to cool them completely before they are bagged.—Their method of bagging them is as follows: a strong hoop is fastened round the mouth of the sack, which is then let down through a circular opening in the floor, made for this purpose; a few are first put in, when the man who is principal in this part of the business gets in, and by constant treading presses them down as closely as he can. A second person is employed in breaking them, that is, tearing the flowers, &c. from the fruitstalk, and throwing them into the bag as they are wanted: thus they proceed till it is full, when the mouth is loosened from the hoop, and closed, leaving at each corner of the sack a space for the hand, for the better convenience of those who are employed in carrying them. After the seasons are over, the poles are set up, as before described in the Kent management.—Different opinions are entertained respecting the superiority of the tump and plough management; the former certainly has the advantage in many particulars. and is said to be cheaper, and more productive; but as it is impossible, from the present extent of the plantation, that any considerable proportion can be worked in this manner, from want of hands, the inquiry is not of much consequence. The expenses of these plantations may be calculated from the following statements. As they always occupy the most valuable part of the farm, the rent cannot be set down lower than thirty-one shillings per acre, and in some instances is much higher. The acre is not to be estimated as statute measure, but after the rate of one thousand stocks to an acre, which is in general one-fifth less. The expense of manure is very heavy, as they produce none, except the ashes from the burning of the vines and leaves; so that, were justice done to the rest of the land, the greater part ought to be procured from home. The price of muck or dung is about six shillings per waggon-load, or three shillings per ton, (when purchased from stables where the horses are plentifully fed with corn, it is higher in proportion,) and is frequently to be fetched eight or ten miles. The Hop-grounds are sometimes worked through the several seasons, as they are termed, at a fixed price, which is from fifteen to twenty shillings per acre, according to the differing qualities of soil. The seasons are four, and thus divided:—throwing down and cutting; spreading and pitching poles; kerfing and tumping; and stripping and piling poles. Sometimes the workmen agree for a shilling a day, with drink; or some parts are taken by the acre, as pitching poles, three shillings; stripping and piling, two shillings and sixpence, to three shillings and sixpence. The women employed to tie the vines, receive sixpence per day, with two quarts of drink; or they take them by the year, at three shillings or three shillings and sixpence per acre. The Hop-pullers receive from sixpence to eightpence per day; with a pint of thickened milk, or something similar, every morning for breakfast; two quarts of drink per day, and two dinners every week. The coal, which is pit-coal charred, employed to dry them, is also an expensive article, and is principally brought from Pinsax in Worcestershire, at a distance of several miles from some of the plantations, where it costs twopence halfpenny or threepence per bushel, twenty-eight of which make a ton; two of which tons will be consumed in drying a ton of Hops. The dryer is paid from twelve shillings to twenty-one shillings per week, varying according to the number of kilns he has to attend; his meat and drink is also provided for him. The person who has the management of the bagging is paid fourpence per hundred-weight, exclusive of his assistant. There are different articles used for bagging; the Lubecks, and a sort of cloth manufactured at Dudley in this county, are most in use, particularly the latter. The price varies according to the demand. The Lubecks are dearest; they cost in general from twenty-eight to thirty-four shillings per piece, and are thirty-six yards long, and about thirty-one inches wide. The Dudleys cost from twenty-two to thirty-two shillings, and are of the same dimensions, each piece making eight sacks, four yards and three quarters long.—The culture of Hops at Hedingham castle in Essex, is perhaps as good as in any part of England; though the quality of those produced at Farnham in Surry is thought by some to be superior. At the former place there are fifty-five or fifty-six contiguous acres, remarkable for yielding an almost certain crop. The soil is a moore marsh, improved into a rich loam on the surface. They are persuaded here that Hops succeed better in very large plantations than in small ones; and observe, that the outside parts of their contiguous acres do not answer equally well with the more central divisions. If, therefore, a man increase his Hop-ground, it should not be in distinct plantations, but united to what he had before. In Essex they are too apt to use long poles, even such as are two rods in

length, and thirteen inches round at bottom, costing three pounds per hundred. To form a plantation, they fallow the land a year, ploughing it three or four times. In November they plant three sets to a hill, and a thousand hills to an acre. They put on no manure, if the ground be good; and dig it over as soon as planted, on account of its being trodden. In the second year nothing is done but keeping the ground clean, by skimming and harrowing; after Michaelmas they put on sixty loads of compost to an acre: glovers' and tailors' shreds are accounted a good dressing. In the third year, in February they cut down to the crown of the plant, or the black rind. At the end of March they pole the ground, three poles to a hill: after poling, they dig round the plant. As to the Hop-grounds in Suffolk, the soil they plant upon about Stowmarket, is a black loose moor, on a gravelly bottom, very wet and boggy, lying on a dead level with the river that runs by the town; the more boggy and loose it is, the better the Hops thrive, especially if the gravel be within three feet, and the neighbouring grounds rise so as to shelter them very well. In preparing for Hops, they form beds sixteen feet wide, around which they dig trenches about three feet wide, and two feet, or two feet and a half deep; the earth that comes out being spread upon the beds, and the whole dug and levelled. Upon this, in March they form holes six feet asunder every way, twelve inches in diameter, and a spit deep, consequently there are three rows on each bed. Into each hole they put half a peck of very rotten dung or rich compost, scatter earth upon it, and plant seven sets in each, drawing earth enough to them afterwards to form something of a hillock. Some in the first years sow Kidney-beans or common Beans, or plant Cabbages; but others do not reckon this a good way. In two or three weeks, according to the season, they will be fit to pole with old short poles, to which they tie all the shoots or vines, and then keep the land clean by hoeing and raking; and at Midsummer they hill them. The produce the first year is from three to one hundred-weight of Hops on an acre. Manure is not always given, but amounts on an average to ten loads a year. They keep it till it will run through a sieve, which they prefer to a more putrid state. Three poles are put to each hill: they are generally of ash, and the length preferred is twenty-four feet; when a Hop rises much above a pole, they set another to take the shoot, to prevent its falling, impeding the circulation of air, and entangling with the poles of other hills.—*Produce.* The charge of an acre of Hop-ground, in most parts of England where Hops are cultivated, is thus computed: three pounds per acre for the husbandry; four pounds for the wear of the poles; five pounds for picking and drying; one pound ten shillings for dung; one pound for rent, (though in some places they pay four or five pounds per acre yearly for the rent of the land,) and ten shillings for tithe: in all, about fifteen pounds a year. The English Hop-planters, therefore, think they have but a moderate return, when the produce of an acre of Hops does not sell for more than thirty pounds. They frequently have fifty, sixty, eighty, or a hundred pounds; and in a time of general scarcity, considerably more: so that, upon the whole, if the total charge of an acre of Hops be computed at fifteen pounds a year, and its average produce at thirty pounds, the clear profit from an acre will be fifteen pounds a year. The quantity of Hops produced on different soils in different years, varies from almost nothing, or perhaps two hundred-weight, to twenty and even twenty-four hundred-weight on an acre: but the average produce on middling soils, may be estimated at six, and on such as are better, at seven or eight hundred-weight. Some mention nine hundred-weight, which may be occasionally produced, but ought not to be looked upon as general. In some places the expenses on an acre of Hops may be estimated at thirty pounds, including rent, taxes, &c. so that taking seven hundred-weight as the average produce, the planters must greatly lose when they sell at four guineas per hundred: but we have already seen that this article is liable to such fluctuations that the average price obtained must be much more; and indeed if it were not, the planters could not continue to cultivate it. Hops are occasionally very profitable, although extremely uncertain in their produce, which always must be very expensive. To lessen the expense of poling and the trouble of picking, it has been suggested, that planting Hops in the form of an espalier might probably answer; for it is observed, when a pole falls, and another is obliged to be fixed in a lateral position, the hop always bears more by being thus trained horizontally, and Hops in an espalier might be picked as forward as the planter chose, without cutting the vines. If Hops also were only planted in such soils and situations as are well adapted to them, there would be a much greater probability of an efficient crop; and by this means, though the expense would not be diminished, the average profit would be increased. Savings might certainly be made in cultivating only on proper soils, where a less quantity of manure is wanted, than upon such as are congenial to this crop; or in the vicinity of great towns, where abundance of manure can be easily procured; by attention to the quality, operation, and effect of different manures, with the best time of laying them on; by uniting the business of maltster to that of hop-grower, by which the malt-office may save the expense of building an oast, or kiln, for drying them; and by other attentions, of which the Hop-planter ought to be the best judge. The tithe of Hops ought surely to be regulated, where the expense to the cultivator is so very considerable.—*General Observations.* It is a general opinion among the Hop-planters, that the plants which bear the male flowers, or the Wild Hops, as they call them, are of no service in securing or increasing a crop; they are therefore in general cast out. It would be well, however, if some accurate experiments were made on this subject. As to the soil, there will be no doubt of Hops thriving when there is good marl or chalk, or even a moist rock at bottom, with a surface of tolerably deep mould frequently manured. The best soil certainly is a strong loam; clay, and a light black loam, are both bad. In general, however, every other year is often enough to manure the Hop-ground; and twenty cart-loads to each acre, a sufficient quantity. It is the common practice to lay the dung on the crown of the hill, that the winter rains may carry it down to the roots; but some spread the dung over the ground in autumn, and seldom dig it in before February. Part of it is brought to hills in the course of hilling the Hops in summer, and part remains in the intervals for the nourishment of the fibres. Though, in very favourable soils, Hops may be continued on the same spot at pleasure, yet it is generally advisable to break up the Hop-yard entirely in twenty or thirty years, when the soil will be found in high order for almost any crops for some years after, particularly for potatoes, of which an immense burden may be produced from such ground. In the preparation for planting, and the manner of it, the practice is very various. The ground is generally ploughed and harrowed well the winter before it is intended to be planted: but that does not seem necessary; for by the time the workmen have gone over it, first to set out the hills, and tisen to dig the holes and plant the Hops, the ground becomes so trodden as to be little the better for ploughing. A better method seems to be, to prepare the ground well the summer before, and sow it with Turnips, by which means it is

thoroughly cleaned; and early in winter, or if in autumn the better, either to pull up the Turnips, or feed them off with sheep, as occasion may require, and so let it remain till the spring; and then plant the Hops, and dig the ground. Sow Turnips again in the ensuing summer, and as these must be hoed twice, the young Hops are cleared at the same time. When they are spent, care must be taken, if they are fed off on the ground, to do it in dry weather. Thus the land being dressed by the sheep, will not at first require so much manure. Beans also, or Potatoes, may be planted the first year between the hills; and either mode will bring some profit during the very time in which the Hops afford none. October is the most proper season for planting with cuttings of the last year, or nursery plants, as they are usually called. In Worcestershire, when the Hop-grounds are come to perfection, it is the general practice to exclude every other growth, and trust to them alone for a return of the great expense at which they are cultivated. Under this management, those which have been uniformly attended to in their prime, and not weakened by over-poling, will continue to produce plentifully from twenty to thirty years, and in some instances much longer; care being taken to replace the stocks that accidentally decay. On the other hand, fresh grounds are generally allowed to produce the finest Hops, and in the greatest abundance. the circumstance of those Hops which are most in request ripening nearly all at one time, is a considerable inconvenience both to the owner and holder of the estate; as they damage so soon, whether left on the wires when ripe, or gathered, if not dried immediately. Hence it is necessary to have buildings and a number of kilns in proportion to the size of the plantations, and more hands during the season than would be otherwise wanted. Could those sorts which ripen earlier be improved, or any others introduced that do so, it would be an important acquisition. The parts necessary to perfect the seeds, are found on different plants; and as the greatest stress is laid on these, it may be proper to notice, that the practice of removing the barren stocks may be carried too far: it is an inquiry worth attending to, whether this be not the cause, in some instances, of the early decay on many grounds. In cutting Hops, a necessary caution should be observed respecting such as are young, not to use the knife too freely the first year. At this age, a sufficient number of joints should be left below the knife; and if the plants are weak, it may be as well only to trim off the dead bind of the last year. Experience will best teach the planter when his Hops are fit for picking. It is nevertheless better to begin too soon than too late, as the high winds which prevail towards the equinox many times produce more injury to the planter, than he would sustain by beginning a day or two before his Hops were thoroughly ripe. It is the prevailing opinion, that the last-picked Hops will weigh heavier when dried than the first; but the experiments of Mr. Prowting, of Chewton, have demonstrated this to be a vulgar error. He calculates that a bushel of green Hops, in a favourable year, will yield about a pound and a half in weight when dried. In Worcestershire, most of the estates which grow many Hops, have plantations for raising the poles. Ash and barked oak are preferred; but willow, poplar, and alder, are also used. Where the estate does not produce a sufficiency, they are bought at the woods and coppices in the neighbourhood, at from five to fifteen shillings per hundred. Their length is from eight to eighteen and twenty feet, according to the goodness of the lands, and they last seven or eight years with care. The sets cost from two shillings to two-and-sixpence per hundred: their length is from eight to eighteen. In this county, the average of general expenses is thus calculated: workmanship twenty-five to thirty shillings per acre; picking, drying, charcoal, sacks, and duty, thirty shillings per hundredweight. The implements used throughout this plantation are, the plough, the kerf, the spade, iron crow, and Hop-knife. The plough is the common one of the district; the kerf is a large hoe, with a plate about nine inches broad and thirteen deep; the spade needs no particular description; the crow is an iron bar, about four feet and a half long, generally square at top, with a large point, in the octagon form, used to make the hole in the ground for pitching the poles; the Hop-knife resembles the sickle in make, an old one being often converted to this purpose, by grinding off its saw-edge, and giving it a sharp one in its stead; when made for the purpose, it is something smaller. The crib and bags have been already described; the sacks, in which they are carried from the Hop-ground to the kiln, are made of the same materials as the bags. In Essex the poles most esteemed are the chestnut, ash, oak, sallow, and maple; all fourteen years growth from a wood, or eleven from a plantation. Mr. Boys, in his *Agricultural Survey of Kent*, enumerates the following things as necessary to a Hop-ground of four or five acres. 1st, An oast or kiln about sixteen feet square, costing, when substantially built and allowing stowage-room, from £150 to £200. 2nd, A set of picking baskets, about twelve in number, and a good scale-beam and weights. 3rd, A skim made with a frame like a wheelbarrow, which is also very useful for tearing up weeds on summer fallows. 4th, A harrow drawn by one horse, with a small wheel in front, to go round at the ends of the plantation; and a pair of handles to be holden by the man who follows it, in order to keep it from bruising the binds. 5th, An iron peeler, to make holes for the poles to be fixed in; and a Hop-dog to wrench them up. —*Diseases.* The Hop-grower has many enemies to dread. A fly, similar to that which proves so fatal to Turnips, attacks them on their first appearance in the spring, and sometimes entirely destroys the first shoots. It is a very small animal, which, on your approaching to touch it, retreats into the ground with the nimbleness of a flea. Chalky land is much subject to them, and they seem to be produced by warm dry weather. In Surrey, a handful of dry ashes scattered over every hill is thought very serviceable in driving them away: but the Essex planters esteem it better to dung highly, that the plants may grow out of danger, for they are considered safe when they reach two feet high; they do not therefore apply any thing to stop it, thinking that a shower of rain will complete the cure. The next enemy is the fly mentioned by Mr. Miller, by which he means the long-winged fly, as the Surrey planters call it. The appearance of these vermin is dreaded as a pestilence; they are the forerunners of lice, and at last generally ruin the crop. The lice do not appear to eat, but to poison, the leaf; they are worst in thick, cloudy, hot, and moist weather. Many suppose that the rain will wash them off, but this seems to have no foundation, for they generally shelter themselves on the under side of the leaf, where no rain can touch them. Lightning seems to be their greatest enemy. These flies and lice are all aphides, some of which are winged, and others not: and the honeydew, so destructive to the Hop, is their excrement; it causes their leaves to turn black, shrink, and at length fall off. Sometimes they are so infested with this distemper, and the lice united, as to perish entirely, and require to be planted anew for many hills together. Another calamity to which Hops are liable is, the red blight. This seldom attacks them till they come to maturity, causing the Hops to assume a reddish or rather deep yellow colour, and the leaves frequently to grow pale and sickly. When this happens, they

acquire a garlic-like smell, and ought to be picked with the greatest expedition. This disorder appears to be incident to particular lands, especially those of a light poor quality, and therefore is in all probability a natural decay, and not a blight. Dr. Withering's observations on the honey-dew deserve to be introduced to the notice of planters. He says, if the Hop-yards were covered with stones, the plants would be less liable to suffer from the honey-dew and otter-moth, for the honey-dew is the excrement of a species of louse; but these insects seldom increase so as to endanger the plant, unless it is in a weak condition; and the larvæ of the otter-moth at the roots, first occasion the plant to be sickly. Now when the Hops grow wild in stony places, and fissures of rocks, where the moth cannot penetrate to deposit its eggs, the Hop is never known to suffer from the honey-dew. Admitting this view of the disease, might not the practice of smoking the fruit plantations on the first alarm of a blight, as practised in some fruit countries, be applied here to those of Hops? The other injuries to which they are liable still remain without a remedy. A free circulation of air through them, and complete draining of the land, are the only alleviations. The use of the kerf is certainly attended with one disadvantage: the person using it, in some measure defeats the intention of his own labour, as he must, in some degree at least, tread down again the soil he had just loosened; and often reset a weed which he had just before turned up: but the greater dispatch made with this implement will always secure it a preference before the spade.—*Uses of Humulus Lupulus.* The Society for the Encouragement of Arts, Manufactures, and Commerce, at London, offered premiums in the year 1760 for cloths made from Hop-stalks or binds. The year following, Mr. Cooksey produced some specimens of cloth, and was of opinion that it would answer very well the purpose of fine sacking and coarse bagging for Hops. He had kept the material too long under water; and found that at the end of six weeks or two months the binds afforded filamenta sufficiently strong and fine for any purpose. In 1791, Mr. John Locket, of Donnington, near Newbury, in Berkshire, had the premium adjudged to him for cloth made from these stalks, or Hop-vines, as they are here called. They were cut in lengths of about two or three feet; put into a boiler in which was some lye that linen had been boiled in for bleaching; and then boiled till the rind easily separated from the stalk. When cool, they stripped so freely that children might do it; and the yield was great in proportion to the quantity of stalks. The same method was then followed as in working hemp or flax; but it is much more stubborn than either, and therefore not so well adapted for making fine cloth: the fibres are also so united with a very adhesive matter, that they do not easily separate; but for sacks and cordage, it may certainly be very serviceable. Some of it was hackled, while it was wet soon after it was taken off, yet it did not separate the fibres. Carding seems to work it best, and to make it like cotton. Of the piece of cloth exhibited, the warp was hackled and the woof carded. The Swedes make a strong cloth from the stalks, which must be gathered for this purpose in autumn. The use of Hops for preserving beer, and the cultivation of the plant, were introduced into England from Flanders, in the middle of the sixteenth century. Ground Ivy (see *Glechoma Hedcracea*) was generally used for preserving beer, before the introduction of Hops. Since their introduction, many wholesome plants have undoubtedly been used as succedaneums when Hops were scarce, and of course exorbitantly dear; as, the roots of Ginger and Gentian; the seeds of Coloquinteda; and the herbs of Horehound, Wormwood, Broom; Carduus Benedictus, Centaurea Calatrapa or Star Thistle, Marsh Trefoil, or Buck Bean; the last of which is much recommended as a more wholesome bitter than even that extracted from Hops, in the proportion of only two ounces where a pound of Hops was employed. All brewers, however, are enjoined, under a severe penalty, to use no other bitters than Hops in their malt liquors: but there is evident reason to conclude that this law is of no avail; so much so, indeed, that we fear our readers will ask for what intent we have gone into so long a detail upon an article which bids fair to be wholly excluded from modern breweries. Those who have invested large capitals in the immense breweries of London, Dublin, and other cities, take care to cry out when the Barley and Hop-harvests fall short or fail; but we wish to know what concern they really have in these articles. The amazing difference between the beverage brewed in families from the materials which the law enjoins the brewers to employ, when used in the same proportions, and with all the advantages of preparing larger quantities, and of better apparatus, on the brewers' side, is universally known to be in favour of brewing at home. What then is the cause of an effect so opposite to what the public have a right to expect? The cause has been traced to the employment of foreign, and, we fear, even of noxious drugs. They explore, as Mr. Gifford observes, the East Indies for the Menispermum Coculus, or Coculus Indicus; this is their substitute for malt. The West Indies furnishes them with Quassia, &c. and Spain with Liquorice. These two last might be tolerated, but they are not the proper materials for producing the wholesome beverage which used to regale our forefathers. The former ingredient is used in the East Indies, by pounding the berries into a kind of paste, which, cast into water, intoxicates the fish so that they are caught by the hand. From this circumstance some conclusion may be formed as to its properties and effects when introduced into the human frame. Not content with these, that most abominable of all abominations, Tobacco, is notoriously used as a substitute for the Hop; and green vitriol, with other poisons too numerous to name, are added, to mature the deleterious mixture. Hence it is that the poor mechanic is drawn into habitual inebriation: he cannot slake his thirst, without causing it to return with greater force at very short intervals; unconscious of the cause, he repeats the draught, and the consequences are disease, and premature, and even sudden, death. Half the apoplexies, says an eminent physician in the British metropolis, arise not so much from drinking spirits, as from the noxious ingredients, particularly green vitriol, administered in the malt liquors there consumed. When will the strong arm of power put a stop to these iniquities? when will our rulers extend it, to protect the health, morals, and happiness of the community, and arrest the deadly ravages of those unprincipled men, who wallow in ill-gotten wealth for a few years, and then bequeath immense revenues for their profuse descendants to scatter to the winds?—*Medical Properties.* A decoction of the roots of Hops, from one to two ounces, or an extract from them, to the quantity of twenty or thirty grains, is said to be sudorific, answering the purpose of Sarsaparilla. Both these and the strobiles have a balsamic principle, and are thought to be serviceable in removing obstructions, correcting the viscidity of the lymph, opening the pores of the skin, and cleansing the kidneys. The young shoots are eaten early in the spring as Asparagus, and are sold under the name of Hop-tops, which are said to be diuretic, and good for the scurvy, taken by infusion. Hill says, that a decoction of fresh-gathered Hops is good against the jaundice; and adds, that the powder of Hops dried in an oven has been often known to cure agues, but admits that upon this last there is no absolute dependence.

The heads and tendrils are used to purify the blood in the scurvy, and most cutaneous diseases; decoctions of the flowers, and syrups thereof, are efficacious in pestilential fevers; juleps and apozems were formerly made with Hops for hypochondriacal and hysterical affections, and to promote the menses. A pillow stuffed with Hops, and laid under the head, is said to promote sleep in fevers attended with a delirium. Culpeper concurs in all that has been above advanced, concerning the virtues of this plant; and adds, that they help to cure the French disease, and that the decoction of the flowers and tops do help to expel poison that any one hath drank. Gerarde says, the juice of Hops openeth the belly, and driveth forth yellow and coleric humours, and purgeth the blood from all filthiness: the decoction openeth the stoppings of the liver, the spleen, and kidneys, and purgeth the blood, by the urine.

Hura; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male flowers. Calix:* ament from the divarication of the branches, oblong, drooping, covered with sessile spreading florets; scales oblong; perianth within each scale of the ament, cylindric, two-leaved, truncate, very short. *Corolla:* none. *Stamina:* filamenta cylindric, a little longer than the calix, peltate at the tip, rigid, below the tip twice or thrice verticelled with tubercles; antheræ two, immersed in each tubercle, oval, bifid. *Female flowers,* in the same plant. *Calix:* perianth one-leafed, cylindric, furrowed, truncate, quite entire, closely surrounding the germen. *Corolla:* none. *Pistil:* germen roundish, within the calix; style cylindric, long; stigma large, funnel-shaped, plano-convex, coloured, twelve-cleft, blunt, equal. *Pericarp:* woody, orbiculate, or globular-flatted, torose, with twelve furrows, twelve-celled; cells dissilient, crescent-shaped, with an elastic dagger-point at the end. *Seeds:* solitary, compressed, suborbiculate, large. Essential Character. *Male.* Ament imbricated; perianth truncated. *Corolla:* none. *Filament:* cylindrical, peltate at the tip, surrounded by very many antheræ in pairs. *Female. Calix* and *Corolla:* none. *Style:* funnel-form. *Stigma:* twelve-cleft. *Capsule:* twelve-celled. *Seed:* one.——The only known species is,

I. Hura Crepitans; *Sand Box-tree.* It rises with a soft woody stem to the height of twenty-four feet, dividing into many branches, which abound with a milky juice, and have scars on their bark, where the leaves have fallen off. The branches are garnished with heart-shaped leaves; the biggest eleven inches long, and nine broad in the middle; indented on their edges, having a prominent midrib with several transverse veins from that to the sides, which are alternate: they stand upon long slender footstalks. The male flowers come out from between the leaves, upon peduncles which are three inches long; they are formed into a close spike or catkin, forming a column, lying over each other like the scales of a fish. The fruit is very curious in its structure; and the tree, when it grows well, is very spreading and shady. It sometimes attains the height of thirty-five or forty feet, and casts a shade of sixty feet diameter. But owing to the rapidity of its vegetation, its parts are of so loose a texture, that a loud clap of thunder, or a sudden gust of wind, frequently causes the largest boughs to snap asunder. Linneus says, the wood is fit for joists and spars; which Long denies, declaring it fit only for fuel. Linneus also remarks, that if the juice get into the eyes it will bring on blindness after the eighth day; but we do not know whether this be accurate or not. The roasted seeds, according to Hernandez, will purge and vomit. Browne tasted one of them, which at first appeared to be both mild and pleasant; but it soon began to warm and scald both his palate and throat, on which account he judged it to be an improper purgative. The fruit is large, often brought to Europe, and used as a sand-box; but if suffered to hang too long before gathering, in a dry warm room, it will explode with great violence.—Native of South America. Browne makes this tree of the same genus with the Hippomane, or Manchineel. This tree is propagated by seeds, which should be sown early in the spring, in pots filled with light rich earth, and plunged into a hot-bed of tanners' bark. If the seeds be fresh, the plants will appear in about five or six weeks after they are sown. As the plants will advance very fast where due care is taken of them, they should have a large share of fresh air in warm weather, to prevent their drawing up weak. When about two inches high, they should be transplanted each into a separate small pot, filled with light rich earth, and again plunged into the hot-bed of tanners' bark, being careful to shade them from the heat of the sun, until they have taken new root; after which they must have free air admitted to them by raising the glasses in proportion to the warmth of the season, and gently watering them. When the plants have filled these small pots with their roots, they must be shaken out of them, and their roots trimmed, and then placed in larger pots, filled with the same kind of rich earth, and plunged again in the hot-bed, where they may remain till Michaelmas, provided the plants have room without touching the glasses. At Michaelmas, they require to be removed into the bark-stove, and plunged into the warmest part thereof: during the winter season they must be sparingly watered, for as the plants have succulent stalks, much water will rot them: and if not kept very warm, they will not live in this country, the open air of which they cannot endure even in the warmest part of the year. The ample leaves of this plant, which are of a beautiful green colour, afford an agreeable variety among other tender exotics in the stove. It grows naturally in the Spanish West Indies, from whence it has been introduced into the British colonies; and is much cultivated in Jamaica for its beauty, and the fine shade it yields. In those climates it prefers a deep rich soil, and thrives best near water. It is become pretty common in the English gardens, where it has grown twelve or fourteen feet high, producing flowers, but no fruit that we have ever yet heard of.

Hyacinthus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* none. *Corolla:* monopetalous, campanulate; border six-cleft, reflex; nectary, three honied pores at the tip of the germen. *Stamina:* filamenta six, awl-shaped, shorter; antheræ converging. *Pistil:* germen superior, round, three-cornered, three-furrowed; style simple, shorter than the corolla; stigma obtuse. *Pericarp:* capsule roundish, three-sided, three-celled, three-valved. *Seeds:* in pairs, (generally,) roundish. Essential Character. *Corolla:* bell-shaped, with three honied pores by the germen.——The species are,

1. Hyacinthus non scriptus; *Common Hyacinth* or *Harebells.* Corollas tubular, bell-shaped, six-parted; segments rolled back; bractes in pairs; root a roundish bulb, the size of a nutmeg; scape from six inches to a foot in height, upright, round, smooth, and solid, bowed down when it begins to flower; leaves four, six, or sometimes more, only half the length of the scape, and about half an inch broad, keeled, hollow, smooth, shining, grass-green, flaccid, bending downwards, ending in an acute point; flowers in a long raceme or spike, from eight to twelve, often more, all pointing one way, pedicelled, pendulous, sweet-smelling, of a blue or violet colour, varying to white and flesh-colour, six-parted to the very base; bractes two to each flower, lanceolate, and nearly upright. The honied pores which Linneus gives as

the essential character of the genus, are not discoverable in this species: this has led Dr. Withering to wish the plant had been arranged under the genus *Scilla;* in which Dr. Stokes concurs, thinking it has more of the habit and even structure of Scilla than of Hyacinthus. The drooping of the flowers distinguishes it from Scilla Campanulata, a plant often found in our gardens, flowering at the same time. The fresh root is poisonous, but may be converted into starch. Gerarde says, that they are full of a slimy glueish juice, which serves to set feathers upon arrows instead of glue, and to paste books with, and that they make the best starch next to Wake-robin roots. Hill informs us also, that the root is full of a slimy juice, and that a decoction of it operates by urine. Dried and reduced to powder, it is of a balsamic and somewhat styptic nature. The virtues of it are little known, but there are few of the remedies employed for the cure of that weakening complaint, the Whites, equal to this; the dose, however, ought not to exceed three grains. Our old botanists name this plant Anglicus, and English Hyacinth, from its extreme commonness in many parts of our island. Gerarde calls it Blue Harebells, or English Jacinth; and it is the "azur'd Harebell" mentioned in Shakspeare's *Cymbeline.* The French call it, *Jacinte des Bois;* and the Germans, *Niederlandische,* or *Englische Hyacinthe.* It adorns our woods, coppices, and hedge-rows, with its flowers in the spring-months, and is very common with the blue flowers: carnation and white flowers are not so common. Gerarde found them near Colchester in Essex; at Southfleet, near Gravesend; and in the neighbourhood of Canterbury, in Kent; at Bath, in Somersetshire; and Warrington, in Lancashire. Ray observed the white flowers at Scadbury park in Kent, and Dr. Stokes near Worcester. It is also found in the enclosures about Streatham and other places in Surrey: it is seldom admitted into gardens. Mr. Curtis remarks, that the seeds are not ripened till the end of the year; and that on being sown, they did not rise till the second year.—Native of France, Flanders, Switzerland, Italy, Spain, and Persia. See the third species.

2. Hyacinthus Cernuus; *Bending Hyacinth.* Corollas bell-shaped, swelling at the base, six-parted; raceme drooping. This resembles the preceding, but is smaller; the raceme is more nodding; the corollas flesh-coloured, not blue. The corolla swells out at the base, which is by no means the case in the first species. Miller, Ray, and Caspar Bauhin, however, thought it a variety, differing principally in having the flowers of a blush peach-colour. That which Mr. Miller absurdly calls Hyacinthus Utrinque Floribus, does indeed seem to be a variety of this species. It has blue flowers disposed on every side of the stalk, which rises about nine inches high; the thyrse of flowers is large when the roots are strong. He adds, that it is a native of Spain and Italy, and was formerly preserved in gardens, but having been neglected for the fine varieties of the Eastern Hyacinths, is now become scarce. This is the case with many of our old favourites, which are cast out, to make room for new comers. It is seldom cultivated in gardens.—Native of Spain. See the next species.

3. Hyacinthus Serotinus; *Late-flowering Hyacinth.* Outer petals almost distinct, inner co-adunate; bulb ovate-conical, solid, covered with brown skins; scape single, a foot high, smooth; leaves channelled, sheathing the scape at the base; flowers in a raceme all pointing the same way, drooping a little, each on a short peduncle, with an awl-shaped bracte at the base; corolla of a dull greenish red colour. When the flowers first appear, of a light, but, according to Miller, fading to a worn-out purple colour. Gerarde describes them as of a very dusky colour, as it were mixed with purple, yellow, and green; without any smell. Parkinson, who calls it Spanish Dun-coloured Jacinth, says it is of a purplish colour, with some white and green as it were mixed among it. Ray observes, that the plants which he raised from seed of the same root, varied in the colour of their flowers, some being dusky, and others almost green. It flowers in June, later than the other Hyacinths, and hence Clusius called it *Serotinus.*—Native of Spain, near Aranjuez; and of Barbary, in the neighbourhood of Fez and Morocco. This, as well as the first, second, and fifth species, are seldom admitted into gardens, having been almost totally neglected since the introduction of the Eastern Hyacinths. Those, however, who wish to preserve them, may effect it without much trouble, for their roots propagate plentifully in any soil or situation, and only require to be taken up every second or third year soon after the leaves decay, and to replant them in the following autumn; for if permitted to remain longer in the ground, their roots will multiply to such a degree as to render their flowers very small and weak. They may all be increased, either by seeds or offsets, from the old bulbs, but it is only practised in these four species.

4. Hyacinthus Viridis. The outermost segments of the corollas awl-shaped and very long. This is of the same stature with the next species, but the corolla is green.—Native of the Cape of Good Hope.

5. Hyacinthus Amethystinus; *Amethyst-coloured Hyacinth.* Corollas bell-shaped, half six-cleft, cylindrical at the base. This has a smaller flower; the petals are cut half their length, and are reflex at the brim; the lower part is cylindrical, a little swelling at the base, and of a deeper blue. The root, according to Clusius, is the size of a small olive, covered with a brown skin; leaves five or six, longer and narrower than in the first sort, striated and keeled, lying mostly on the ground; scape slender, a long span in height, round, smooth, glaucous, having six or seven flowers at top, (according to Ray, sometimes twelve or more,) nodding, on pedicels half an inch in length; they are of a bright blue, without any scent. Most of them, says Parkinson, have white stripes and edges, and they vary to pure white, and a fine decayed pale red colour, with deeper-coloured veins running along the three outer segments. Mr. Miller says, it was formerly called Coventry Blue Hyacinth by the gardeners.—Native of Spain, Italy, and Russia, flowering in May.

6. Hyacinthus Revolutus; *Wave-leaved Hyacinth.* Corollas bell-shaped, six-parted, revolute; leaves oblong, waved.—Native of the Cape of Good Hope.

7. Hyacinthus Orientalis; *Garden Hyacinth.* Corollas funnel-form, half six-cleft, swelling at the base, with two small bractes under each pedicel. It has a large coated bulb, viscid, and of a sweetish taste, from the bottom of which spring the roots, which are long round fibres, of a middling thickness; from the middle of it rises a single naked stem or scape, and from the top six, seven, or more leaves, which are broadish, keeled, pale green at bottom, but of a darker green towards the end. From the middle of the scape, to the top, come out the flowers, one above another, not pointing the same way, as in the Harebell, but standing on different sides of the stalk, three, four, five, and up to twelve in number, each nodding on pedicels half an inch in length, usually of a very dark green colour, and having a pair of small bractes at the base; the corolla is near an inch in length, almost cylindrical, except at the base, where it swells or bellies out, and at the top the segments are turned back a little. These flowers have a very sweet smell, and are much valued for the variety of their colours; pure white, white tinged with blue, all shades of blue even to the dark violet, and all

shades of red purple, from the faint blush to the deep red: they are also sometimes yellow. Culture and great attention have also brought these plants to be very strong, and their flowers to be very large and double. It seems to have been brought into England some time in the sixteenth century, yet the double flowers were not much esteemed, long after the Hyacinth had attracted the attention of the florists. The beauty of this celebrated flower was then supposed to consist in the regularity and equality of the petals, and the uniformity of the colours. The first double flower, cultivated by Peter Voorhelm, was named Mary, which variety is lost, as well as the two next that were produced: the *King of Great Britain*, which is now looked upon as the oldest double Hyacinth, appeared about the beginning of the last century; it was greatly preferred to all the flowers then known, and the price rose to about a thousand florins. From that time the greatest attention has been paid at Haarlem to the raising and cultivation of this elegant flower; and such has been the rage for it, that nearly two hundred pounds sterling has been given for a single root. The gardeners there distinguish nearly two thousand Hyacinths by name, and generally publish catalogues of them from year to year. New varieties are annually produced, and whole acres together are covered with this flower, in the circuit of that town alone. The Hyacinths are distributed into classes, from their colours; the principal of which are, blue, red, purple, and white, with some yellow; and they are subdivided from the shades of each colour: as, of the blues; deep blue, violet blue, blue purple, porcelain blue, agate blue, sky blue, French gray, &c.: of the reds; deep or full red, rose-coloured, carnation, &c.: also from the mixtures of different colours or shades; as light blue with a deep blue or purple eye; light red, with a deep red eye; white, with a rose-coloured, blue, purple, or yellow eye; white and red of different shades; and blue, violet, and purple, of different shades mixed; also, yellow with a purple eye, &c. Some have their petals striped with a paler or deeper colour; and all these varieties are found both in single and double flowers; but the latter only are now much regarded among florists, unless it be for producing seeds, by which alone they can procure new varieties. The principal properties of a fine double Hyacinth are the following. 1. The stalk should be tall, strong, and upright; the flowers (or bells, as the florists term them) sufficiently numerous, each suspended by a short strong peduncle, in an horizontal position; the whole having a compact pyramidal form, with the crown, or uppermost flower, perfectly erect. 2. The flowers large, well filled with broad bold petals, appearing rather convex than flat or hollow, extending to the middle of the stalk. 3. The plain colours, clear and bright, strong, not pale; and mixed colours elegantly blended.—It is a native of the Levant, very abundant about Aleppo and Bagdat, where it flowers in February: in our climate, it flowers in March and April.—*Propagation and Culture.* The method of raising these flowers from seed, is, first, in the middle or latter end of August to provide good seed, saved from good semi-double, or such single flowers as are large, and have good properties; then procure some square shallow boxes or pots, with holes to let off the moisture; fill them with fresh, light, sandy soil; lay the surface level, and sow the seeds on it as equally as possible; cover them half an inch thick with the same light earth; place them so as to enjoy the morning sun, until the latter part of September, then remove them into a warmer situation, and towards the end of October place them under a common hot-bed frame, to protect them from hard frosts during the winter and spring months, but admitting the air in mild weather. The young plants will appear at the end of February, or beginning of March, and must be carefully protected from frost, but never covered except at night, or in very rough weather, for covering causes them to grow up tall and slender, and prevents the growth of the roots. In the middle of April, during fine weather, the boxes may be removed out of the frame, and placed in a warm situation, observing to water them in dry weather, and to keep them very clean from weeds. At the beginning of May, the boxes should be removed into a cooler situation, to avoid the heat of the summer, which they cannot sustain. They must not be placed under the dripping of trees, nor yet be watered after the blades have decayed, for that would rot their roots: weeding them should be diligently performed. At the end of August, sift a little light rich earth over the boxes, and again remove them into a warmer situation, and treat them, during the winter, spring, and summer months, as before directed; about the middle of the next August, prepare a bed of light, rich, sandy soil, in proportion to the quantity of seedling plants. Having levelled the surface very even, take the earth from the boxes in which your plants were raised, into a sieve, in order to obtain all the roots, which, if they have grown well, will be about the thickness of a small quill; these roots should be placed upon the bed, about two or three inches asunder, observing to set the bottom part of their roots downwards, and cover them over, two inches thick, with the same light earth: but as it may be impossible to get all the small roots out of the earth in the boxes, let it be spread out evenly upon another bed, and covered with light earth, by which method all the roots, however small, will be saved. These beds must be arched over with hoops, and in very hard frosty weather be covered with mats, to protect them from frost; and in the spring, when the green leaves are above ground, if the weather should be very dry, you must refresh them sparingly with water, for nothing is more injurious to these bulbs than too much moisture. During summer, the beds must be constantly kept clear from weeds, but the plants must have no water after the blades are decayed. In autumn, stir the surface of the bed with a very short hand-fork, taking great care not to thrust it so deep as the roots, which, if injured, generally perish soon after. Then sift a little fresh, light, rich earth over the bed, about an inch thick, or somewhat more, and again cover them in winter, as before directed. In this bed, the roots may continue two years, observing to treat them both in summer and winter as before; then the third year the roots should be carefully taken up, a little before the leaves decay, re-laying them horizontally three weeks in the ground to ripen, after which they may be kept out of the ground till the end of August, when they should be planted into new beds prepared as before, placing them at the distance of six inches asunder. Here the roots may remain till they flower, during which time they should be treated as before, with this difference only, that instead of covering them with mats in the winter, the surface of the ground should be covered with tanners' bark. When their flowers begin to shew themselves, mark all such as appear to have good properties, by thrusting down a small stick near each root, which roots, at the time of taking up, should be selected, and replanted by themselves. When the green leaves begin to decay, take up the roots, raise a bed of light earth into a ridge, the better to shoot off the moisture; laying the roots into the earth again in an horizontal position, leaving the green leaves hanging out of the ground from the roots, whereby the great moisture contained in their very succulent leaves and flower-stalks, may be exhaled, and prevented from returning to the

roots, which is often the cause of their rotting after they are out of the ground. In this ridge the roots should remain until the leaves are quite dried off, when they must be taken up, and after being cleared of all manner of filth, which would be hurtful to them, they must be laid up in boxes, where they may be preserved dry until September, which is the proper season for planting them again.—*Of the Dutch Hyacinths.* Want of skill alone, in Mr. Miller's opinion, is the cause of the frequent failure which English florists meet with in the culture of these noble flowers; for he thinks they may thrive at least nearly as well in England as in Holland. The soil in which they succeed best is a light, sandy, fresh rich earth, composed half of fresh earth, taken to the depth only of eight or nine inches, with the sward, off the surface of a common pasture-land, which is usually a sandy loam: to this a fourth part of sea-sand, and another of rotten cow-dung, which should be mixed well together, cast into a heap that the turf may rot, and turned over once every three weeks or a month. If this compost be made two years before it is used, it will be much better: but if you must use it sooner, it should be the oftener turned, that the parts may the better unite. This soil should be laid to the depth of two feet on the beds designed for the Hyacinths; and if you lay a little rotten cow-dung or tanners' bark at the bottom, which may be within the reach of the fibres, but should on no account touch the bulb, it will be better. If the soil be very wet where these beds are made, raise them ten or twelve inches above the surface of the ground; if dry, not above three or four inches. Prepare the beds as follows: take all the former old earth out of the bed to the depth you intend, which should be nearly three feet: spread some rotten cow-dung or tan in the bottom, six inches thick, and level. Upon this lay the above compost two feet deep, levelling very even. Then score out the distances for the roots, which should be eight inches square, in straight rows each way: place your roots exactly in the squares, observing to set the bottom part downwards; then cover the roots six inches deep with the same prepared earth, taking care not to displace any of the roots; and if the tops of the beds be made a little rounding, to shoot off the wet, it will be of service in moist ground, provided the middle of the beds be not made too high, which is a fault the other way. The best season for planting these roots is the middle or latter end of September, according to the earliness or lateness of the season; but it is not advisable to plant them when the ground is very dry, unless there be a prospect of rain, for if the dry weather continue long after they are planted, the roots will acquire a mouldiness which will certainly destroy them. The beds will require no further care till the severe frost sets in; then let rotten tan be spread over them to the depth of four inches: and if the alleys on each side of the bed be filled up either with rotten tan, dung, or sand, it will keep the frost from penetrating through the sides to the roots of the plants. In very hard winters it will be proper to lay peas-haulm or straw over them, which will keep out the frost better than mats, and, lying hollow, will admit the air to the surface of the ground, and also permit the exhalations to pass off, whereby the earth will be kept dry, and the roots be prevented from rotting, which is often the consequence of covering the beds too closely. This light covering must be removed in mild weather, and used only in very hard frosts, for where the beds are covered with tan or sea-coal ashes, no common frost can penetrate through: and if these coverings be suffered to remain in mild weather, the flower-stems will be drawn up to a great height, and become very weak: and the footstalks of the flowers will be long and slender, and therefore incapable of supporting the bells, which is a great disadvantage to the flowers, one of the greatest beauties of which consists in the regular disposition of their bells. When the hoops are fixed over the beds, the rotten tan should be nearly all removed as carefully as possible, that the leaves may not be bruised or injured. It had better be done by hand, as the flower-stem of the Hyacinth will be then breaking out of the ground. When the flower-stems have reached their height, before the flowers expand, place a short stick down by each root, to which, with a wire formed into a hoop, the stem of the flower should be fastened, to support them from falling; otherwise, when the bells are fully expanded, their weight will incline them to the ground, especially if they are not screened from the wind and rain. During their season of flowering they should be covered in the heat of the day from the sun and heavy rains, and frosty nights; but the morning and evening sun, with gentle showers, they ought to enjoy. With this management you may continue your Hyacinths in beauty at least one whole month, and sometimes more, according to their strength, or the favourableness of the season. When their flowers are quite decayed, and the tops of the leaves begin to change colour, you must carefully raise the roots out of the ground with a narrow spade, or some other handy instrument, which is what Dutch gardeners call *lifting* them. In doing this the instrument must be carefully thrust down by the side of the root, being cautious not to bruise it, as well as to put the implement below the bottom of the root; then, by the forcing of the spade on one side, the fibres of the root are raised, and separated from the ground. This is intended to prevent their receiving any more nourishment from the ground; for by imbibing too much moisture at this season, the roots frequently rot after they are taken up. About a fortnight after this operation, the roots should be entirely taken out of the ground, and carried to beds upon which the morning sun only shines, and laid upon a ridge with their leaves out, to drain off the moisture, as before directed. Here they should remain until the green leaves are entirely decayed, which perhaps may be in three weeks' time. The Dutch gardeners term this the ripening of the roots, because it causes them to become firm, smooth in the outer cover, and of a bright purple colour: whereas the roots which are permitted to remain undisturbed till the leaves and stalks are quite decayed, will be large and spongy, with their outer coats of a pale yellow colour; for the stems of many of these flowers are very large, and contain a great quantity of moisture, which, if suffered to return into the roots, would infallibly destroy many of them. After they are ripened, take them out of the ground, and wipe them clean with a soft woollen cloth, taking off all the decayed parts of the leaves and fibres, putting them into open boxes where they may lie singly, and be exposed to the air, but carefully preserved from moisture. They should not be suffered to remain where the sun may shine upon them; and may be thus preserved until September, which is the season for replanting them. You must then separate all the strong-flowering roots, planting them in beds by themselves, that they may make an equal appearance in their flowers. The offsets and smaller roots may be planted in a separate bed for one year, to acquire strength, and at the end of a second year will probably be as vigorous as the older roots. The single and semi-double flowers should be planted also in a bed by themselves, where they must be carefully sheltered, as before directed, especially from frost, until the flowers are blown; at which time their covering should be entirely removed, the open air admitted, and the flower-stalk supported with sticks, which, though the weather may soon deface the beauty of their flowers, is yet absolutely

necessary to promote their seeding. When the seeds are quite ripe, cut off the vessels, and preserve them with the seeds therein until the season for sowing. Observe, however, that after these flowers have produced seeds, they seldom flower so well again, at least not in two years after; so that the best method to obtain good seeds is to plant new roots every year for that purpose. Although these roots are by most persons taken up every year, yet, where the ground has been well prepared, they may remain two years, and will increase more in the second year than the first: but the flowers are certainly more liable to degenerate; therefore those who cultivate them for sale take up their roots annually, when they are large and saleable, but leave the offsets and small roots two years in the ground. There are some persons who suffer their Hyacinth roots to remain three or four years unremoved, which causes a much greater increase of roots than when they are annually taken up; but the roots by this great increase are frequently degenerated, so as to produce single flowers. Single Hyacinths may be planted a week or two sooner than the double ones, and will bloom two or three weeks earlier; upon these the cultivator must depend for seed, for the double ones rarely produce any. Save your seed from those plants which have strong straight stems, and a regular well-formed pyramid of flowers which are semi-double: do not gather it till it is perfectly black, when the pericarp will appear yellow on the outside, and begin to open; then cut off the stem, and place it in a dry airy cool place, till the time of sowing, which may be either the end of October, the beginning of March, or in August; which last Mr. Miller recommends. Some say, that if the bulbs of double Hyacinths be planted sooner than the middle of October, they will be apt to come up during the winter, and thus be injured by severe frosts; and if it be deferred later than the middle of November, the bulbs will begin to put out fibres, which will weaken them. Such bulbs as are four or five years old flower strongest in England, and after this gradually decline: but in Holland, the same bulb will produce bloom twelve or thirteen years together, nor is it ever known to die through mere age. Persons who are nice about their flowers, erect a covering over them during the flowering time, to keep off the rain without excluding the light, and to keep off cold winds, which are frequently very injurious at the early season in which these delicate flowers are in bloom. This awning should be of coarse linen, on a frame of wood, made to roll up easily, that in mild cloudy weather the flowers may have the full benefit of the sun and air: and it should not continue on more than a fortnight or three weeks, for it weakens the bulbs. Florists differ as to the proportion of the materials of the compost in which the bulbs are to be planted. Some, instead of half fresh earth, recommend only one-third, with the same quantity of rough sea or river sand, and the remaining part to be one-fourth old rotten cow-dung and the rest the earth of decayed leaves. Some put in tanners' bark, rotten wood, or old saw-dust: others reprobate tan, as retaining an astringency which is pernicious to delicate bulbous flowers. In using fresh earth from a pasture, it is necessary to guard against the wire-worm, by minutely inspecting the heap as it is turned over, and picking out that destructive reptile, which is of a yellow colour and about an inch long. The beds should be in a dry airy part of the garden, with a southern exposure, sheltered from the north and east, six feet distant at least from the fence, and made sloping a little towards the sun. The Hyacinth succeeds best in situations near the sea. In more inland parts, the florist must annually introduce fresh bulbs to supply deficiencies, by keeping a reserve in deep narrow pots, to fill up the vacancies in his beds.

8. Hyacinthus Corymbosus. Corollas funnel-form; raceme erect; leaves linear, very narrow, commonly three, shorter than a finger's length; scape shorter than the leaves, terminated by a corymb of purple flowers, cloven half way down; style the length of the corolla.—Observed in pastures near the Cape.

9. Hyacinthus Romanus; *Roman Grape Hyacinth.* Corollas bell-shaped, half six-cleft, in racemes; stamina membranaceous; leaves very long, the width of the finger; raceme long, round, with very numerous flowers, which are white, and cut beyond the middle; antheræ blue.—Found in the fields near Rome.

10. Hyacinthus Muscari; *Musk Hyacinth.* Corollas ovate, all unequal, with one bracte under the pedicel, and another above it; roots large, oval, bulbous; from them arise several leaves eight or nine inches long, and half an inch broad; out of the middle of these springs the stalk, six inches high, which sustains the flowers; it is naked below, but the upper parts are garnished with small flowers growing in a spike having ovate pitcher-shaped petals, which are reflexed at their brim, and are of an ash-coloured purple, or obsolete faded colour, but have an agreeable musky scent, and, when in some quantity, will perfume the air to a considerable distance. It flowers in April, and ripens seed in July. Of this there are two varieties; one with the same coloured, but larger flowers, on the lower part of the spike, while the flowers on the upper part are yellow, and emit a very grateful odour. Another, with very large yellow flowers, sells for a guinea a root among the Dutch florists. Native of the Levant.—This, with the 9th, and 13th species, will thrive in the open air, and require no other culture but to take up the roots every second or third year, to separate the bulbs; for some of them multiply fast, and when the bunches of bulbs become large, they do not flower so strong. They ought to be taken up soon after their stalks and leaves decay, and spread on a mat in a dry shady room for a fortnight, to dry; after which they may be kept in boxes till Michaelmas, when they may be planted in the border of the flower-garden, and treated in the same way as the common Hyacinths. They are easily increased by offsets, which they send out in plenty; so that there is no occasion to sow the seeds, unless it be to gain new varieties.

11. Hyacinthus Convallarioides; *Lily Hyacinth.* Corollas bell-shaped, ovate, pendulous; scape filiform; flowers without leaves, yellow.—Found by Thunberg at the Cape.

12. Hyacinthus Monstrosus; *Feathered Hyacinth.* Corollas subovate; root large, bulbous, producing several plain leaves, a foot long, and half an inch broad; flower-stalk a foot and half high, naked at the bottom for about seven or eight inches, above which the panicles of flowers begin and terminate the stalks. The flowers stand upon peduncles, which are more than an inch long, each sustaining three, four, or five flowers, the petals of which are cut into slender filamenta like hairs: they are of a purplish blue colour, and having neither stamina nor germen, never produce seeds. It flowers in May; and after the flowers are past, the stalks and leaves decay to the root, and new ones arise in the following spring.—Native of the south of Europe.

13. Hyacinthus Comosus; *Purple Grape Hyacinth.* Corollas angular-cylindrical, the upper ones barren, on longer pedicels; bractes small, acuminate; bulb as large as a middling-sized onion; leaves five or six, a foot or eighteen inches long; flower-stalks above a foot high, lower half naked, upper half sustaining a loose raceme of flowers; the lower flowers are farther asunder, and upright before they expand, but whilst they continue, and afterwards, stand out horizontally on pedicels half an inch long; their colour is a yellowish green, with blue or purple at the end; these are fertile.

The upper ones are smaller, barren, stand upright, form a corymb, and are blue or violet, as are also their long pedicels. Parkinson remarks, that "the whole stalk with the flowers upon it doth somewhat resemble a long purse-tassel, and thereupon divers gentlewomen have so named it." This species is more distinguished by its singularity than its beauty, and by the difference between the lower and the upper barren flowers. It varies with white and blue flowers, but the purple is most common. They appear with us at the end of April and beginning of May. Mr. Miller received both roots and seeds from Spain and Portugal.—Native of the corn-fields in the south of Europe. Mr. Curtis calls it *Tassel Hyacinth:* this is the name Parkinson alluded to; see above.

14. Hyacinthus Botryoides; *Blue Grape Hyacinth.* Corollas globular, uniform. Leaves channelled, cylindrical, strict, three lines wide, straight on account of their short petioles; spike with from twenty to thirty flowers; the teeth of the corolla are white, and the uppermost are small. It differs from the next species, in having the leaves upright, the bunch of flowers smaller, the flowers themselves larger, rounder, of a paler and brighter blue. It is now seldom met with but in long-established gardens; whenever once admitted, it is not essily rooted out; and if permitted to scatter its seed, will fill the ground with its roots.—Native of the vineyards and arable fields of France, Italy, and Germany. This and the next species are alike troublesome by their great increase; and this will not flower readily in an open border. It is a good method to plant the bulbs in moderately sized pots, filled with light earth, and to plunge them in the borders to flower: in the autumn they should be taken out, and the offsets thrown away.

15. Hyacinthus Racemosus; *Clustered Grape Hyacinth.* Corollas ovate, the upper ones sessile; bractes solitary, very short; leaves loose. Bulb small; scape a span high, blue under the flowers, compressed at top, terminated by a close globular spike or raceme, of from forty to fifty dark blue flowers, with a three-cornered mouth: they are imbricated downwards, have very short peduncles, a sweetish smell, somewhat like new starch or plums: hence Mr. Curtis calls it the Starch Hyacinth. This is more common in our gardens than the preceding, for which it is often mistaken: it flowers in April and May.—Native of corn-fields in the south of Europe.——For its propagation and culture, see the preceding species.

16. Hyacinthus Brevifolius; *Short-leaved Hyacinth.* Corollas six-parted; raceme drooping; leaves shorter than the scape.—Native of the Cape.

17. Hyacinthus Flexuosus; *Bending Hyacinth.* Corollas bell-shaped; raceme upright; leaves linear, longer than the scape.—Native of the Cape.

Hydnum; a genus of the class Cryptogamia, order Fungi.—Generic Character. A horizontal fungus, echinated beneath with awl-shaped fibres. These awl-shaped bodies, which Linneus compares to the prickles of a hedge-hog, are soft, solid, conical, or cylindrical substances, emitting seeds from every part of their substance. Linneus has six species of this fungus, five with stems, and one stemless. Of these Hudson has three, all having a stem. Dr. Withering enumerates five with a stem, and six without. Swartz has added three from Jamaica; and Albertini has added two more very minute species.—They chiefly grow upon decaying wood.

Hydrangea; a genus of the class Decandria, order Digynia.—Generic Character. *Calix:* perianth one-leafed, five-toothed, permanent, small. *Corolla:* petals five, equal, roundish, larger than the calix. *Stamina:* filamenta ten, longer than the corolla, alternately longer and shorter; antheræ roundish, twin. *Pistil:* germen roundish, inferior; styles two, short, distant; stigmas blunt, permanent. *Pericarp:* capsule roundish, twin, two-beaked with the double style, angular with several nerves, crowned with the calix, two-celled, with a transverse partition, opening by a hole between the horns. *Seeds:* numerous, angular, acuminate, very small. Essential Character. *Capsule:* two-celled, two-beaked, containing many seeds. *Corolla.* five-petalled. *Calix:* five-cleft, superior.——The species are,

1. Hydrangea Arborescens; *Shrubby Hydrangea.* Leaves ovate, smooth, alternate; stamina longer. This has a spreading woody root, which produces several soft, pithy, woody stems, from three to four feet high; they are four-cornered when young, and have a green bark, but as they grow older they become taper, and have a light brown bark; leaves at each joint opposite, three inches long, and two broad near the base, pointed, serrate, deep green above, pale underneath, with many transverse veins; flowers terminating in a cyme; corolla small, white, having an agreeable odour. They appear towards the end of July, and in August, but seldom perfect their seeds in England.—Native of Virginia and Canada. It is easily increased, by parting the roots at the end of October, which is also the best time to transplant them. It should have a moist soil, for it grows naturally in marshy places, and requires no other culture but to be kept free from weeds, and to have the ground between them dug every winter. If the stalks should be killed by sevcre frosts, the root will send out new ones in the spring.

2. Hydrangea Radiata; *Downy Hydrangea.* Leaves lobed, tomentose underneath. The stem is rather shrubby, branched, and growing to the height of about five feet. The leaves are broad, heart-shaped, and serrated: they are foot-stalked, and stand opposite; the lower surface is downy, of a silvery appearance.—Found in Carolina and Florida.

3. Hydrangea Hortensis; *Garden Hydrangea,* or *Chinese Guilder Rose.* Leaves elliptical, serrate, very smooth; stamina all of an equal length. Root fibrous, much branched, whitish; stems several growing together, erect, shrubby, branched, round, with a smooth brown bark; branches opposite, each pair crossing the others, round, smooth, leafy, green, with dark purple spots, flowering at the top; cymes terminating, the size and figure of the Common Guilder Rose, and, like that, almost entirely composed of radiated abortive flowers, of a beautiful rose colour, inodorous, green when young, as well as in decay.—Native of China and Japan. Loureiro informs us, that on dissecting the germen, and viewing it with a microscope, it appeared to be many-seeded, which confirms the idea of its being an Hydrangea. It is much valued on account of the profusion of its elegant flowers, which are botanically termed *monstrous,* in the same manner as the Viburnum Opulus, or European Guilder Rose.—This beautiful plant being very easily increased by cuttings, has been pretty generally diffused within these few years. It thrives best in a good rich loam. Some trials have been made with it abroad, and it is hardy enough, in a sheltered situation and warm soil, to endure most of our winters; but it does not flower so well in the open air as in a green-house: superfluous plants only should, therefore, be ventured in the open borders of the flower-garden.

Hydrastis; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* none. *Corolla:* petals three, ovate, regular. *Stamina:* filamenta numerous, linear, compressed, a little shorter than the corolla; antheræ compressed, blunt. *Pistil:* germen numerous, ovate, collected into an ovate head; styles very short; stigmas broadish, compressed. *Pericarp:* berry compounded of oblong

granulations. *Seeds:* solitary, oblong. ESSENTIAL CHARACTER. *Calix:* none. *Petals:* three. *Nectary:* none. *Berry:* composed of one-seeded acini, or granulations.——The only known species is,

1. Hydrastis Canadensis; *Canadian Yellow Root.* The root is composed of thick fleshy tubers, of a deep yellow colour within, but covered by a brown skin, sending out fibres from every part in the spring. It sends up one or two stalks, about nine inches high, at their first appearance of a light green, but afterwards changing to a purplish colour, and hairy towards the top. Each stalk has one or two leaves, the lower petioled, but the upper embracing; and is terminated by one flower, which is white, and of very short duration, seldom continuing above three or four hours after its expansion. The fruit is red and succulent, a compound berry, like the Raspberry and Mulberry, but not the least resembling the Strawberry in structure.—It flowers in May and June; and is a native of Canada. This plant not increasing much, is rather uncommon in the English gardens: it delights in great shade and moisture; and when planted in dry ground, or much exposed to the sun, it rarely lives through one summer. In a moist loamy soil and shady situation, it will flourish, if left undisturbed three or four years.

Hydrocharis; a genus of the class Diœcia, order Enneandria.—GENERIC CHARACTER. *Male. Calix:* spathe three-flowered, two-leaved, oblong: perianth proper three-leaved; leaflets ovate-oblong, concave, membranaceous at the edge. *Corolla:* petals three, roundish, flat, large. *Stamina:* filamenta nine, awl-shaped, upright, in three rows, the middle one puts forth an awl-shaped stipe from the inner base, like a style, which is placed in the centre; the two others are connected at the base, so that each inner filament coheres with each outer; antheræ simple. *Pistil:* the rudiment of a germen in the centre. *Female. Calix:* spathe none; flowers solitary. *Perianth:* as in the male, superior. *Corolla:* as in the male. *Pistil:* germen roundish, inferior; styles six, the length of the calix, compressed, bifid, channelled; stigmas bifid, acuminate. *Pericarp:* capsule coriaceous, roundish, six-celled. *Seeds:* numerous, very small, roundish. ESSENTIAL CHARACTER. *Male:* spathe two-leaved. *Calix:* trifid. *Corolla:* three-petalled. *Filamenta:* the three inner style-bearing. *Female. Calix:* trifid. *Corolla:* three-petalled. *Styles:* six. *Capsule:* six-celled, many-seeded, inferior.——The only known species is,

1. Hydrocharis Morsus Ranæ: *Frog-bit.* Root of many long, thick, white fibres; leaves at each joint of the stalk six or eight together, floating, roundish, kidney-shaped, fleshy, smooth, thick, perfectly entire, almost transparent, reddish underneath, marked with a few circular and many transverse veins: they are about an inch and half in diameter, and when dry, on removing the outer skin, a most beautiful close net-work of veins is seen. Leaf-stalks and flower-stalk each from six to seven inches long; the latter upright, in the male producing three or four flowers, in the female only one; corolla white, with a yellow bottom, a little wrinkled and tender; calix yellow. There is a variety with a double, very sweet-smelling flower, found by Mr. Ray in a ditch by the side of Audrey Causeway, close to the great wooden bridge in the Isle of Ely. Hill and Meyrick inform us, that the leaves of these plants are of a very cooling nature, and are often externally applied by the country people for swellings and inflammations. It flowers from June through the autumn. —Native of most parts of Europe, in deep ditches, and slow streams with a muddy bottom; multiplying itself greatly by runners, which shoot out to a great length, and at the joints drop down long roots which penetrate deep into the mud.

Hydrocotyle; a genus of the class Pentandria, order Digynia.—GENERIC CHARACTER. *Calix:* umbel simple; involucre commonly four-leaved, small; perianth scarcely any. *Corolla:* universal uniform in figure, not in situation; florets all fertile; proper five-petalled; petals ovate, acute, spreading, entire. *Stamina:* filamenta five, awl-shaped, shorter than the corolla; antheræ very small. *Pistil:* germen upright, compressed, orbiculate, inferior, peltate; styles two, awl-shaped, very short; stigmas simple. *Pericarp:* none; fruit orbiculate, compressed, transversely bipartile. *Seeds:* two, semi-orbiculate, compressed. ESSENTIAL CHARACTER. *Umbel:* simple, with a four-leaved involucre. *Petals:* entire. *Seeds:* semi-orbiculate, compressed.——The species are,

1. Hydrocotyle Vulgaris; *Common Marsh Pennywort.* Leaves peltate, crenate; umbels five-flowered. Roots perennial, capillary, whitish; stems creeping, round, smooth, striking root at the joints; leaves smooth, glossy, bright green, about an inch in diameter; leaf-stalks about two inches long; common peduncles single, axillary from the base of the leaf-stalks, which are terminated by two umbels or glomerules, one springing out of the other, each containing from four or five to six and nine florets, which are very small, reddish white, or rose-colour, on very short pedicels; seeds of a pale brown colour. The rot in sheep has been vulgarly attributed to this plant, whereas it is pretty certain that neither sheep nor any other quadruped ever eat it. It flowers with us from May or June through July or August; and is a native of the marshes all over Europe, and also of Jamaica and Japan.—There is a variety of this species, called the Italian Floating Hydrocotyle, which has very slender simple fibres, collected into a head, issuing from the joints of the stems, and fastening themselves into the mud. It is a native of Italy. The flowers of these plants being small and hidden by the leaves, are not much remarked, though they are abundant in their season; but the plant is easily known by the petiole of the leaf being inserted into the middle of it, a circumstance uncommon in European plants. Gerarde calls it Water Pennywort, Sheep-killing Penny-grass, and Penny-rot; the Germans call it, *Wassernabel, Sumpsnabel;* the Dutch, *Waternavel;* the French, *Hydrocotle Commune, le Goblet, l'Ecuelle d'Eaux, l'Herbe des Patagons;* and the Spaniards, *Sombrera d'Agua.*

2. Hydrocotyle Umbellata; *Navelwort.* Leaves peltate, crenate-gashed; umbels many-flowered. Linnæus describes it as so like the common sort that it has been confounded with it; but it differs in having the scape twice as long as the leaves, and more than twenty florets in a simple umbel. —Native of the marshes of Jamaica.

3. Hydrocotyle Americana; *American Navelwort.* Leaves kidney-form, sublobate, crenate. It has the appearance and size of the first species.—Native of North and South America, and the East Indies.

4. Hydrocotyle Hirsuta; *Hairy Navelwort.* Hirsute: leaves kidney-form, lobate, crenate; whorls four-flowered.—Native of Hispaniola.

5. Hydrocotyle Asiatica. Leaves kidney-form, toothletted. —Native of the East Indies, Japan, and the Cape.

6. Hydrocotyle Chinensis. Leaves linear; umbels many-flowered.—Native of China.

7. Hydrocotyle Villosa. Leaves cordate, entire, villose. Root fibrous; peduncles several, filiform, shorter than the leaves, one-flowered.—Native of the Cape.

8. Hydrocotyle Glabra. Leaves obovate, smooth; stems creeping; flowers axillary, peduncled.—Native of the Cape.

9. Hydrocotyle Virgata. Leaves linear, smooth.—Native of the Cape.

10. Hydrocotyle Linifolia. Leaves linear-lanceolate, hirsute, entire. It resembles the preceding, but has longer leaves and peduncles.—Native of the Cape.

11. Hydrocotyle Tomentosa. Leaves obovate, toothed, tomentose; root caulescent, branched on the surface of the earth. The whole plant hoary, tomentose; peduncles lateral next the lower leaves, and of the same length with them; receptacle of the flowers very dark purple; petals white.—Native of the Cape.

12. Hydrocotyle Tridentata. Leaves wedge-shaped, trifid, villose.—Native of the Cape.

13. Hydrocotyle Ranunculoides. Leaves five-parted, gashed; stem creeping, jointed; umbels simple; petals white.—Native of Mexico, discovered by Mutis.

14. Hydrocotyle Erecta. Leaves cordate, crenate; scapes the length of the petioles, having a few flowers at the top.—Native of Jamaica.

15. Hydrocotyle Moschata. Leaves kidney-form, seven-lobed, serrate, villose; umbels many-flowered.—Native of New Zealand.

Hydrolea; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* perianth five-parted; parts oblong, acute, unequal, permanent. *Corolla:* one-petalled, wheel-bell-shaped; tube shorter than the calix; limb five-parted, spreading; segments ovate, incumbent. *Stamina:* filamenta five, awl-shaped, cordate at the base; antheræ oblong, curved, incumbent. *Pistil:* germen ovate; styles two, filiform, spreading; stigmas truncate. *Pericarp:* capsule ovate, two-celled, two-valved; partition contrary. *Seeds:* very many, minute, imbricated, with an ovate large receptacle. *Observe.* In some flowers the calix and corolla are six-cleft, with six stamina. Essential Character. *Calix:* five-leaved. *Corolla:* wheel-shaped. *Filamenta:* cordate at the base. *Capsule:* two-celled, two-valved.——The species are,

1. Hydrolea Spinosa; *Prickly Hydrolea.* Stem with axillary spines; flowers clustered, terminating; spines axillary, spreading.—Native of South America.

2. Hydrolea Inermis; *Unarmed Hydrolea.* Stem unarmed; flowers solitary, lateral, blue; corolla wheel-bell-shaped. Annual.—Native of moist places near Canton in China.

3. Hydrolea Zeylanica. Stem unarmed; flowers subracemed; leaves lanceolate, alternate, petioled, oval-oblong, quite entire, sharpish, even; peduncles opposite to the leaves, axillary, or terminating, one-flowered; corolla blue.—Native of the East Indies.

4. Hydrolea Trigynia. Stem spiny; leaves oblong, hirsute; flowers three-styled, axillary.—Native of the West Indies.

Hydrophylax; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, upright, four-parted, superior, permanent; segments ovate, acute, margined, somewhat fleshy. *Corolla:* one-petalled, funnel-form; tube longer than the calix; limb angular, four-cleft; segments ovate, revolute; throat bearded. *Stamina:* filamenta four, placed on the tube, decurrent, upright, longer than the corolla; antheræ subhastate. *Pistil:* germen oblong, inferior; style filiform, curved; stigma bifid. *Pericarp:* berry juiceless, ovate, compressed, with three ribs on each side, the middle one higher, with an attenuated margin, a little bowed in, fungous, two-celled, with a transverse partition. *Seeds:* solitary, oblong, bowed in a little, three-sided, two-grooved on the inner side, somewhat rugged. Essential Character. *Calix:* four-parted. *Corolla:* funnel-form. *Fruit:* ancipital, one-seeded.——The only known species of this genus is,

1. Hydrophylax Maritima. Root simple, filiform, blood-red, long, fleshy, sweet; stem creeping, filiform, smooth, coloured, jointed, sheathed with blunt, membranaceous, permanent sheaths, very long; leaves opposite, spreading, ovate-acute, quite entire, approximating, fleshy, shining; flowers axillary, subsessile, usually two together, but not opposite, erect; corolla pale blue; antheræ blue. It has the appearance of Arenaria Rubra Maritima, but is larger.—Found in the driving sand upon the sea-shore near Guduluhr in the East Indies.

Hydrophyllum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, scarcely shorter than the corolla, spreading, permanent, with awl-shaped segments. *Corolla:* one-petalled, bell-shaped, five-cleft; segments upright, obtuse, emarginate. Nectary a cleft closed by two longitudinal converging plates, fastened to the petal within the middle of each segment. *Stamina:* filamenta five, awl-shaped, longer than the corolla; antheræ incumbent, oblong. *Pistil:* germen superior, ovate, acuminate; style awl-shaped, the length of the stamina; stigma bifid, acute, spreading. *Pericarp:* capsule globular, one-celled, two-valved. *Seed:* single, round, large; (according to Gærtner, four, resting within a berried receptacle.) Essential Character. *Corolla:* bell-shaped, having five longitudinal melliferous streaks on the inside. *Stigma:* bifid. *Capsule:* globular, two-valved.—The plants of this genus endure cold well, but require to be planted in a moist rich soil, and shady situation, and will not thrive in a warm dry soil unless constantly watered in dry weather. They may be increased by parting the roots in autumn, and will require abundant watering, if not well rooted before the spring.——The species are,

1. Hydrophyllum Virginicum; *Virginian Water-leaf.* Leaves pinnatifid. The root is composed of many strong fleshy fibres, which spread wide on every side; from this arise many leaves on footstalks five or six inches long, of a lucid green. The flowers rise with footstalks from the root, having one or two small leaves of the same shape with the lower; they are in loose clusters hanging down, and of a dirty white colour, making no great show; seeds regularly four, but often fewer, nestling in the receptacle, irregularly ovate and angular, elegantly netted, with very minute excavations. It flowers here in May and June, sometimes ripening seed in August.—Native of moist spongy ground in Virginia and Carolina.

2. Hydrophyllum Canadense; *Canadian Water-leaf.* Leaves lobate, angular. It has the same structure as the preceding, differing only in the leaves, which have the same shape as those of the Maple. It flowers in May; and is a native of Canada.

3. Hydrophyllum Appendiculatum. Plant very rough; radical leaves somewhat winged; bunches of flowers subpaniculate; flowers pale blue, the calix extremely hispid, and almost the length of the corolla.—Found on shady rocks near springs in Virginia; also near Harper's Ferry, Tennessee, North America.

4. Hydrophyllum Lineare. Leaves linear; branches elongated.—Found by Mr. Lewis on the banks of the Missouri.

Hymenæa; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, coriaceous; tube short, turbinate, compressed, permanent, with an oblique mouth; limb five-parted, almost regular, upright, deciduous; segments ovate, blunt; two opposite, flattish, a little broader; two others concave, with one side narrower. *Corolla:* five-petalled, inserted into the neck of the calix, somewhat subpapilionaceous; petals almost equal; banner, the two uppermost petals obliquely ovate, obtuse,

sessile, at the upper concave segment of the calix; wings, two petals similar, lateral, a little narrower; keel, the lowest petal, channelled and excavated, approximating to the wings, within the hollow segment of the calix. *Stamina:* filamenta ten, distinct, awl-shaped, erect, bent down above the middle, very long, between the keel and the wings, inserted into the neck of the calix; antheræ linear, fixed by the back. *Pistil:* germen sabre-shaped, compressed, pedicelled; style very long, bristle-shaped, bent down; stigma thickened, obliquely truncate. *Pericarp:* legume woody, very large, ovate-oblong, obtuse, one-celled, filled with farinaceous pulp. *Seeds:* several, four to eight, large, ovate, wrapped up in pollen and fibres. ESSENTIAL CHARACTER. *Calix:* five-parted. *Petals:* five, almost equal. *Style:* twisted inwards. *Legume:* filled with a farinaceous pulp.——The only known species is,

1. Hymenæa Courbaril; *Locust Tree.* Stem large, covered with a russet bark, dividing into many spreading branches, garnished with smooth stiff leaves which stand by pairs, their base joining at the footstalk. The flowers are produced in loose spikes at the end of the branches, some of the short ligneous footstalks supporting two, and others three flowers, which are composed of five yellow petals striped with purple; and are succeeded by thick fleshy brown pods, shaped like those of the garden bean, six inches long, and two and a half broad, of a purplish brown colour, and ligneous consistence, containing three or four seeds, enclosed in a whitish substance of fine filamenta as sweet as honey. This substance, which purges when fresh gathered, but loses that property as it grows old, is eaten by the Indians with great avidity. The wild bees are fond of building their nests in this tree, which grows to a considerable size, and is looked upon as excellent timber; but it must be very old before it is cut, otherwise the heart will be but small. It is in great request for wheel-work in the sugar-mills, particularly for cogs to the wheels, being extremely hard and tough, capable of receiving a fine polish, and so heavy that a cubic foot weighs a hundred pounds. From between the principal roots of the tree a fine yellowish or red transparent resin, called gum-anime, exudes. It is collected in large lumps, and makes a varnish superior to Chinese lacca, when dissolved in the highest rectified spirits of wine. It burns readily, and with a clear flame, emitting a grateful fragrant smell, on which account it is sometimes ordered by way of fumigation, in the chambers of persons labouring with asthmas or suffocating catarrhs. Its vapours not only strengthen the head, but all parts of the body affected with cold. Some apply it outwardly, dissolved in oil or spirits of wine, to strengthen the nerves. An oil may be distilled from it, efficacious in palsies, cramps, and contractions of the sinews. A decoction of the leaves expels flatulencies, and gives ease in colic pains, by gently opening the bowels; and the inward bark is an excellent vermifuge, in substance or decoction.—Native of the West Indian Islands, where it grows in great plenty. It is easily raised from fresh seeds, which must be sown in pots, and plunged into a hot-bed of tanners' bark. There should be but one seed put into each pot, or, if there be more, when the plants appear they should be all drawn out to one, soon after they come up, before their roots entangle, when it will be hazardous doing it; and if great care be not taken, the plant intended to be left, may be drawn out with the other. As the roots are but slender, this plant is very difficult to remove, for unless a ball of earth be preserved to their roots, they seldom survive their removal, and on that account they must be seldom transplanted from one pot to another. The plants must constantly remain in the tan-bed in the stove, and should be treated in the same way as other tender plants of the same country, giving them but little water, especially in the winter. They make considerable progress for two or three months after they first appear; after which they will perhaps stand a whole year without shooting, growing very like the Cashew-nut, or Anacardium, and being very difficult to preserve long in this country.

Hyobanche; a genus of the class Didynamia, order Angiospermia.—GENERIC CHARACTER. *Calix:* perianth seven-leaved; leaflets linear, acuminate, erect, the length of the corolla. *Corolla:* one-petalled, ringent; upper lip vaulted, emarginate; lower none. *Stamina:* filamenta four, twin, inserted into the base of the corolla, of a middling length; antheræ ovate, nodding, opening on the upper side. *Pistil:* germen ovate; style filiform, curved at the top; stigma thickened, blunt, emarginate. *Pericarp:* capsule roundish, two-celled. *Seeds:* numerous, small. *Observe.* The calix and corolla prevent it from being associated with *Orobanche.* ESSENTIAL CHARACTER. *Calix:* seven-leaved. *Corolla:* ringent, without any lower lip. *Capsule:* two-celled, many-seeded.——The only known species is,

1. Hyobanche Sanguinea. Stem half a foot high, quite simple, woody, thick, closely imbricated with leaves, or rather ovate scales, convex on the outside, smooth, blunt; spike terminating, dense, fleshy, villose, the length of the stem, and three times as broad, imbricated with bractes and flowers. The whole plant resembles the Orobanche in structure, but is blood-red.—Parasitical at the roots of shrubs, at the Cape of Good Hope.

Hyoscyamus; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, tubular, ventricose at bottom, with a five-cleft sharp mouth, permanent. *Corolla:* one-petalled, funnel-form; tube cylindrical, short; limb from erect spreading, half five-cleft; segments obtuse, one broader than the others. *Stamina:* filamenta five, awl-shaped, inclining; antheræ roundish. *Pistil:* germen roundish; style filiform, the length of the stamina; stigma headed. *Pericarp:* capsule ovate, obtuse, marked with a line on each side, two-celled, two capsules closely approximating, with a lid opening horizontally; receptacles half ovate, fixed to the partition. *Seeds:* numerous, unequal, irregular. *Observe.* The seventh and eighth species differ in having the fruit seldom opening, and a more regular corolla. ESSENTIAL CHARACTER. *Corolla:* funnel-form, obtuse. *Stamina:* inclined. *Capsule:* : two-celled, covered with a lid.—This genus consists of biennial plants, which perish soon after they have perfected their seeds. They flower in June and July, and their seeds ripen in the autumn, which, if permitted to scatter, will produce plenty of the plants in the following spring; or if the seeds be sown at that season, they will succeed much better than plants sown in the spring, which seldom come up in the same year. They are all hardy except the second species, and require no other culture than weeding and thinning where they grow too close. ——The species are,

1. Hyoscyamus Niger; *Black* or *Common Henbane.* Leaves stem-clasping, sinuate; flowers sessile. It has long fleshy roots, which strike deep into the ground, and are branched; bottom leaves soft, deeply gashed on their edges, and spreading on the ground. The stalks, which do not rise till the second spring, have leaves of the same shape, but smaller and clasping, and about two feet high: on the upper part are flowers standing on one side in a double row, sitting close to the stalk alternately. The corolla is yellow, or rather pale yellowish-brown, beautifully netted with purple veins, and a dark purple eye or base; seeds very abundant, gray, excavated and angular. The whole plant is covered with unctuous fetid hairs, producing a strong and peculiar odour, greatly

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

Published by Nuttall, Fisher & Dixon Liverpool, Oct.r 1817.

affecting the head of some persons as soon as they come within its atmosphere. Linneus says, that it is not touched by any animal except the goat, who is not partial to it. He informs us that the roots of it scattered about a house will drive away mice; but who would endanger the lives of children and ignorant persons by strewing their apartments with so dangerous a root, which the illustrious Swede himself acknowledges to have been frequently eaten for parsnips, producing delirium, madness, convulsions, and death. The root, herb, and seeds, taken internally, are deservedly reputed poisonous, for well-attested instances of their bad effects are recorded. Notwithstanding this, however, Henbane has been used as a medicine from time immemorial, and there is no doubt of its being a useful medicine under proper management. The Edinburgh college orders the expressed juice of the plant to be evaporated to an extract, in which state it may perhaps be advantageously joined with opium, where the purgative effects of that medicine are desirable, and costiveness is to be avoided: the dose is from half a scruple to half a drachm. Villars says, the extract may be safely given in a dose of two or three grains, gradually increasing the quantity; but that it ought to be prepared from the plant just going into flower, and in balneo mariæ, for it has neither odour nor activity, if the plant be young, or if the extract be made with an open strong fire. He administered it internally in epilepsy and convulsions, and found that it put off the fits, and diminished their violence, though it did not effect a cure. Baron Stoerck, and others, have not only recommended it in the above disorders, but in mania, hæmoptoe or spitting of blood, the dry cough, and universally wherever an anodyne is wanting to quiet the nervous irritation; beginning with a single grain of the extract, and gradually increasing the dose to five grains. Some more daring practitioners proceed as far as fifteen grains; but in general it is more advisable to continue the use of the medicine longer, than to give it in very large doses. It has been administered, even in a cataract, to the quantity of two grains, mixed with Mercurius Dulcis. The leaves, bruised and fried, have been successfully applied to the piles, and in muscular spasms. Like other narcotics, they assist in softening indurations of the glands. An oil expressed from the seeds is used outwardly as an anodyne; and the common people sometimes smoke them for the toothache, or put a piece of the root boiled in milk at the root of the tooth. The roots also cut in pieces, and strung like beads, are used for anodyne laces to hang about children's necks, for preventing fits, and causing the teeth to breed easily. A decoction of the Henbane has been given in clysters, to assuage panes of the intestines; but this is dangerous: and, indeed, taken altogether, Henbane is a medicine not to be trifled with, nor to be at all taken without good advice. Mr. Miller warns us, that a mixture of these roots having been imported with Gentian, were productive of very bad effects.—A variety of this species, has the corolla and antheræ of a pure brimstone colour, without the least tinge of purple. The seeds being sown in the botanic gardens at Chelsea, produced the very same variety. Henbane is a biennial plant, flowering in June, and native of waste places, particularly near towns and villages in most parts of Europe. It probably obtained its English name from a notion that it is injurious to poultry, which, whether true or not, we have had no opportunity of ascertaining. The Germans call it, *Bilsenkraut*; the Dutch, *Bilsenkruid*; the Danes *Bulme*, *Honsebane*, &c.; the Swedes, *Bolmort*, *Honsabale*; the French, *La Jusquiame*; the Italians, *Giusquiamo*, *Fava-porcina*; the Spaniards, *Beleno*, *Veleno*; the Portuguese, *Miemendro*, *Velenho*, *Yosciamo*; and the Russians, *Belena*.

2. Hyoscyamus Reticulatus; *Egyptian Henbane*. Stem-leaves petioled, cordate, sinuate, acute; floral-leaves quite entire; corollas ventricose. It rises with a branching stalk two feet high; the whole plant is smooth; flowers on a very short peduncle; corolla bell-shaped, red, beautifully netted with dark veins. Annual, flowering in July.—Native of Egypt, Syria near Aleppo, and of the island of Candia. This plant requires a warm situation and a dry soil, in which it will endure the winter better than in rich ground.

3. Hyoscyamus Albus; *White Henbane*. Leaves petioled, sinuate, obtuse; flowers sessile. This resembles the Black in most circumstances, but the leaves are more rounded or obtuse, petioled, sinuate, very soft, bearded with white hairs, as is also the stem; flowers fewer, the lower on longer peduncles, the upper on very short ones. The corolla varies with the base dark purple or green.—Annual, flowering in August, and a native of the south of Europe. The seeds, which are very numerous, small, compressed a little, incurved or kidney-form, closely scrobiculate and whitish ash-coloured, are recommended as cooling, emollient, and excellent to ease pain. They procure sleep like opium, but without affecting the head. Taken in doses of half a scruple, they assuage the pain arising from colic, and are excellent in coughs and other disorders of the breast, spitting of blood, immoderate menstrual discharges, and all other hæmorrhages.

4. Hyoscyamus Aureus; *Golden-flowered* or *Shrubby Henbane*. Leaves petioled, toothed, acute; flowers peduncled; fruits pendulous. This is a perennial plant, with weak stalks requiring support. The flowers come out at each joint of the stalk; they are large, and of a bright yellow, with a dark purple bottom. The style is much longer than the corolla. Prosper Alpinus, and others, make two varieties of this, differing only in size, and the shade of colour in the corolla. It flowers most part of the summer, and sometimes ripens seed in autumn.—Native of Candia, and other parts of the Levant. The seeds sown in pots as soon as they are ripe, and placed under a hot-bed frame in winter, will produce plants in the spring, but rarely succeed if put in the ground at that season. This species will last several years in pots, if screened from the frosts in winter, when it must be placed under a common hot-bed, where it may enjoy as much free air as possible, and will thrive better there than if more tenderly treated. It may be easily propagated by cuttings, which, if planted in a shady border during any of the summer months, will take root in five or six weeks, and may be removed into pots, and treated like the old plants.

5. Hyoscyamus Muticus; *Awnless Henbane*. Leaves petioled, ovate, acute-angular; calices awnless; bractes undivided. Stem a foot high, a finger thick, erect, roundish; corolla on the outside at first green, then whitish, on the inside very dark purple, with the two lowest segments whitish, but finally the whole corolla becomes white and unspotted. Biennial.—Native of Egypt and Arabia.

6. Hyoscyamus Pusillus; *Dwarf Henbane*. Leaves lanceolate, toothed; lower floral leaves in pairs; calices spiny. Stem a hand high, brittle, oblique, undivided, having long hairs; corolla yellow, with a dark throat. Annual; flowering in July.—Native of Persia.

7. Hyoscyamus Physaloides; *Purple-flowered Henbane*. Leaves ovate, quite entire; calices inflated, subglobular. Root perennial; stems a foot high, simple, erect, round, rough-haired; corollas purplish, funnel-form, upright.—Native of Siberia.

8. Hyoscyamus Scopolia; *Nightshade-leaved Henbane*. Leaves ovate, entire; calices inflated, bell-shaped, even. Root perennial, transeverse, knobbed, thick, irregular, branched,

flexuose, the thickness of the human thumb; stem herbaceous, upright, round, smooth; peduncles one-flowered, pendulous from the axils, weak, two inches long; corolla of the same shape and colour as in Atropa Belladonna; seeds kidney-form, rather large, elegantly dotted very closely in rows, with little holes, and of a very pale yellow colour. It flowers with us in May; and in April in the woods of Idria in Friuli, of which it is a native.

Hyoseris; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common cylindric, angular, consisting of about eight leaves, permanent; scales lanceolate, erect, acute, slightly keeled, equal; calicled at the base, with fewer, very short, close scales. *Corolla:* compound subimbricate, uniform, composed of many hermaphrodite corollets; proper one-petalled, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short; antheræ cylindrical, tubular. *Pistil:* germen oblong; style filiform, the length of the stamina; stigmas two, reflex. *Pericarp:* none; the common calix close or spreading. *Seeds:* solitary, oblong, membranaceous, streaked on one side along the middle, almost the length of the calix. Essential Character. *Calix:* almost equal; down hairy and calicled; receptacle naked.—All the plants belonging to this genus, except the sixth, are hardy, and may easily be propagated from seeds either sown in the spring, or left to scatter of themselves. They require in general a dry soil. ——The species are,

* *Stem naked.*

1. Hyoseris Fœtida; *Stinking Hyoseris.* Scapes one-flowered; leaves pinnatifid; seeds naked. Root perennial, single, cylindrical, thick, woody, fetid; flower middle-sized, yellow above, and red beneath. The whole plant has a disagreeable smell, and much resembles Dandelion, but the flower is smaller, and of a deeper yellow colour. They appear in July.—Native of the mountains of Italy, Dauphiny, Carniola, and Switzerland, and found in various parts of Germany and France.

2. Hyoseris Radiata; *Starry Hyoseris.* Scapes one-flowered; leaves smooth, runcinated, with toothed angles, laciniated at top. The peduncles and rachis of the leaves farinaceous.—Native of the south of France; the county of Nice, on hills near the coast; and of Spain.

3. Hyoseris Lucida; *Shining Hyoseris.* Scapes one-flowered; leaves somewhat fleshy, runcinate, angular, toothed. This very much resembles the preceding, but the leaves are thicker, lucid, and more shortly toothed. It flowers from June to August.—Native of the Levant.

4. Hyoseris Scabra; *Rugged Hyoseris.* Scapes one-flowered; leaves rugged; seeds downy. Annual.—Native of Sicily, Nice, and neighbourhood of Villa Franca.

5. Hyoseris Virginica; *Virginian Hyoseris.* Scapes one-flowered; leaves lanceolate, lyrate, smooth; corolla deep yellow; seeds four-cornered.—Native of Virginia.

6. Hyoseris Pygmæa; *Dwarf Hyoseris.* Scapes one-flowered; leaves spatulate, toothed, ciliate; calices hairy; hairs and cilias forked; down stiped, feathered. This is an annual plant, flowering in June and July; and a native of Madeira. It can only be raised in a green-house.

7. Hyoseris Minima; *Least Hyoseris.* Stem divided, naked; peduncles thickened. Root annual, small but woody, with a few rigid fibres; stems several, six to nine inches high, naked, round, smooth; leaves spreading in a circle, bluntly oval, tapering into the footstalks, toothed on the sides; corolla yellow; seeds oval, striated. Dr. Withering calls this plant Small Swine's-eye.—It flowers in May and June, and is a native of most parts of Europe, in pastures and corn-fields of a sandy soil. Though not very common in England, it is found about Hampton Court, and in Teddington field; near Walthamstow, in Essex; Pershore, in Worcestershire; in the neighbourhood of Norwich; near Gamlingay, in Cambridgeshire; Spratton, in Northamptonshire; and about Forfar, and between Dundee and St. Andrews, in Scotland.

** *Stem leafy.*

8. Hyoseris Hedypnonis; *Branching Hyoseris.* Fruits ovate, smooth; stem branched, weak, and bending at each joint; flower yellow, small, nodding. It flowers in June.—Native of the south of Europe.

9. Hysoseris Rhagadioloides; *Nipplewort Hyoseris.* Fruits ovate, hairy; stem branched.—It is an annual plant, flowering in July and August, and native of the south of Europe.

10. Hyoseris Cretica; *Cretan Hyoseris.* Fruits ovate, rugged; stem branched. Root annual, round, fibrous, white within, brown without; flowers solitary, erect, terminating, and axillary; corollets short, pale yellow. It flowers in May and June; with us in June and July.—Native of Candia, of the county of Nice, and common about Madrid.

11. Hyoseris Montana. Plant very glabrous, procumbent; leaves lanceolate, very entire; scape one-flowered.—Found by Michaux on the mountains of Carolina.

12. Hyoseris Angustifolia. Leaves linear-lanceolate; scape one-flowered; flowers large, bright yellow.—Found in pastures and fields in Virginia and Carolina.

13. Hyoseris Caroliniana. Leaves lyrate at the base; scape one-flowered.—Native of Carolina.

Hypecoum; a genus of the class Tetrandria, order Digynia.—Generic Character. *Calix:* perianth two-leaved, small; leaflets ovate, acute, erect, opposite, deciduous. *Corolla:* four-petalled, the two outer petals opposite, broader, trifid, obtuse, the two inner alternate with the others, semitrifid; the middle segment concave, compressed, erect. *Stamina:* filamenta four, awl-shaped, erect, covered by the middle segment of the inner petals; antheræ erect, oblong. *Pistil:* germen oblong, cylindrical; styles two, very short; stigmas acute. *Pericarp:* silique long, curved inwards, jointed. *Seed:* solitary in each joint of the pericarp, globular, compressed. Essential Character. *Calix:* two-leaved. *Petals:* four, the two outer broader and trifid. *Fruit:* a silique.—The plants of this genus being all annual, are propagated by seeds, which should be sown soon after they are ripe, on a bed of light fresh earth, where they are to remain, for they seldom succeed if transplanted. When the plants come up, clear them from weeds, and thin them to the distance of six or eight inches. When the seeds are sown in the spring, and the season proves dry, they will not grow the first year, but if the ground be kept clean from weeds, and not otherwise disturbed, the plants will come up in the following spring. The seeds will sometimes lie even till the third spring. Hence it is best to sow them in a warm border in autumn, which will produce stronger plants, and be more likely to perfect seeds than those sown in spring. The seeds should be divested of their fungous covering before they are sown, for that adheres so close that it prevents their growing until it be decayed. If the seeds are allowed to scatter, they will frequently come up of themselves without any care. In large gardens, these plants, which require little room, when intermixed with other small annuals, will make a pretty appearance in the borders.——The species are,

1. Hypecoum Procumbens; *Procumbent Hypecoum.* Siliques bowed, compressed, jointed. Root simple, sometimes bifid, long, but annual, having only a few fibres; leaves divided by many incisures resembling those of Fumitory, pale green with a tinge of grayish or glaucous colour, spread on

the ground; stems several, slender, somewhat compressed, naked at bottom, but having two or three small leaves at top; peduncles each sustaining one small yellow flower, appearing in June and July, producing seed in August.—Native of the south of Europe.

2. Hypecoum Pendulum; *Pendulous Hypecoum.* Siliques pendent, not jointed, bivalved, incurvated. Stalks slender. This flowers and seeds at the same time as the first species. —Native of the south of France.

3. Hypecoum Erectum; *Upright Hypecoum.* Siliques erect, round, torulose.—The juice of this and of the other species is of a yellow colour, resembling that of Celandine, and is said to operate like opium.—Native of Dauria and Istria.

Hypelate; a genus of the class Polygamia, order Monœcia. —Generic Character. *Hermaphrodite Flowers. Calix:* perianth five-leaved, seldom four-leaved; leaflets ovate, concave, spreading, deciduous, two less than the others. *Corolla:* petals five, ovate, a little less than the calix, deciduous, with a nectariferous umbilicus about the germen. *Stamina:* filamenta eight, spreading round the base of the germen, the length of the corolla; antheræ ovate, cordate. *Pistil:* germen globular, superior; style short, upright; stigma bent down, three-sided, three-grooved, acute. *Pericarp:* drupe pulpy, roundish. *Seed:* nut oval, very smooth, with a single kernel. *Male Flowers* on the same tree, but upon a distinct panicle; calix and corolla as in the hermaphrodite: nectary also as in that; from the middle of this, the *Stamina:* filamenta eight, converging at the base, from erect reflex, and ascending, broader at the base; antheræ ovate, cordate. *Pistil:* three-cornered rudiment of a germen; style awl-shaped, very small. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Stigma:* bent down, three-cornered. *Drupe:* one-seeded.——The only known species is,

1. Hypelate Trifoliata. This shrubby tree has several trunks, each as big as a man's leg, straight, eight or nine feet high, covered with a smooth cinnamon-coloured bark. Browne observes, that it is full of slender branches, and furnished with many leaves, of the same texture and grain as those of Lignum Vitæ, yet remarkably different in form and disposition.—Native of the low lands of Jamaica.

Hypericum; a genus of the class Polydelphia, order Polyandria.—Generic Character. *Calix:* perianth five-parted; segments subovate, concave, permanent. *Corolla:* petals five, oblong-ovate, obtuse, spreading, wheel-shaped, according to the sun's apparent motion. *Stamina:* filamenta numerous, capillary, united at the base in five or three bodies; antheræ small. *Pistils:* germen roundish; styles three, sometimes one, two, or five, simple, distant, the length of the stamina; stigmas simple. *Pericarp:* capsule roundish, with the same number of cells as there are styles. *Seeds:* very many, oblong. Essential Character. *Calix:* five-parted. *Petals:* five. *Filamenta:* many, connected at the base in five bundles.—This extensive genus consists of herbs, shrubs, or under-shrubs, with cylindrical, ancipital, or quadrangular stems; roots perennial; leaves simple, opposite, sessile, entire, frequently with pellucid dots; flowers sometimes in cymes, but more frequently in corymbs, with the peduncles often trichotomous and three-flowered, terminating or axillary also; corolla yellow and brilliant. The whole herbage generally smooth, with glandular pellucid dots, and an aromatic scent; rarely downy. *Linneus* divides this genus into four subordinate parts from the number of styles. The predominating number however is three. *Jussieu* remarks, that it admits of being split into six genera: 1. With five styles, No. 1 to 12; and a capsule with five cells.—2. With three styles, and a three-celled capsule, with the pencils of filamenta scarcely united at the base, as No. 14, &c.—3. With a soft pericarp resembling a berry, almost one-celled, turgid, with a blood-red juice, No. 13, &c. This division has three styles, and in other respects resembles that immediately preceding.—4. With three styles, and a pericarp of three cells, No. 48, &c. the filamenta united up to the middle, the disk of the germen glandular, as are also the claws of the petals.—5. With two styles and a two-celled pericarp, No. 54, 55, &c.—and, 6. With one style, No. 56, 57, &c. or five styles so closely joined as to seem one.——The species are,

* *With five Styles.*

1. Hypericum Balearicum; *Warted St. John's Wort.* Stem shrubby; leaves and branches warted. It rises with a slender, quadrangular, shrubby stalk about two feet high, but in its native soil attains the height of seven or eight feet, sending out several weak branches of a reddish colour, and marked with scars where the leaves have fallen off. Flowers terminating, large, bright yellow; capsules pyramidal, having a strong smell of turpentine, and filled with small brown seeds. It has a succession of flowers during great part of the year, and is therefore valuable.—Native of Majorca. This plant requires no artificial heat. If placed in a dry airy glass-case in winter, where protected from frost, it will thrive better than in a warmer situation. Damp air, however, must be avoided. They should be sparingly watered in winter, but three times a week in summer, when they may also be exposed to the open air. They are propagated by cuttings planted in June, in pots filled with light earth, and plunged into a very moderate hot-bed, shading them from the sun, and refreshing them with water. They will put out roots in six or seven weeks, when they should be carefully taken up, and each planted in a separate small pot, placing them in the shade till they have taken new root; then they should be removed to a sheltered situation, where they may remain till frost comes, when they must be put into a green-house or glass-case. It may also be increased by seeds in autumn.

2. Hypericum Kalmianum; *Virginian St. John's Wort.* Stem shrubby; leaves linear-lanceolate. Shrubby with quadrangular branches: at the end of each branch is produced one pretty large flower, with a blunt calix; stamina as long as the petals.—Native of North America. This, with the other North American sorts, seldom producing any seeds here, may be increased by parting the roots in autumn. It should have a light soil, and an open situation.

3. Hypericum Cayanense; *Cayenne St. John's Wort.* Corollas bearded; calices striated; leaves ovate; stem shrubby. This is an upright branching tree, eighteen feet high; racemes compound, terminating; petals white, hirsute within; fruit a berry, with a fulvous staining juice; seeds numerous.—Native of Cayenne.

4. Hypericum Bacciferum; *Berry-bearing St. John's Wort.* Corollas bearded; calices even; leaves ovate; stem shrubby, three fathoms high; flowers terminating, panicled, on short peduncles.—Native of Mexico and Brazil. It is a hardy plant.

5. Hypericum Calicinum; *Great-flowered St. John's Wort,* or *Tutsan.* Flowers solitary; stem suffruticose, branched; calices obovate, very blunt; leaves distich, oblong. The stalks of the large-flowering Tutsan are slender, and incline downwards; flowers terminating, peduncled, solitary, bright yellow. The stems are only tinged with red in some places; the leaves on the young shoots are of a beautiful light green, of regular ovate form, and half embrace the stem. It is very hardy, and increases much by the creeping roots. Like the Periwinkle, it is a plant well adapted to cover a bank, or bare spots under trees, where few other plants will thrive.—Native

of the country near Constantinople. To propagate it, part the roots in October.

6. Hypericum Pyramidatum; *Pyramidal St. John's Wort.* Flowers subpanicled; stem slightly four-cornered, herbaceous, branched; calices ovate, acute. It flowers in July and August. —Native country unknown.

7. Hypericum Alterniflorum; *Alternate-leaved St. John's Wort.* Flowers axillary, solitary; leaves lanceolate, alternate; stem shrubby.—Native of the East Indies.

8. Hypericum Syriacum; *Syrian St. John's Wort.* Calices leafy; stem herbaceous; leaves alternate, ovate, acute. Stem about a foot high; flowers panicled on the branches, terminating; petals ovate, concave, coriaceous.—Native of dry places in the Syrian desert.

9. Hypericum Guineense; *Guinea St. John's Wort.* Flowers subumbelled; stem shrubby; branches round; leaves ovate, acute; bark ash-coloured.—Native of Guinea.

10. Hypericum Petiolatum. Stem arboreous; leaves ovate. Paniele terminating, brachiate, the length of the leaf; petals obovate, straighter on one side, the length of the calix. It has the appearance of Bay, and abounds with a saffron-coloured juice.—Native of New Granada.

11. Hypericum Patulum. Flowers solitary, terminating; stem frutescent, lax; leaves ovate, rolled back at the edge. Corolla yellow, reddish underneath.—Native of Japan.

12. Hypericum Ascyron. Stem four-cornered, herbaceous, erect, simple; leaves even, quite entire. Flowers terminating; calix green; corolla pale yellow; petals an inch long.—Found upon the Pyrenees; also in Siberia and Canada. Linneus says the leaves are acute.

** *With three Styles.*

13. Hypericum Androsæmum; *Common Tutsan.* Fruits berried; stem shrubby, ancipital. Stem suffruticose or undershrubby, two feet high, of a reddish colour, and smooth; branches spreading; leaves opposite, sessile, ovate, entire, smooth, dark green, glaucous on the under side, netted with numerous projecting veins and nerves, which become ferruginous through age; flowers small for the size of the plant, disposed in a cyme; peduneles round, smooth, usually two or three flowered, but sometimes one-flowered. The leaves, says Hill, are an excellent cure for fresh wounds: scarcely any thing is equal to them. Those that are young and tender at the tops of the branches, should be chosen. They are to be bound upon the wound, and will soon stop the bleeding. Many other plants are celebrated for this virtue, but the effects of this are so very singular and efficacious, that no other can be compared with it for healing fresh wounds. From this the French call it *La Toute Saine;* and the English, *Tutsan:* it is also called *Park-leaves,* from being frequently found in parks. It flowers from July to September.—Native of woods and moist hedges in the southern parts of Europe and Britain: it is sometimes found about Hampstead and Highgate; on Bacher-heath and Harefield, Middlesex; in the Oak-of-Honour-wood, near Peckham Rye, and in several parts of Norwood. In many parts of England it is more common; as, in the Duke of Bridgewater's woods at Askeridge, and near Berkhampstead, Hertfordshire; in lanes at the foot of Malvern Hill, Worcestershire; and between Worcester and Tewkesbury; in Shotover plantations; Stokenchurch and Nettlebed woods, Oxfordshire; near Pengwarry in Cornwall; in rocky woods in Westmoreland; at King's Cliff in Northamptonshire; and in Scotland in the woods at Inverary; and at Loch Ransa in the isle of Arran. It is not frequent in gardens, but in plantations it is as ornamental as many others. It may be increased by parting the roots, and loves shade, with a strong soil.

14. Hypericum Olympicum; *Olympian St. John's Wort.* Calices acute; stamina shorter than the corolla; stem shrubby. It rises with many upright woody stalks about a foot high: leaves small, lanceolate, sessile, opposite; flowers terminating, three or four together; petals oblong, bright yellow.—Native of the Levant. It is propagated by parting the roots in September, because the seeds seldom ripen in this country. It will live in the open air, in a warm situation and dry soil: but it will be proper to keep a plant or two in pots, to be sheltered under a frame in winter, to protect them from severe frost. If this be increased by seeds, they should be sown soon after they are ripe, in pots filled with light earth, and placed under a frame in winter; in spring the plants will appear, and when they are fit to remove, may be planted in a warm border, or in pots, and treated as the old plants.

15. Hypericum Foliosum; *Shining St. John's Wort.* Stamina the length of the petals; calices lanceolate, acute; leaves oval-oblong, sessile, smooth: it flowers in August.—Native of the Azores.

16. Hypericum Floribundum; *Many-flowered St. John's Wort.* Calices ovate, acute, subciliate; stamina shorter than the corolla; leaves lanceolate-elliptic, stem shrubby.—It flowers in August, and is a native of Madeira.

17. Hypericum Arborescens; *Tree St. John's Wort.* Corollas and calices even, smooth; leaves elliptic; racemes brachiate; stem arborescent. Branches quadrangular at the top, smooth, with a purplish bark; peduncles compressed.—Native of the East Indies.

18. Hypericum Gramineum; *Grass-leaved St. John's Wort.* Stem herbaceous, four-cornered, dichotomous; leaves oblong-parabolic, or ovate-lanceolate. Peduncles terminating, and at the divisions filiform, solitary, one-flowered, an inch long. —Native of New Caledonia, in the South Seas.

19. Hypericum Chinense; *Chinese St. John's Wort.* Peduncles axillary, two-flowered; leaves ovate-lanceolate, quite entire. This is a small tree or shrub, with alternate branches; styles broadish; germen three-cornered.—Imported from China.

20. Hypericum Cochin-chinense; *Cochin-chinese St. John's Wort.* Peduncles axillary, five-flowered or thereabouts; leaves subpetioled, very close together; stem arboreous. This is a middle-sized tree, about sixteen feet high, with ascending branches, divided into many dusky-red branchlets; petals scarlet, ovate, oblong, entire, spreading. The wood of this tree is red, heavy, hard, and tough, and is used for making oars and yards of vessels. The juice of the flowers dyes of a golden colour.—Native of the woods of Cochin-china.

21. Hypericum Petiolatum. Leaves ovate, petioled, quite entire, tomentose underneath; stem shrubby, four-cornered, compressed; stipules none; corymb brachiate; sets of stamina oblong, very handsome. This and the tenth species are inadvertently named alike.—Native of Brazil.

22. Hypericum Canariense; *Canary St. John's Wort.* Calices blunt; stamina shorter than the corolla; stem shrubby. It rises six or seven feet high, dividing into branches at top; leaves oblong, set by pairs close to the branches, with a strong odour, but less powerful than that of the twenty-fourth species, the flowers of which, those of this plant very much resemble. It flowers from July to September. Native of the Canary Islands. This, with the two following species, are propagated by suckers taken off in March, just before they begin to shoot, and planted in a light dry soil; or by cuttings, planted at the same season; or by seeds sown in autumn as soon as they are ripe: but as they multiply fast by suckers, the other methods are seldom used.

23. Hypericum Elatum; *Tall St. John's Wort.* Calices lanceolate-ovate, acute; stamina longer than the corolla; leaves ovate-oblong; stem shrubby: it flowers in July and August.—Native of North America. See the preceding species.

24. Hypericum Hircinum; *Stinking Shrubby St. John's Wort.* Stamina longer than the corolla; stem shrubby, ancipital. It rises with shrubby stalks about three feet high: flowers in terminating bunches; petals oval. It flowers from July to September.—Native of the south of Europe. See the twenty-second species.

25. Hypericum Ægyptiacum; *Egyptian St. John's Wort.* Nectaries of the petals lanceolate; stems suffruticose, compressed. A low branched shrub, with leaves like those of Knot-grass, ovate, very small, acuminate, veinless, sessile, longer than the joints of the branches; flowers commonly in pairs, on the branchlets.—Native of Egypt.

26. Hypericum Orientale; *Oriental St. John's Wort.* Stipules reflex; leaves oblong, toothletted, crenate. Roots in old plants hard, woody, and more than half a foot in length; in young plants a tuft of yellowish fibres three or four inches long; stems from six inches to a foot in height, some upright, others ascending, pale green, a line in thickness, with a small wing descending from one leaf to another. The whole plant has a resinous smell. It varies much in size, as does also the flower, the petals being sometimes ten lines in length. The leaves are bitter, and a little viscid.—Native of the Levant.

27. Hypericum Scabrum; *Rugged St. John's Wort.* Stem round, suffruticose, muricated; leaves oblong. Flowers small, in terminating corymbs.—Native of Arabia, &c.

28. Hypericum Repens; *Creeping St. John's Wort.* Stem round, creeping; leaves lanceolate-linear, obtuse. Root perennial; flowers terminating, three, the middle one sessile.—Native of the Levant and of Palestine.

29. Hypericum Prolificum; *Proliferous St. John's Wort.* Primordial flowers sessile; stem ancipital, shrubby; leaves lanceolate-linear; stamina not longer than the petals. It flowers from June to August.—Native of North America.

30. Hypericum Ericoides; *Heath-leaved St. John's Wort.* Leaves linear, imbricated.—Native of Spain and Portugal.

31. Hypericum Canadense; *Canadian St. John's Wort.* Leaves linear-lanceolate; stem herbaceous, quadrangular; pericarpia coloured, twice as long as the calix. This has the appearance of Lesser Centaury. Panicle dichotomous, with pedicelled flowers, which are very small, the size of those of Spurge. It flowers from July to September.—Native of North America, and of Canada.

32. Hypericum Virginicum; *Virginian St. John's Wort.* Flowers nine-stamined; stem round; leaves ovate, embracing.—Native of North America.

33. Hypericum Mexicanum; *Mexican St. John's Wort.* Branches simple; leaves imbricate, ovate. Stems a foot high; petals linear.—Native of New Granada.

34. Hypericum Lævigatum; *Smooth St. John's Wort.* Leaves ovate, somewhat stem-clasping; calicine leaflets ovate, acute; panicle trichotomous; middle-flower sessile. It flowers in July.—Native of North America.

35. Hypericum Reflexum; *Reflex-leaved St. John's Wort.* Leaves sessile, lanceolate, approximating, reflex; branches tomentose, panicle terminating. This is a large shrub, with divaricating branches.—Native of the island of Teneriffe.

36. Hypericum Quadrangulum; *Square-stalked St. John's Wort*, or *St Peter's Wort.* Leaves ovate, with pellucid dots; stem quadrangular, herbaceous. It is distinguished from all the other species by its square stalk. Root perennial, somewhat creeping and fibrous; stems a foot to eighteen inches high; branches decussately opposite; leaves blunt, smooth, strongly marked with seven or nine ribs; flowers small, terminating in close panicles; branchlets deep red, or blood-colour; peduncles very short; bractes subulate, in pairs; petals finely grooved, concave, marked with lines and dots, filled with a purple liquor, which stains paper with a muddy purple permanent stain. It flowers in July.—Native of most parts of Europe, in moist hedges, shady places, wet meadows, by rivulets, and in bogs. This, with the thirty-seventh, eighth, and ninth; the forty-second, fifth, and ninth; being wild plants, are seldom cultivated in gardens: they are not, however, without their beauty, and may be increased by parting their roots, and permitting their seeds to scatter.

37. Hypericum Perforatum; *Common* or *Perforated St. John's Wort.* Stem ancipital; leaves blunt, with pellucid dots. Root perennial, woody, brown. The whole plant is sprinkled over with small black glands, and is quite free from hairs; peduncles from the axils of the upper leaves, two-edged, supporting many flowers in a bushy panicle.—The common people of France, Germany, and Portugal, gather it with great ceremony on *St. John's Day*, and hang it in their windows, as a charm against storms, thunder, and evil spirits, mistaking the meaning of some medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a supposition of its efficacy in maniacal and hypochondriacal disorders. In Scotland also it is carried about as a charm against witchcraft and enchantment; and they fancy it cures ropy milk, which they suppose to be under some malignant influence, by milking afresh upon the herb. Although St. John's Wort is not much regarded in the present practice, yet its sensible qualities, and the repeated testimonies of its virtues, entitle it, as Dr. Cullen observes, to farther trials. To the taste it is astringent and bitter, and its effects seem chiefly to be diuretic. From possessing properties which have been generally called balsamic, it has been used as a vulnerary in external wounds and internal hæmorrhages; for the former purpose the tops and flowers of the plant are infused in oil, and for the latter, an infusion of the plant is made in the manner of tea. It has likewise been given in ulcerations of the kidneys, and has been supposed to possess virtues as a febrifuge. The leaves given in substance are said to destroy worms. The semitransparent dots on the leaves are the receptacles of an essential oil. The flowers tinge spirits and oils of a fine purple colour, which is probably derived from the little glands upon the antheræ and edges of the petals. The dried plant boiled with alum dyes wool of a yellow colour. Hill observes, that the virtues attributed to this plant are at once numerous and very wonderful. He says, an infusion of the young tops is good in the jaundice; its operation is by urine, the quantity of which it considerably increases if the use of it be continued for some time. The expressed juice is a remedy for spitting of blood; and the powdered leaves are frequently given by country people for the worms, as also in gouty and rheumatic complaints, and in agues.—It is common in woody thickets, hedges and dry banks, flowering from July to September.

38. Hypericum Dubium; *Imperforate St. John's Wort.* Stem imperfectly four-edged; leaves blunt, without pellucid dots; calicine leaflets elliptical. In habit, size, and colour, it nearly agrees with the preceding, but differs essentially in having no pellucid dots apparent on the leaves, and in the calicine leaves being elliptical and obtuse. It flowers in July and August.—Native of Germany, Dauphiny, and England; growing plentifully about Sapen in Worcestershire, at Hafod in Cardiganshire, and at Downton Castle near Ludlow.

39. Hypericum Humifusum; *Trailing St. John's Wort.* Flowers axillary, solitary; stems ancipital, prostrate, filiform; leaves smooth. Root perennial, yellow, fibrous; stems numerous, about eighteen inches in length, reddish, branched at top; peduncles axillary and terminating, solitary, or sometimes in pairs. It is the least of our wild Hyperica, scarcely inferior to any in beauty and delicacy, and is not unfrequent in gravelly pastures, in fields that have long lain untilled, on heaths, especially where the soil is moist and clayey, and sometimes in woods; flowering from June to August.

40. Hypericum Crispum; *Curled-leaved St. John's Wort.* Stem round; leaves sessile, lanceolate, waved and toothed at the base.—Native of Calabria, Sicily, and Greece.

41. Hypericum Linarifolium; *Toadflax-leaved St. John's Wort.* Calices serrate-glandular; stem round, upright; leaves linear, blunt, smooth. Branches nearly as high as the stem; corollas small, a little longer than the calix.—Found on the heaths near Bayonne and in Navarre.

42. Hypericum Montanum; *Mountain St. John's Wort.* Calices acute, serrate-glandular; stem round, upright; leaves oblong, smooth, embracing, sharpish; petals sometimes dotted towards the top.—Native of many parts of Europe, in woods and thickets, in high situations. Found in Britain, near Croydon in Surry; in Charlton-wood, Kent; on the Bath-hills near Bungay, in Suffolk; near Stokenchurch, Henley, and Maple-Durham, in Oxfordshire; near Pershore and Bredon-hill in Worcestershire; in many parts of the west of England; in the isle of Anglesea, North Wales; near Ingleton, and Furness Fells, in the north; and in some parts of Scotland.

43. Hypericum Barbatum; *Bearded-flowered St. John's Wort.* Calices and petals ciliate and dotted; leaves dotted. Root perennial; stem upright, simple, smooth, round, about a foot high, tinged with purple; flowers terminating, few, without smell.—Native of Austria, where it was found in pastures by wood-sides, flowering in June, and perfecting seeds in July and August.

44. Hypericum Glandulosum; *Glandulous St. John's Wort.* Calices serrulate-glandular; leaves lanceolate, glandular at the edge; stem shrubby. Branches obscurely four-cornered, smooth, dichotomous; corolla pale yellow with brown dots. It flowers from May to August.—Native of Madeira.

45. Hypericum Hirsutum; *Hairy St. John's Wort.* Calices serrate-glandular; stem round, upright; leaves ovate, subpubescent. Root perennial, fibrous; flowers terminating in an oblong panicle forming a kind of spike. It differs from the common St. John's Wort in being taller, having the stem perfectly round and hoary, and the edge of the calix beset with black glands. Linneus says, that the flowers close in the night.—It flowers from June to August; and is oftenest found in woods and coppices, though frequently found in hedges.

46. Hypericum Tomentosum; *Woolly St. John's Wort.* Calices serrate-glandular; leaves half stem-clasping, flexuose, tomentose; stems prostrate. It flowers from July to September.—Native of the south of Europe.

47. Hypericum Perfoliatum; *Perfoliate St. John's Wort.* Stem subancipital; leaves stem-clasping, ovate; cyme with sessile flowers. It flowers in May and June.—Native of Italy.

48. Hypericum Elodes; *Marsh St. John's Wort*, or *St. Peter's Wort.* Stem round, creeping, villose; leaves villose, roundish. Flowering branches ascending, five or six inches high; the panicle terminating, at first becomes lateral by the protrusion of the stem beyond it, and is dichotomous, rarely producing more than from five to ten flowers, which appear in July and August, and seldom expand except in bright sunshine; petals yellow or reddish yellow, twisted spirally, or sometimes merely folded up.—It has been observed in the northern parts of France, but is most common in England, where it is found in bogs; as on Hayes common in Kent, Dersingham Moor near Lynn, and other Norfolk bogs, the Gamlingay bogs in Cambridgeshire, on Birmingham heath, and in some parts of Cornwall.

49. Hypericum Pulchrum; *Elegant St. John's Wort.* Calices serrate-glandular; stem round; leaves stem-clasping, cordate, smooth. The whole plant is smooth; flowering branches or peduncles round, slender, axillary, with from one to three flowers at top; petals oblong-ovate, slightly striated, on the under side tinged with bright orange, slightly serrated, and edged with the same dark-coloured glands.—Native of most parts of Europe, in woods, on heath-banks, and in hedges, especially in a clayey soil; flowering in June and July. It is a hardy plant.

50. Hypericum Nummularium; *Moneywort-leaved St. John's Wort.* Calices serrate-glandular; leaves cordate-orbicular, smooth. Stems two or three, round, simple, five or six inches long, prostrate; flowers three or five, terminating, large. It is a very small plant; the leaves differ from those of all the other species, in being thick and fleshy, though very hard, and uniform throughout.—Native of Dauphiny, near the Grand Chartreuse.

51. Hypericum Japonicum; *Japanese St. John's Wort.* Leaves sessile, ovate, entire; stem herbaceous, four-cornered, decumbent at the base. Root with capillary fibres; flowers small, peduncled, solitary, and terminating in the axils of the panicle; peduncles capillary, one-flowered, upright.—Native of Japan, where it is found flowering in June.

52. Hypericum Erectum; *Upright St. John's Wort.* Leaves stem-clasping, lanceolate, acute; stem round, herbaceous. Flowers terminating, about three together; peduncles and pedicels filiform, like the stem, leafy, fastigiate; corolla scarcely longer than the stamina.—Native of the mountains of Japan, flowering in August.

53. Hypericum Coris; *Heath-leaved St. John's Wort.* Calices serrate-glandular; leaves subverticillate. Stem round, a long span in height; flowers terminating in a loose spike, on one-flowered peduncles, which, as well as the bractes, are full of large black glands; petals large in proportion to the plant, marked with lines. This is an elegant little evergreen, forming a pretty bush, and flowering during most of the summer.—Native of the south of Europe, and of many parts of the Levant and Crimea. It is propagated by cuttings, and may stand in the open air, with a reserve of plants in very severe weather: but it is commonly considered a green-house plant.

**** With two Styles.*

54. Hypericum Mutilum. Leaves ovate, sessile; they are glaucous, pressed close to the stem, and scarcely conspicuous.—Native of watery places in Virginia.

55. Hypericum Setosum. Leaves linear. Stem shrubby, four-cornered, hairy, branching like Horse-tail; leaves very small, hairy, pressed so close to the stem as scarcely to be visible. Flowers golden-coloured.—Native of Virginia and Carolina.

***** With one Style.*

56. Hypericum Revolutum. Leaves linear-lanceolate, rolled back at the base; stamina shorter than the corolla. Stem shrubby, smooth with a brown wrinkled bark; flowers terminating, solitary; germen ovate.—Native of Arabia.

57. Hypericum Monogynum; *Chinese St. John's Wort.* Stamina longer than the corolla; calices coloured; stem shrubby. Root composed of many woody fibres striking deep into the ground; stems several, shrubby, nearly two feet high, covered with a purplish bark; leaves stiff, smooth,

about two inches long, of a lucid green on the upper surface, and gray underneath, with many transverse veins. Flowers terminating in small clusters, each on a short peduncle; calicine segments divided almost to the bottom, obtuse, deep purple; petals large, obtuse, bright yellow, concave; germen ovate. It continues in flower from March to September.—Native of China. It may be propagated by slips from the root, or by laying down the branches. If by slips, they should be planted in the same spring on a moderate hot-bed; the layers should be made at the same time to take root by autumn, when they may be transplanted into pots, and sheltered under a frame in winter. In spring, part of these may be set in a warm border, and the others continued in pots to be screened in winter.

***** *Styles united.*

58. Hypericum Amœnum. Terminal flowers subsolitary, sessile; leaflets of the calix ovate, acuminate; petals deflex, longer than the stamina; styles united together, of the length of the stamina. This elegant species grows to the height of about two feet or more. Every branchlet has from one to three large flowers, of a bright golden yellow; the petals turn downwards, and leave the large crown of the stamina in an upright situation, which, with the beautiful red ovate germen in the centre, gives the flower a particularly pleasing appearance.—Native of South Carolina and Georgia.

59. Hypericum Glaucum. Branches cylindrical; leaves oblong, cordate; leaves of the calix ovate, acute, longer than the petals; stamina equal to the petals; styles united together; flowers large.—Native of Florida.

60. Hypericum Densiflorum. Plant very branchy; little branches somewhat cylindrical; leaves linear-lanceolate; stamina and styles united together, and shorter than the petals; flowers in very abundant and close panicles.—Found on the ridges and in the savannas of the Virginian mountains.

61. Hypericum Galioides. Branchlets tetragonal; leaves linear, sessile, revolute on the margin. About two feet high when in flower.—Found from New Jersey to Carolina, in moist sandy places near rivulets.

62. Hypericum Triplinerve. Plant erect, somewhat branchy; leaves linear; flowers racemose-paniculated; corolla unequal; calices acute. It has pale yellow flowers.—Found upon the banks of the Ohio.

63. Hypericum Sphærocarpum. Plant erect, very glabrous; leaves oblong; panicles naked, dichotomous; styles three, united or distinct; capsules globose.—Native of Kentucky, New Jersey, &c.

64. Hypericum Procumbens. Leaves linear; leaflets of the calix oblong, lanceolate, acute; stamina shorter than the corolla; styles united; calix as large as the corolla.—Native of the dry sunny hills of Kentucky.

Hyphydra; a genus of the class Monœcia, order Gynandria.—Generic Character. *Male Flowers. Calix:* perianth one-leafed, three-parted; lobes obovate, concave, curved in at top, smooth. *Corolla:* none. *Stamina:* filamenta six, capillary, long, inserted above the germen at the corners; antheræ roundish. *Pistil:* germen empty, inflated, membranaceous, hexagonal, truncate at top; style capillary, the length of the stamina; stigma none. *Female Flowers. Calix:* none. *Corolla:* none. *Stamina:* none. *Pistil:* germen roundish, with three streaks; style triangular; stigmas three, acute. *Pericarp:* capsule membranaceous, one-celled, three-valved. *Seed:* single, ovate, striated. Essential Character. *Male. Calix:* one-leafed, three-parted. *Corolla:* none. *Stamina:* six, inserted above the germen. *Female. Calix* and *Corolla:* none. *Style:* triangular, with three stigmas. *Capsule:* one-celled, three-valved. *Seed:* single.——The only known species is,

1. Hyphydra Fluviatilis. Stems and branches slender; leaves alternate, long, narrow, lanceolate, smooth, acuminate, marked with lines, ciliate, embracing. Some of the stems are erect, others decumbent, the last of which throw out roots; flowers in capitate bundles, each composed of a male flower, involved in a long sharp bracte, ciliate at the edge, and a female flower included with three bractes of the same form: they are axillary, and on a slender peduncle.—This little plant is a native of Guiana, and grows three or four feet under water, flowering in February.

Hypnum; a genus of the class Cryptogamia, order Musci.—Generic Character. *Capsule:* oblong; peristomium double; outer with sixteen broadish teeth; inner membranaceous, equal, laciniated; segments broadish, with capillary ones interposed. *Males:* gemmaceous on different plants. *Or thus. Peduncle:* from a lateral tubercle, fenced with scales; capsule outer fringed with sixteen teeth. *Male:* a bud, generally on a different plant, withering. This is a very numerous genus of *Mosses*, which has been thrown into seven divisions by Dr. Withering, in order to facilitate the investigation of the species. His arrangement contains seventy species. Hudson's *Flora Anglica*, forty; and there are also fifty species in the fourteenth edition of the *Systema Vegetabilium*, besides the new species discovered by Dickson, &c.

Hypochœris; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* common roundish, imbricated, ventricose at the base; scales lanceolate, acute. *Corolla:* compound imbricated, uniform; corollets hermaphrodite, equal, numerous; proper one-petalled, ligulate, linear, truncate, five-toothed. *Stamina:* filamenta five, capillary, very short: antheræ cylindrical, tubular. *Pistil:* germen ovate; style filiform, the length of the stamina; stigmas two, reflex. *Pericarp:* none; the calix converging, globular, acuminate. *Seeds:* solitary, oblong; down feathered, stipitate. *Receptacle:* chaffy; chaffs lanceolate-linear, the length of the seeds. *Observe.* In the third and fifth species the seeds of the disk have a stipitate down, but in those of the ray it is sessile. Essential Character. *Calix:* subimbricate. *Down:* feathered. *Receptacle:* chaffy. ——The species are,

1. Hypochœris Helvetica; *One-flowered Hypochœris.* Stem simple, leafy, one-flowered; leaves lanceolate, toothed. Root perennial, almost fusiform, thickish, somewhat woody, sometimes divided, dark brown on the outside, white within, milky, putting up one, sometimes two or three stems, among abundance of radical leaves; flowers very large, from erect spreading; corollets numerous, long, deep yellow, five-toothed, with yellowish-white villose hairs at the base.—Native of the mountains of Carinthia, Dauphiny, &c.

2. Hypochœris Maculata; *Spotted Hypochœris.* Stem almost naked; branch solitary; leaves ovate-oblong, entire, toothed. Root thick and long, abounding with milky juice, as does the rest of the plant. The flower opens at six in the morning, and closes at four in the afternoon; seeds wrinkled. The leaves are boiled in Smoland, and eaten like cabbage. The country people believe the plant to be a cure for tetters, and other cutaneous eruptions, possibly on account of its spotted leaves; which, though bitter, are eaten greedily by ruminating animals.—It flowers in July, is perennial, and a native of many parts of Europe. Though not common in England, it is found on the Gogmagog hills and Newmarket heath, in Cambridgeshire; on Bernack-heath in Northamptonshire; and about Malham Cove, Cartmell Wells, and near Settle, in Yorkshire.

3. Hypochœris Glabra; *Smooth Hypochœris.* Leaves shining; flowers small. Root annual, the thickness of a crow-

quill, tapering, furnished with few fibres, pale brown; peduncles scaly, a little thickened under the flower. It may be distinguished by the smallness of the flowers, not exceeding the size of a silver threepence, while the heads containing the seeds are altogether as large in proportion to the size of the plant. The flowers are open from about nine in the morning till about one or two in the afternoon. It delights in a sandy soil and exposed situation, and flowers in June.

4. Hypochœris Radicata; *Long-rooted Hypochœris.* Leaves runcinate, obtuse, rugged; stem branched, naked, even; peduncles scaly. Root perennial, the thickness of the little finger, running deeply into the earth, generally simple, of a whitish colour, and milky within; flowers large, closing at three in the afternoon. It is distinguished from Leontodon Autumnale, by the length of the root, from whence it derives its trivial name. In barren soils it occurs of a much smaller size, five or six inches high, with an unbranched stem, or with one flower, almost sessile on the side.—It is common on dry banks, heaths, and pastures, flowering from May to September; and in the early part of summer is a conspicuous plant, and is called *Hawkweed*, in common with many others. Dr. Withering has named it *Cat's Ears.*

5. Hypochœris Minima; *Least Hypochœris.* Leaves sinuate-lyrate; stem with scaly appendices at top. Root downright, two or three inches long, annual, fibrous; stem naked, simple, one-flowered, a palm in height, smooth; flower small, equal.—Native of Italy and Naples, on volcanic ground, particularly the Solfaterra, flowering from May to June.

Hypoxis; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* glume two-valved. *Corolla:* one-petalled, superior; limb six-parted; segments ovate-oblong, spreading, permanent. *Stamina:* filamenta six, very short, capillary; antheræ oblong, shorter than the petals. *Pistil:* germen inferior, turbinate; style filiform, the length of the stamina; stigma bluntish. *Pericarp:* capsule somewhat oblong, narrower at the base, crowned with the permanent corollas, three-celled, three-valved; (according to Gærtner, valveless.) *Seeds:* very many, roundish. Essential Character. *Calix:* a two-valved glume. *Corolla:* six-parted, permanent, superior. *Capsule:* narrower at the base.——The species are,

1. Hypoxis Erecta; *Upright Hypoxis.* Hairy, with ovate capsules. Root tufted, with fleshy branched fibres; stems two or three, shorter than the leaves, upright, round, hairy, reddish above, each bearing one upright flower; corolla externally green and hairy, with a red rib, internally concave, yellow, smooth, without veins or nerves.—It flowers in June; and is a native of North America.

2. Hypoxis Decumbens; *Trailing Hypoxis.* Hairy, with club-shaped capsules: bulb roundish, fleshy, brown, putting out fibres from the side; peduncles radical from the sheaths among the leaves; seeds wrinkled, black. The roots came accidentally into Mr. Miller's hands among some Allspice plants, and he cultivated them in 1755. It flowers most part of the year.—Native of Jamaica, in sandy fields, among the mountains. It will not thrive well in England, unless the pots be plunged into a hot-bed of tanners' bark, and the air kept up to the heat assigned for Ananas. In this situation the plants will succeed, produce plenty of flowers, and perfect the seeds, which, if suffered to scatter, will produce plenty of young plants; or, if they be sown in pots soon after they are ripe, and planted into the tan-bed, will come up in about six weeks, and, when they are fit to transplant, may be treated in the same manner as the old plants.

3. Hypoxis Spicata; *Spiked Hypoxis.* Upright: leaves ensiform, falcate, smooth; flowers in spikes. Root composed of capillary fibres in bundles; flowers from the middle to the top of the spikes, alternate, remote, very many; capsule and rachis very rough with hairs.—It flowers in May and June, and is a native of Japan.

4. Hypoxis Plicata; *Plaited-leaved Hypoxis.* Scape one-flowered, three-sided; leaves lanceolate, plaited, villose; bulb globular; corolla yellow.—Native of the Cape. For the treatment of this, and the other Cape sorts, see *Albuca.*

5. Hypoxis Stellata; *Spotted-flowered Hypoxis.* Scape one-flowered; leaves linear, striated; petals spotted. This is a beautiful little bulbous plant, with a dark spot at the claws of the petals; leaves like those of Narcissus, the length of the scape, which is sheathed below the middle; the spathe permanent, acuminate, flat; filamenta, very short; style three-cornered.—Native of the Cape.

6. Hypoxis Aquatica; *Aquatic Hypoxis.* Leaves linear; scapes umbelled, or one-flowered. Leaves radical, loose, bending at the end; scapes filiform, the height of the water; flowers in some solitary, hermaphrodite, in others umbelled, male.—Found in watery ditches at the Cape.

7. Hypoxis Serrata; *Channel-leaved Hypoxis.* Leaves channelled, smooth, ciliate-serrate; scapes one-flowered. It flowers in July.—Native of the Cape.

8. Hypoxis Villosa; *Hairy Hypoxis.* Leaves linear, ensiform, villose; stigma simple, three-cornered, acute. It varies in size. Capsule small, narrower at the base, so as to be almost club-shaped.—Native of the Cape.

9. Hypoxis Fasciculàris. Tube of the flowers very long.—Native of Syria, near Aleppo.

10. Hypoxis Sessilis. Hairy, stemless: fructifications subradical; leaves linear, straight. The leaves are a span in length, keeled, like those of Juncus Pilosus, hairy all over, pale green; petals pointed, plaited, three outer broader, green, hairy. Seeds round, black, and shining. It flowers at the latter end of June.—Native of Carolina.

11. Hypoxis Minuta. Leaves three-sided, fleshy, smooth; scapes bifid. Bulb conical, large in proportion to the plant; corolla spreading, snow-white; filamenta shorter than the corolla.—Native of the Cape.

12. Hypoxis Ovata. Leaves ovate-lanceolate, entire, smooth; scapes one-flowered; flower white, and pretty.—Found at the Cape.

13. Hypoxis Alba. Leaves cylindric, smooth; scapes subbifid; petals unspotted. A small plant.—Found by Thunberg at the Cape.

14. Hypoxis Aurea. Stemless, hairy: scape one-flowered; capsules oblong. An annual plant: leaves awl-shaped, channelled, reflexed, half a foot long, clustered; corolla bell-shaped, equal, golden coloured within, greenish on the outside, hairy.—Native of Cochin-china, where it was found on a sandy hill called *Sou Koung.*

15. Hypoxis Graminea. Scape four-flowered; leaves very long, shorter than those of grass, very narrow, and double the length of the scape.—Found from New Jersey to Carolina, in dry sandy fields and woods.

Hyptis; a genus of the class Didynamia, order Gymnospermia.—Generic Character. *Calix:* perianth turbinate, half five-cleft, permanent; segments lanceolate, acute, almost equal, upright. *Corolla:* one-petalled, ringent; tube funnel-form; throat widened; limb spreading very much, resupinate; upper lip, (which is the lower in situation,) trifid; lateral segments ovate, acute, the middle one roundish, concave, obtuse; lower lip (in situation the upper) semibifid; segments semiovate, flat, acute. *Stamina:* filamenta four, awl-shaped, erect, of which two are shorter; antheræ twin, hanging down. *Pistil:* germen four-cleft; style filiform;

stigma bifid or simple. *Pericarp:* none; the calix fostering the seeds. *Seeds:* four. ESSENTIAL CHARACTER. *Calix:* turbinate. *Corolla:* with a very spreading border; lower lip semibifid. *Anthers:* hanging down.——The species are,

1. Hyptis Verticillata. Leaves lanceolate; flowers in whorls. This shrub is ten feet high, with one or two upright woody stems; corolla white.—Native of St. Domingo.

2. Hyptis Capitata. Leaves ovate; flowers in heads. Stems suffruticose, two or three feet high or more, becoming woody, commonly four-cornered, brown; branches annual, herbaceous, subdivided; peduncles axillary, solitary, four-cornered, slender, from two to three inches long, bearing at the end numerous flowers collected closely into a semi-globular head; the petals are white, with sometimes a tinge of flesh-colour; antheræ yellow. The whole plant is inodorous.—Native of St. Domingo, where it flowers in December and January.

Hyssop. See *Hyssopus.*

Hyssop, Hedge. See *Gratiola.*

Hyssopus; (Hyssop) a genus of the class Didynamia, order Gymnospermia.—GENERIC CHARACTER. *Calix:* perianth one-leafed, cylindrical, oblong, striated, acutely five-toothed, permanent. *Corolla:* one-petalled, ringent; tube cylindrical, slender, the length of the calix; throat inclined; upper lip straight, flat, short, roundish, emarginate; lower lip trifid; lateral segments shorter, blunt, the middle one crenate, obcordate, acute, with distant lobes. *Stamina:* filamenta four, upright, longer than the corolla, distant; the two upper ones shorter, but the two longer nearer to the lower lip; antheræ simple. *Pistil:* germen four-parted; style filiform, under the upper lip, and of the same length; stigma bifid. *Pericarp:* none; the calix fostering the seeds. *Seeds:* four, subovate. ESSENTIAL CHARACTER. *Corolla:* lower lip with a small middle crenate segment. *Stamina:* straight, distant.——The species are,

1. Hyssopus Officinalis; *Common Hyssop.* Spikes directed one way; leaves lanceolate. Height a foot and half; stems first square, afterwards round, with small sessile leaves in pairs on their lower part, and seven or eight very narrow erect leaves or bractes, springing from the same joint; on the upper part, flowers in whorls, the lower ones half an inch apart, the upper almost joined; antheræ twin; seeds black. There are many varieties of this plant. The leaves vary in colour as well as the flowers, some being white striped with green, or half green and half white; others with the leaves wholly yellow, or but a little green in them: others yellow, as the Gold Hyssop; which, Parkinson says, was "of so pleasant a colour in his time, that it provoked many gentlewomen to wear them in their heads and on their arms, with as much delight as many fine flowers can give." The leaves are also sometimes curled or cramped at the edges, so that each leaf seems to be composed of many. It also varies in the stem, and in the scent, which is sometimes stronger than common, approaching to that of musk. Ray enumerates nine varieties. The roots will abide many years. The whole plant has a strong aromatic smell. It flowers in July and August, and ripens seed in September. Meyrick remarks, that it is a plant of very considerable virtues, particularly in disorders of the breast and lungs. A strong infusion, or tea, made with the young tops, is not particularly unpleasant, and is the best mode of using it. There are few better medicines for coughs, hoarsenesses, and obstructions of the breast. The infusion, made into a syrup with honey, is excellent for the same purposes. The tea, when plentifully taken, removes obstructions of the viscera, and operates powerfully by urine. It should be gathered when just beginning to flower. The green herb bruised, with the addition of a little sugar, is said to heal cuts and green wounds with great expedition.—Native of the south of Europe. This plant, with all its varieties, may be propagated by seeds or cuttings: if by seeds, they must be sown in March, upon a bed of light sandy soil, and when the plants come up, they should be transplanted out to the places where they are to remain, placing them at least a foot asunder each way; but if they are designed to abide in those places for a long time, two feet distance will be small enough, for they grow pretty large, especially if they are not frequently cut to keep them within compass. If you would propagate them by cuttings, they should be planted in April or May, on a border where they may be defended from the violent heat of the sun; and being frequently watered, they will take root in about two months; after which they may be transplanted where they are to continue, managing them as was before directed for the seedling plants. They are very hardy, and will endure the cold of our winters in the open air, provided they are planted in a dry undunged soil; for a rich soil causes them to grow so luxuriantly in summer that they are the less able to resist the cold of the winter, while those plants which we frequently find growing out of the joints of old walls, will better resist the severest frost, and be much more aromatic.

2. Hyssopus Lophanthus; *Mint-leaved Hyssop.* Corollas resupinate; lower stamen shorter than the corolla; leaves oordate. Root strong, fibrous, perennial, sending out many square stalks, which divide into smaller branches; flowers produced at each joint in small clusters; corollas blue. The flowers appear in June and July, and the seeds ripen in September.—Native of Siberia. Both this and the following species are very hardy, and may be easily propagated by sowing seeds in autumn, for those sown in the spring often lie a year in the ground before they vegetate. When the plants come up, keep them clean from weeds, and thin them where they are too close. The following autumn transplant them where they are to remain, and the roots will last several years.

3. Hyssopus Nepetoides; *Square-stalked Hyssop.* Stem sharp, quadrangular. Root perennial; leaves oblique, heart-shaped, serrate, acute, on short footstalks; flowers yellow, in close thick spikes, four or five inches long; upper lip of the corolla divided into two roundish segments. There is a variety with purple stalks and flowers, the leaves on longer footstalks, and the spikes of flowers thicker. Gouan remarks, that this plant has the appearance of Galeopsis.—Native of Virginia and Canada.

JACA Tree. See *Artocarpus.*

Jacquinia; a genus of the class Pentandria, order Monogynia.—GENERIC CHARACTER. *Calix:* perianth five-leaved; leaflets roundish, concave, permanent. *Corolla:* one-petalled; tube bell-shaped, ventricose, longer than the calix; border ten-cleft; divisions roundish, of which the five interior ones are shorter. *Stamina:* filamenta five, awl-shaped, arising from the receptacle; antheræ spear-shaped. *Pistil:* germen ovate; style the length of the stamina; stigma headed. *Pericarp:* berry roundish, acuminate, one-celled. *Seed:* single, roundish, cartilaginous. ESSENTIAL CHARACTER. *Corolla:* ten-cleft. *Stamina:* inserted into the receptacle. *Berry:* one seeded.—These plants must be kept in the bark-stove, giving them little water in winter, and in

warm weather plenty of fresh air. They are raised from seeds procured from the countries where they grow naturally, and afterwards from cuttings, but it is with difficulty that these take root.——The species are,

1. Jacquinia Armillaris; *Obtuse-leaved Jacquinia.* Leaves obtuse, coriaceous; flowers in racemes; berries four-seeded or thereabouts. This a very elegant upright shrub, seldom more than four or five feet high; peduncles scattered, spreading, one-flowered; flowers small, stiffish, white, smelling like Jasmine, and retaining their sweet scent several days; berry roundish, smooth, the size of a large pea, of a reddish orange colour, and containing an orange-coloured pulp; seeds four, sometimes (but seldom) three or five, ovate, smooth, shining, cartilaginous, brownish yellow. The berries are eaten by small birds; and the seeds are strung for bracelets by the Caribbees, whence the French in the islands call this shrub *Bois Bracelets;* and Linneus gives it the trivial name of *Armillaris.* The Spaniards call it *Barbasco,* or *Verbascum.* —It flowers in February and March; and is a native of South America and the West India islands, where it is found on the calcareous rocks of Jamaica, Curaçoa, Martinico, Carthagena, &c.

2. Jacquinia Venosa; *Vein-leaved Jacquinia.* Leaves ovate, lanceolate, veined, submembranaceous.—Native of the West Indies.

3. Jacquinia Ruscifolia; *Prickly Jacquinia.* Leaves lanceolate, acuminate. This is a shrub three feet in height, with all the habit of the preceding: it differs in having the leaves lanceolate, acuminate, pungent, extremely stiff, and shorter; the peduncles are as pendulous as in that, and one-flowered.—Native of South America.

4. Jacquinia Linearis; *Linear-leaved Jacquinea.* Leaves linear, acuminate. This is a shrub two feet in height, very much branched, of the same habit with the two preceding, but not so neat; leaves extremely rigid, pungent, like thorns, generally four together in whorls at each joint; peduncles one-flowered, solitary, terminating, pendulous, shorter than the leaves; flowers stiffish, and without any smell; petals white, with all the segments convex, the outer ones spreading, the inner almost erect; berries yellow.—Native of the island of St. Domingo, about Port-au-Prince, on the coast, flowering and fruiting in January.

Jasione; a genus of the class Syngenesia, order Monogamia.—Generic Character. *Calix:* perianth common ten-leaved; alternate leaflets inferior, narrower, including very many flowers on very short peduncles, permanent; perianth proper five-cleft, superior, permanent. *Corolla:* proper one-petalled, regular, deeply five-cleft; divisions lanceolate, upright. *Stamina:* filamenta five, awl-shaped, short; antheræ five, oblong, connected at the base. *Pistil:* germen roundish, inferior; style filiform, length of the corolla; stigma bifid. *Pericarp:* capsule roundish, five-cornered, crowned with the proper calix, subbilocular, gaping at the tip, with a round hole; partition divided at the axis. *Seeds:* many, subovate; receptacle subglobose, pedicelled, free, in the base of the capsule. *Observe.* The central floscules are often abortive, with an undivided club-shaped stigma. Essential Character. *Calix:* common ten-leaved. *Corolla:* five-petalled, regular. *Capsule:* inferior, two-celled. ——The only known species is,

1. Jasione Montana; *Mountain Jasione,* or *Hairy Sheep's Scabious.* Root annual, rigid, whitish, and fibrous; stems many, erect, or procumbent, from a span to a foot in height or more, somewhat rigid, beset with rough short hairs, angular, striated, green, often tinged with purple; for something more than one-third of their height, they are clothed with numerous leaves, which are linear or linear-lanceolate, waved at the margin, bluntish at the end, hairy on both surfaces, sessile, and pointing upwards: the remainder of the stem is naked, and terminated by one flowering head; corolla blue, sometimes varying to white; stigma club-shaped, purple. Linneus remarks, that the leaves are obscurely serrated. Leers asserts that the calix has constantly twenty leaflets, in four rows, subserrated, the outer ones gradually larger. The antheræ are at first almost wholly united, but when the pollen is evacuated, they spread, and are joined only at the base; the central florets are barren, with the stigma club-shaped, quite entire, having pollen scattered over it, and not villose; the capsules are on very short pedicels, and never ripen. The lateral florets in great numbers are fertile; they have also a club-shaped stigma, which afterwards becomes bifid; because the antheræ of these have evacuated their pollen before the stigma bursts, it seems probable that the fecundation is made by the antheræ of the barren florets. The styles of the barren florets are all upright, but those of the fertile florets are bent down, for the easier reception of the pollen. In the above curious account of the process of fecundation, the botanist cannot but remark the affinity it bears to the genuine plants of the class Syngenesia, where Linneus placed it, and from whence modern reformers have removed it. In its general appearance it so resembles a Scabious, as to be taken for one by unskilful botanists. It varies much in size, and on the sea-coast of Cornwall is only about an inch high when full grown, and the whole plant is very hairy. Linneus informs us that bees are particularly fond of the flowers of this plant, the whole of which is milky, and sometimes eaten by sheep. Ray calls it Rampions with scabious-like heads; and Withering, Scabious Sheep's-bit.—It flowers from June to August; and is common on dry sandy grounds, heaths, and hilly pastures. The younger Linneus, in his *Supplement,* mentions a variety with perennial roots, the stem higher than in the common sort, and the heads of the flowers larger.

Jasminum; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, tubulated, oblong; mouth five-toothed, upright, permanent. *Corolla:* one-petalled, salver-shaped; tube cylindric, long; border five-parted, flat. *Stamina:* filamenta two, short; antheræ small, within the tube of the corolla. *Pistil:* germen roundish; style filiform, length of the stamina; stigma bifid. *Pericarp:* berry oval, smooth, two-celled or two-capsuled. *Seeds:* two, large, ovate-oblong, arillated, convex on one side, flat on the other. *Observe.* The shape of the flower varies as to acuteness or obtuseness; the berry is in some simple, in others dicoccous. Essential Character. *Corolla:* salver-shaped. *Berry:* dicoccous. *Seeds:* solitary, arillated.——The species are,

1. Jasminum Sambac; *Arabian Jasmine.* Leaves opposite, simple, elliptic, ovate and subcordate, membranaceous, opaque; branchlets and petioles pubescent; calicine segments awl-shaped. It rises with a winding stalk to the height of fifteen or twenty feet, sending out small branches; leaves smooth, nearly three inches long, and two broad, on short footstalks. The flowers are produced on the ends of the branches, and also upon the side-shoots, on short peduncles, each generally sustaining three flowers; the tube of the corolla narrow, about half an inch long, cut at the top into eight obtuse segments, which spread out quite flat. The flowers are of a pure white, and have a most agreeable odour, somewhat like orange flowers, but sweeter; when fully blown, they drop out of their cups on being shaken, and frequently fall out in the night, changing soon to a purplish colour. The

plants continue flowering great part of the year, when they are kept in a proper temperature of warmth.—This beautiful plant, so mush esteemed for its highly odoriferous flowers, is a native of the East Indies, where it is much cultivated, as well as in China and in the West Indies. There are several varieties of it in those countries: we have it both with single and double flowers, and also with double large flowers; which last grows naturally at Malabar, and, being very fragrant, the women there string its flowers round their necks by way of ornament. —These plants are frequently imported from Italy by the Italian gardeners, who bring orange-trees for sale; but as they are always grafted upon stocks of the Common Jasmine, and do not keep pace with the growth of the stock, they become very unsightly; besides, the stocks are very apt to shoot from the bottom, and if these shoots be not constantly rubbed off, they will starve the graft. The best method therefore to obtain plants is by layers or cuttings: the former is the surest method, for unless the cuttings be very carefully managed, they will not take root; and the stems being pliable, may easily be brought down, and laid in pots filled with a soft loamy soil, plunged into a hot-bed of tan. If the branches be laid down in the spring and carefully watered, they will put out roots by autumn, when they should be cut from the old plants, and each transplanted into a separate small pot, and then plunged into the tan-bed, where they should be shaded from the sun till they have taken new root. Cuttings may be planted from May to August, in pots filled with the same earth, and plunged into a moderate hot-bed of tanners' bark. The pots should be large enough to contain ten or twelve cuttings, and should be closely covered with bell or hand glasses to exclude the air, shaded from the sun in the heat of the day, and gently refreshed with water when the earth is dry; they will have taken root by August, when they may be transplanted into separate pots, and treated in the same way as the layers. This plant may be preserved in a moderate degree of warmth, but will thrive much better in the bark-stove, and produce a greater quantity of flowers; as the leaves continue all the year, it will make a fine appearance at all seasons in the stove, and it will produce flowers great part of the year.

2. Jasminum Glaucum; *Glaucous-leaved Jasmine.* Leaves opposite, simple, lanceolate, shining; calicine segments awl-shaped. This is a shrub with round, even, opposite branches; peduncles terminating, three-cleft or three-flowered; flowers larger than those of Common Jasmine. It flowers in August. —Native of the Cape.

3. Jasminum Capense; *Cape Jasmine.* Leaves opposite, ternate, ovate, acuminate; stem erect; leaves angular.—Found by Thunberg at the Cape.

4. Jasminum Azoricum; *Azorian Jasmine.* Leaves opposite, ternate; leaflets ovate and subcordate, waved; branchlets smooth, round; segments of the corolla equal to the tube. It has long slender branches, which require support, and may be trained twenty feet high; flowers terminating in loose bunches; the corolla is of a clear white, and has a very agreeable scent. It flowers from May to November.—Native of the Azores. This species is pretty hardy, and only requires to be sheltered from severe frost. It is a green-house plant, but will live against a warm wall if dung be laid to the roots, and a mat laid over it in frosty weather. It deserves a place in every green-house, for the leaves being of a shining green, make a good appearance all the year, and the flowers affording a fine scent, and continuing long in succession, render it very valuable. It is propagated in the same manner as the twelfth species; which see.

5. Jasminum Angulare; *Angular Jasmine.* Leaves opposite, ternate; leaflets ovate, obtuse; branchlets angular, both they and the petioles villose; peduncles axillary, three-flowered.—Native of the Cape.

6. Jasminum Auriculatum; *Malabar Jasmine.* Leaves opposite, ternate, on the flowering branchlets simple; calices angular; branches round and pubescent. Corolla an inch long, smooth.—Native of Malabar.

7. Jasminum Flexile; *Flexuose Jasmine.* Smooth: leaves opposite, ternate; racemes axillary, brachiate; stem climbing; branches round.—Native of the East Indies.

8. Jasminum Didymum. Smooth: leaves opposite, ternate; leaflets ovate-lanceolate; racemes axillary. This seems to be a climbing shrub.—Native of the Society Isles.

9. Jasminum Simplicifolium. Leaves opposite, ovate, lanceolate, simple.—Native of the Friendly Islands.

10. Jasminum Fruticans; *Common Yellow Jasmine.* Leaves alternate, ternate; leaflets obovate and wedge-shaped, obtuse; branches angular; calicine segments awl-shaped. It has weak angular branches which require support, and will rise to the height of eight or ten feet, if planted against a wall or pale. The calix is deeply five-cleft.—Native of the south of Europe, and the Levant. Besides the common name of Yellow Jasmine, Parkinson has those of Shrubby Trefoil and Make-bate, which are now obsolete. This plant was formerly more cultivated than at present, for as the flowers are destitute of scent, few persons regard them; besides, it often produces so many suckers as to become troublesome; and as it cannot be kept in order for standards, it is seldom introduced into gardens at present. It is easily propagated by suckers or layers.

11. Jasminum Humile; *Italian Yellow Jasmine.* Leaves alternate, acute, ternate and pinnate; branches angular; calicine segments very short. This species also was annually brought from Italy by those who imported Orange-trees; the flowers are generally larger than those of the preceding, but have very little scent, and are seldom produced so early in the season: it flowers from July to September.—Native country unknown. This is less hardy than the preceding species, but will endure the cold of our ordinary winters in a warm situation: it may be propagated by laying down the tender branches, or by budding or inarching it upon the common yellow sort; the latter mode is preferable for obtaining hardier plants: it should be planted against a warm wall, and in severe winters will require to be sheltered with mats; it must be dressed and pruned in the same way as the White Jasmine.

12. Jasminum Odoratissimum; *Yellow Indian Jasmine.* Leaves alternate, bluntish, ternate and pinnate; branches round; calicine segments very short. This rises with an upright woody stalk eight or ten feet high, covered with a brown bark, sending out several branches, which want no support; leaflets of a lucid green, ovate and entire, continuing green all the year. The flowers are produced in bunches at the ends of the shoots; the corolla has a long slender tube, and the segments are blunt and spreading; the whole is of a bright yellow colour, and has a most grateful odour. The flowers come out from July to October and November, and are frequently succeeded by oblong oval berries, which turn black when ripe, and have each two seeds.—Native of Madeira. It is propagated either by the seeds, or by laying down the tender branches; if by seeds, which it sometimes produces in England, make a moderate hot-bed in the spring, into which plunge some small pots, filled with fresh light earth, and in a day or two after, when you find the earth in the pots warm, put in the seeds, four in each pot, covering them about an inch thick with the same light earth, which, when dry, must be frequently refreshed with water in small quantities; about

six or eight weeks after sowing, the plants will appear above ground, at which time it will be necessary to remove the pots into another fresh hot-bed, of a moderate temperature, in order to bring the plants forward; water them as often as is necessary, and in the great heat of the day the glasses should be tilted pretty high, and shaded with mats, to prevent the plants from being scorched with heat. About the middle of May begin to harden them to the open air, by taking off the glasses when the weather is warm: but this must be cautiously done, for exposing them at first to a very hot sun would greatly injure them. The glasses should be taken off first in warm cloudy weather, or during gentle showers, and so gradually inure them to bear the sun. In June take the pots out of the hot-bed, and remove them to some well sheltered situation; where they may remain until the beginning of October; at which time they must be carried into the green-house, observing to place them where they may enjoy as much free air as possible when the windows are opened, as well as stand clear from the branches of other plants. During winter they will often require watering sparingly; and in March should be each removed into a separate pot, observing not to take the earth from their roots. If they be then plunged into a fresh moderate hot-bed, it will greatly facilitate their rooting again: when rooted they must have plenty of air; for if too much drawn, they will become weak in their stems, and incapable of supporting their heads, which is a great defect in these trees. In the middle of May remove them into the open air, to harden; observing, as before directed, to place them in a situation that is defended from strong winds. In winter, house them as before, and continue the same care, with which they will thrive very fast, and annually produce great quantities of flowers. They are pretty hardy, and only require to be protected from hard frosts in winter: and as they are much hardier than the Spanish, would probably live in the open air if planted against a warm wall; but there is this difference between the two plants, that these have large, thick, evergreen leaves, so that if they were covered with mats, as is directed for the Spanish Jasmine, the leaves would rot and decay the shoots, but as these will only require to be covered in extreme frost, if their roots are well mulched, and a mat or two hung over them in ordinary frosts, it will be sufficient; and these mats being either rolled up or taken quite off in the day, there will be no great danger of their being hurt. In the spring they should be pruned, and have all their decayed branches removed; but none of the other branches must be shortened, as is directed for the Spanish sort, for the flowers of this kind are produced only at the extremity of the branches; hence if the branches be shortened, the flowers will be cut off, and as the branches are of a more ligneous substance than the other, they will not produce shoots strong enough to flower the same year. To propagate this plant from layers, lay down the shoots in March, and if you give them a little cut at the joint, as is practised in laying Carnations, it will promote their rooting, observing to refresh often with water when the weather is dry; and the plants will be rooted by the succeeding spring, fit to be transplanted; when they must be placed in pots filled with light earth, and managed as was before directed for the seedlings. This sort is frequently propagated by inarching the young shoots into stocks of the Common Yellow Jasmine, but the plants so raised do not grow so strong as those which are upon their own stock; besides, the Common Yellow Jasmine is very apt to send out a great number of suckers from the root, which renders the plants unsightly, and, if not taken off as fast as they are produced, will rob them of their nourishment.

13. Jasminum Officinale; *Common White Jasmine.* Leaves opposite, pinnate; leaflets acuminate; buds almost upright. Stem shrubby, weak, climbing, round, smooth, branching; leaflets usually seven, broad-lanceolate, quite entire, smooth, dark green, the end one larger and more pointed than the rest; peduncles few-flowered; corolla white, odorous: they are the only part of the plant used in medicine. An infusion of five or six ounces of them picked clean from the leaves, in a quart of boiling water, being strained off and boiled into a syrup, with the addition of a sufficient quantity of honey, is an excellent medicine in coughs, hoarsenesses, and other disorders of the breast. There is also an oil, or, as it is commonly called, an essence, prepared from these flowers, which is used in perfumes, but seldom applied to any medical purposes. We are not certain as to the native country of our Common White Jasmine: though it has been long inured to our clime, so as to thrive and flower extremely well, yet it never produces any fruit in England: it is probably a native of the East Indies. The name Jasmine, has been corrupted into Jessamine, Gelsemine, Jessmia, Jessamy, and Gesse. The Germans call it *Jasmin, Jesmin, Schasmin, Schelsemine, Violreben;* the Dutch, *Jasmin;* the Swedish, Danish, and French, *Jasmin;* the Italians, *Gelsomino;* the Spaniards, *Jazmin;* the Portuguese, *Jasmim, Jesmim, Jasmineiro;* and the Arabians, *Jasmin, Kajan.*—This is easily propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and set where they are intended to remain. It may also be propagated by cuttings, which should be planted early in autumn, and in severe winters the surface of the ground between them should be covered with tan, sea-coal ashes, or sawdust, which will prevent the frost from penetrating deep into the ground, and preserve the cuttings: or pease-haulm, or other light covering, should be laid over them, where the former cannot be procured; but these coverings must be removed when the weather is mild, as they will keep off the air, and occasion damps, which often destroy them. When these plants are removed, they should be planted where they are designed to be continued, which should be either against some wall, pale, or other fence, where the flexible branches may be supported; for although it is sometimes planted as a standard, and formed into a head, yet it will be very difficult to keep it in any handsome order; or if you do, you must cut off all the flowering branches, for the flowers are always produced at the extremity of the same year's shoots, which, if shortened before the flowers are blown, will entirely deprive the trees of flowers. They should be permitted to grow rude in the summer, for the reason before given: nor should you prune or nail them until the latter end of March, when the frosty weather is past, for if the frost should set in after their rude branches are pruned off, and the stronger ones be exposed to it, they will hardly escape being killed: but on the other hand, as this plant is very backward in shooting, there will be no danger of injuring it by late pruning. There are two varieties with varegated leaves, one with white, and the other with yellow stripes, but the latter is the most common: these are propagated by budding them on the plain Jasmine; and it often happens that the buds do not take, but yet communicate their gilded miasma to the plants, so that in a short time after, many of the branches, both above and below the places where the buds have been inserted, have been thoroughly tinctured; and in the following year, very distant branches, which had no other communication with those which were budded than by the root, have been as completely tinged as any of the nearer branches, so that the juices must have descended

into the root. These two striped sorts should be planted in a warm situation, especially the white-striped; for they are much more tender than the plain, and are very subject to be destroyed by great frosts when exposed. They should have a south or south-west aspect, and in very severe winters must have their branches covered with mats or straw, to prevent their being killed. The yellow-striped is not so tender, and may be planted against walls to east or west aspects; but neither of these are so much esteemed as formerly.

14. Jasminum Grandiflorum; *Spanish* or *Catalonian Jasmin.* Leaves opposite, pinnate; leaflets bluntish; buds horizontal. It has much stronger branches than the preceding sort, of which it was once supposed to be a mere variety. The leaflets are placed closer, and are of a lighter green; the side ones are obtuse, but the odd one ends in an acute point. The flowers are axillary, on peduncles two inches long, each sustaining three or four flowers, of a blush red on their outside, but white within.—Native of the East Indies, and of the island of Tobago, where the woods are full of it. It came to us from Spain, and thus it acquired its name of Spanish Jasmin. It is propagated by budding or inarching it upon the common White Jasmin, on which it takes very well, and becomes hardier than those which are upon their own stocks. But the plants are seldom raised in England, being brought annually from Italy in great numbers. We shall therefore proceed to detail the management of such plants as are usually brought into England. They are generally tied up in small bunches containing four plants, with their roots wrapped in moss to prevent them from drying, which, when the ship has a long passage, will often occasion them to put out long shoots from their roots, and which shoots must always be taken off before they are planted, otherwise they will exhaust the whole nourishment of the plant, and destroy the graft. In choosing these plants, observe carefully if their grafts be alive and in good health; for if they are brown and shrunk, they will not push out, so that there will be only the stock left, which is of the common sort. When you receive them, clear the roots of the moss, and take off all the decayed branches: place the roots in a pot or tub of water, which should be set in the green-house, or some other room, where it may be screened from the cold; in this situation they may continue two days, after which prune off all the dry roots, and cut down the branches within four inches of the place where they were grafted, planting them in pots filled with fresh light earth; then plunge the pots into a moderate hot-bed of tanners' bark, observing to water and shade them as the heat of the season may require. In about a month or six weeks after, they will begin to shoot, when you must carefully rub off all such as are produced from the stock below the graft; and admit a great share of air, by rising the glasses in the heat of the day. As the shoots extend, they should be topped, to strengthen them, and by degrees should be hardened to endure the open air, into which they should be removed in the beginning of June, but must have a warm situation the first summer, for they will not make much progress if greatly exposed to the wind, being rendered somewhat tender by the hot-bed. If the summer prove warm, and the trees have succeeded well, they will produce some flowers in the autumn following, though they will be few in number, and not near so strong as they will be in the succeeding year, when the trees have acquired better roots. These plants are commonly preserved in green-houses with Oranges, Myrtles, &c. and during the winter season will require to be frequently watered, which should be sparingly performed each time, especially in cold weather. In April their shoots should be shortened down to four eyes, and all the weak branches cut off; and if you have the conveniency of a glass stove or a deep frame to place the pots in at that season, it will be of great service in forwarding the flowering of the plants. They ought not, however, to be too much forced; and as soon as they have made shoots three or four inches long, the glasses should be opened in the day-time, that the plants may by degrees be inured to the open air, into which they may be removed by the latter end of May, or the beginning of June, otherwise their flowers will not be so fair, nor continue so long. If the autumn prove favourable, they will sometimes continue to produce fresh flowers until November, and will sometimes continue flowering much later when they are strong; but in mild weather they must have a great share of air, otherwise the flower-buds will grow mouldy, and decay. Although most people preserve these plants in green-houses, yet they will endure the cold of our ordinary winters in the open air, when planted against a warm wall, and covered with mats in frosty weather; they will also produce ten times as many flowers in one season as those kept in pots, and the flowers will also be much larger. They ought not, however, to be planted abroad till they have acquired strength; so that it will be necessary to keep them in pots three or four years, to shelter them from the severities of winter; and when they are planted against a wall, which should be in May, that they may take good root in the ground before the succeeding winter, you must turn them out of the pots, preserving the earth to their roots, and having made holes in the border where they are to be planted, place them therein with their stems close to the wall; then fill up the holes round their roots with good fresh rich earth, and give them some water, to settle the ground about them, nailing up their shoots to the wall, and shortening such of them as are very long, that they may push out new shoots below to furnish the wall, continuing to nail up all the shoots as they are produced. In the middle, or towards the latter end of July, they will begin to flower, and continue to produce new flowers until the frost prevents them; which, when you observe, carefully cut off all the tops of such shoots as have buds formed upon them, as also those which have the remains of faded flowers left: for if these are suffered to remain on, they will soon grow mouldy, especially when the trees are covered, and thereby infect many of the tender branches, and greatly injure the trees. Towards the middle of November, if the weather prove cool and the nights frosty, begin to cover the trees with mats, which should be nailed pretty closely over them, and done when the trees are perfectly dry, otherwise the wet being lodged upon the branches will cause a mouldiness, which the exclusion of the air will convert into a rot: hence it will be very necessary to take off the mats as soon as the weather will permit, to prevent this, and keep them closely covered at night and in frosty weather; at which time some mulch should be laid upon the surface of the ground about their roots, and some hay-bands fastened about their stems; to which, in very severe weather, a double or treble covering of mats over the trees should be added, by which precautions they may be preserved through the hardest winters. In the spring, take off these coverings by degrees; but take care not to expose them too soon to the open air, as also to guard them against the morning frosts and dry easterly winds, which are so destructive to tender plants in the month of March. The covering should not be wholly removed until the middle of April, when the season is settled; at which time you should prune the trees, cutting out all decayed and weak branches, shortening the strong ones to about two feet long, which will cause them to shoot strong and produce many flowers.—There is a variety of this with semi-double flowers, which is only to be found in some curious gardens

though it is common in Italy, from whence it is sometimes brought over amongst the single; the flowers of which have only two rows of leaves, and is rather cultivated for curiosity than for any extraordinary beauty. It may be propagated by budding upon the Common White, as has been directed for the single, and must be treated in the same manner.

15. Jasminum Nervosum; *Nerve-leaved Jasmine.* Leaves ovate, three-nerved. Stem shrubby, long, climbing, round, even; flowers pure white, scentless.—Native of the hedges of Cochin-china.

16. Jasminum Trinerve; *Three-nerved Jasmine.* Leaves opposite, simple, ovate, attenuated, three-nerved; peduncles axillary, one-flowered. Corolla an inch long, smooth, with lanceolate segments.—Native of Java.

17. Jasminum Scandens; *Climbing Jasmine.* Leaves opposite, simple, ovate-oblong, attenuated; panicles brachiate; calicine segments bristle-shaped, reflex. Peduncles short; pedicels very short.—Native of Bengal, climbing to the tops of trees.

Jatropha; a genus of the class Monœcia, order Monadelphia.—Generic Character. *Male Flowers. Calix:* perianth scarcely manifest. *Corolla:* one-petalled, funnel-form; tube very short; border five-parted; divisions roundish, spreading, convex, concave beneath. *Stamina:* filamenta ten, awl-shaped, approximated in the middle, the five alternate ones shorter, upright, shorter than the corolla; antheræ roundish, versatile. *Pistil:* a weak rudiment, latent in the bottom of the flower. *Female Flowers* in the same umbel with the males. *Calix:* none. *Corolla:* five-petalled, rosaceous. *Pistil:* germen roundish, three-furrowed; styles three, bifid; stigmas simple. *Pericarp:* capsule roundish, tricoccous, three-celled; cells bivalved. *Seeds:* solitary, roundish.—Essential Character. *Male. Calix:* none. *Corolla:* one-petalled, funnel-form. *Stamina:* ten, alternately longer and shorter. *Female. Calix:* none. *Corolla:* five-petalled, spreading. *Styles:* three, bifid. *Capsule:* three-celled. *Seed:* one.——The species are,

1. Jatropha Gossypifolia; *Cotton-leaved Physic Nut,* or *Wild Cassava.* Leaves five-parted; lobes ovate, entire, ciliate; bristles glandular, branched on the petioles. Stem from two to three feet high, herbaceous, branched, smooth; common peduncle terminating; partial cymed, bifid; male flowers very copious, females solitary, in the forks of the peduncles; corolla deeply five-parted, dark purple.—Native of the West India Islands, and very common all over Jamaica, where the soil is dry and gravelly, and the situation warm. It grows most luxuriantly about houses where the ground is warmed with dung, and rises in such places to the height of three feet and a half, or more. It is very beneficial in every plantation where they keep much poultry, which are very fond of the seeds. A decoction of the leaves is sometimes used as a purgative in the dry belly-ache; and hence the plant has been called *Belly-ache Weed.* Browne names it Wild Cassava, or Casadar. It is cultivated for food; and propagated by cutting the stalks into lengths of seven or eight inches, which when planted put out roots.

2. Jatropha Glauca; *Glaucous-leaved Physic Nut.* Calicled: leaves five-cleft and three-cleft, serrate-toothed; petioles naked; stipules palmate. Stem herbaceous, erect, a foot high, pubescent; peduncles towards the top, opposite to the leaves, three inches long, the height of the stem. It is distinguished from the preceding at first sight by its glaucous hue.—Native of Arabia and the East Indies. This, and most of the other sorts, are easily propagated by seeds, which should be sown on a good hot-bed in the spring; and when the plants are fit to remove, they should be each transplanted into a small pot filled with light earth, and then plunged into a fresh-hot bed of tanners' bark, carefully shading them till they have taken fresh root; afterwards they must be treated in the same manner as other tender plants from hot countries, admitting fresh air to them daily, in proportion to the warmth of the season; but as many of the sorts have succulent stalks, some of which have a milky juice, they must have but little water, being soon destroyed by wet.

3. Jatropha Spinosa; *Prickly-stalked Physic Nut.* Calicled: leaves three-parted; lobes angular upwards, and quite entire; stem shrubby, prickly. Corolla five-petalled.—For its propagation and culture, see the preceding species.

4. Jatropha Variegata; *Variegated Physic Nut.* Calicled: leaves lanceolate, quite entire. Corymbs axillary, shorter than the leaf; corolla five-petalled; petals oblong; antheræ eight.—For its propagation and culture, see the second species.

5. Jatropha Glandulosa; *Glandular Physic Nut.* Calicled: leaves five-lobed, villose; lobes toothletted, glandular; stem shrubby, without stipules. This and the preceding species, though they are furnished with a calix, are distinct from the genus Croton, the flowers in that being in spikes.—For its propagation, &c. see the second species.

6. Jatropha Moluccana; *Molucca Physic Nut.* Leaves ovate, quite entire, somewhat toothed. This is a tree, with alternate, ovate, or ovate-cordate leaves, with some scarcely-conspicuous angles, or one or two teeth. Corymb terminating, variously dichotomous. Swartz says, that it ought to constitute a distinct genus.—Native of the Molucca Islands, and of Ceylon.

7. Jatropha Divaricata; *Divaricated Physic Nut.* Leaves ovate, acuminate, entire, very smooth; racemes divaricating.—Native of Jamaica. For its propagation, &c. see the second species.

8. Jatropha Curcus; *Angular-leaved Physic Nut.* Leaves cordate, angular. Stem a fathom in height, sometimes seven or eight feet, but rarely more, round, smooth, and branched; flowers in terminating cymes, males pale yellow, females green.—Native of South America, and the islands in the West Indies. Brown says it is very common in all the sugar colonies, and is frequently cultivated in inclosures, but dies after a few years. The leaves are much used in resolutive baths and fomentations, and the seeds sometimes as a purgative, but they operate violently, and are on that account now but little used. Gærtner suggests, that it was first observed by Boyle, and that the fruit might be eaten with safety if the embryo were taken out. For the propagation and culture, see the second species.

9. Jatropha Multifida; *French Physic Nut.* Leaves many-parted, even; stipules bristle-shaped, multifid. It grows to the height of five, six, or seven feet, with a very smooth suffrutescent stem, and spreading branches: peduncles terminating, very long, round, thick, very smooth, subdivided; flowers small, red.—It is now very common in most of the islands in the West Indies, but was first introduced from the continent into the French Islands, and is therefore called French Physic Nut in the British Islands. It is much cultivated in Jamaica, and forms no small ornament in their flower gardens with its large bunches of beautiful red flowers. The whole plant distils a tenacious watery liquor. The seeds are purgative, but so violent in their operation, that they are now rarely administered, although it was formerly almost the only purgative medicine used among the Spaniards. It flowers from June till August. For its propagation and culture, see the second species.

10. Jatropha Manihot; *Eatable-rooted Physic Nut,* or *Cassava.* Leaves palmate; lobes lanceolate, quite entire,

even. This plant shoots from a tough, branched, woody root, the slender collateral fibres of which swell into those fleshy conic masses, for which the plant is cultivated; and rises by a slender woody knotted stalk, to the height of four, five, or six feet, and sometimes more. The flowers are produced in umbels at the top of the stalks, some male and others female; petals five, spreading. This plant, which formerly supplied the greatest part of the sustenance of the native Indians, is now raised in most parts of America, and generally considered as a very beneficial vegetable, yielding an agreeable wholesome food, which, with its easy growth, and hardy nature, afford it an universal recommendation. It grows to perfection in about eight months, but the roots will remain a considerable time in the ground uninjured. They are generally dug up as occasion requires, and prepared for use in the following manner: first well washed and scraped, then rubbed to a pulpy farina on iron graters, put into linen or palmetto bags, and placed in a convenient press until the juice is entirely extracted. The farina is then taken out, and spread in the sun for some time, pounded in large wooden mortars, run through coarse sieves, and afterwards baked on convenient iron plates. These are placed over proper fires, and when hot bestrewed with the sifted meal to whatever size or thickness people please to have the cakes made: this agglutinates as it heats, grows gradually harder, and when thoroughly baked is a wholesome well-tasted bread. *Tapioca* is also prepared from this root. What is expressed from the farina is frequently preserved and employed in many economical uses: in boiling it throws up a thick viscid scum, which is always thrown away, and the remaining fluid is sometimes diluted and kept for common drink, and is thought very much to resemble whey in that state. Some use it in sauce, for fish and many other sorts of food, as it was used by the native Indians long before Europeans had landed in those parts of the world. The juice of the root is sweetish, but more or less of a deleterious nature, both in a fresh and a putrid state, though it hardly retains any thing of this quality while in a state of fermentation. The milky juice swallowed, or the root eaten without preparation, brings on convulsions, and occasions violent retching and purging: it acts only on the nervous system, and produces no inflammation in the stomach; but the stomach of one poisoned by it, appears both in man and other animals to be contracted one half. However violent the rough juice may be found immediately after it is expressed, it is certain that swine eat the roots daily without any detriment; and a little mint-water and salt of wormwood will calm the most violent symptoms that arise on taking it, and prevent all bad consequences, even in the human species, if but speedily administered. The farina, while yet impregnated with the juice, makes an excellent salve, which seldom fails to cleanse and heal the most desperate sores: where these are very foul, or the parts too much relaxed, it is sometimes mixed with a few pounded tobacco leaves; and has been often found effectual where common ointments have not had the least force; it is also used by way of poultice, and is an excellent resolutive. In Madagascar, Cassava is the ordinary food of the Blacks; and the French call it, *Madagascar Bread.* In the West Indies it is called *Cassava, Cassada,* or *Cassadar;* in Brazil, *Mandihoca, Manuba;* whence we have the name *Manihot;* and in French, *Manihiot.* The Caraibes call it *Juka,* or *Yuka;* which name is adopted by the Germans and the Spaniards, who call it *Yucca de Cassabe.* At Rio Janeiro they call it the Flour or Meal of the Cassava root, or *Farinha de Pao,* Wood Flour, and not Powder of Post, as it has been absurdly translated.—It flowers here in July and August. The Cassava root thrives best in the West Indies, in a free mixed soil, is propagated by the bud or gem, and is generally cultivated in the following manner: The ground is first cleared, and hoed up into shallow holes of about ten or twelve inches square, and seldom above three or four inches in depth. When they intend to plant, they provide a sufficient number of full-grown stems, and cut them into junks of about six or seven inches long, as far as they find them tough and woody, and well furnished with prominent well-grown hardy buds: of these they lay one or two in every hole, and cover them over with mould from the adjoining bank; but care must be taken to keep the ground clean till the plants rise to a sufficient height to cover the mould, and to prevent the growth of all the weaker weeds.

11. Jatropha Janipha; *Carthaginian Physic Nut.* Leaves palmate; lobes quite entire, the middle ones on both sides lobed with a sinus. This is an upright shrub, smooth all over, abounding in an aqueous juice, that is somewhat clammy, and has the smell of Walnut leaves. Roots very tuberous, like those of Asphodel, in bundles; racemes loose, bearing a few female flowers below many males; corolla yellowish and brownish green. In close woods it frequently rises with a weak, unbranched, rod-like stem, to the height of twenty feet, and it retains this habit in the European stoves.—Native of South America, common about Carthagena, flowering almost the whole year; also of China, where, Loureiro says, it is used not raw but boiled, as a resolutive, like the preceding.

12. Jatropha Urens; *Stinging Physic Nut.* Leaves palmate, toothed, prickly. Root thick, swelling, fleshy, from which arises an herbaceous stalk as thick as a man's thumb, four or five feet high, dividing into several branches, closely armed with long brown spines. The flowers are produced in umbels at the top of the branches, standing upon long naked peduncles; they are of a pure white colour. The nerves of the leaves are armed with stinging spines.—It flowers from May to July; and is a native of Brazil. There is a variety with leaves divided like the common Wolf's-bane.

13. Jatropha Herbacea; *Herbaceous Physic Nut.* Prickly: leaves three-lobed; stem herbaceous. The whole plant is closely armed with long stinging bristly spines. The flowers grow in an umbel at the ends of the branches; they are small, of a dirty white colour.—Native of La Vera Cruz. It is an annual plant: if the seeds be sown early in the spring, and the plants are brought forward, they will perfect their seeds the same year; but the other sorts are perennial, and do not flower till the second or third year.

14. Jatropha Elastica; *Caoutchouc,* or *Elastic Gum Tree.* Leaves ternate, elliptic, quite entire, hoary underneath, on long petioles. This tree is described as very lofty and straight, and quite naked up to the head, which is very small; the trunk of the largest is only about two feet in diameter: the fruit is triangular, enclosing three seeds: these seeds or kernels, peeled and boiled in water, yield a thick oil, which the Indians use as butter with their food; the wood of the tree is light, and fit for masts.—It is a native of Guiana, of Quito, and Brazil, particularly in Para, where it is called Massaradub. The Indians, by an incision in the bark, extract a viscid white substance, like that which issues from the Fig-tree; they receive it into earthen moulds, to make rings, bracelets, girdles, syringes, hats, boots, flambeaux, figures of animals, &c. The Abbé Rochon says, that the inhabitants of Madagascar also make flambeaux of it, which burn without wicks, and afford them a very good light when they go out to fish in the night-time. Caoutchouc has the extensibility of leather, with very considerable elasticity; spirit of wine makes no impression on it, but it dissolves in ether and linseed oil, or in nut oil digested gently in a sand bath;

there are also other fat and oily substances which affect it very sensibly. The Chinese have been long acquainted with the art of dissolving it, and of giving it various colours; but perhaps the purpose to which it has been most universally applied, is that of obliterating pencil lines, for the reader will by this time suspect it to be nothing less than our famous India Rubber, to which artists and accountants are under such great obligations. It was first found by Mons. Condamine, in 1745, upon the banks of the river of Amazons, and is very common in Quito, where it is called *Hheve*. There are several trees which yield the resin called elastic gum, or a juice very similar; as, Ficus Indica, Cecropia Peltata, Siphonia Caoutchouc, Artocarpus Integrifolia, and Urceola Elastica.

Iberis; a genus of the class Tetradynamia, order Siliculosa.—Generic Character. *Calix:* perianth four-leaved; leaflets obovate, concave, spreading, small, equal, deciduous. *Corolla:* four-petalled, unequal; petals obovate, obtuse, spreading; claws oblong, upright: of these the two exterior petals are far larger, and equal to each other; the two interior very small, reflex. *Stamina:* filamenta six, awl-shaped, upright, of which the two lateral ones are shorter; antheræ roundish. *Pistil:* germen roundish, compressed; style simple, short; stigma obtuse. *Pericarp:* silicle upright, suborbiculate, compressed, emarginate, surrounded by a sharp edge, two-celled; partition lanceolate; valves navicular, compressed, carinated. *Seeds:* a few, subovate. *Observe.* The sixth species has nearly equal flowers, and a subquadrangular silicle: the silicle is not emarginate in the seventh species. *Is the partition bipartile in all the species?* Essential Character. *Corolla:* irregular, with the outer petals larger. *Silicle:* emarginate, many-seeded: (in some of the species one seed only in each cell.)—The species are,

1. Iberis Semperflorens; *Broad-leaved Evergreen Candy-tuft.* Frutescent: leaves wedge-shaped, quite entire, blunt. A shrubby plant, seldom rising above a foot high, having many slender branches, which spread on every side, and fall towards the ground if they are not supported; they are well furnished towards their extremities with leaves, which continue green all the year; in summer the flowers are produced at the end of the shoots; they are white, and grow in an umbel, continue long in beauty, and being succeeded by others, the plants are rarely destitute of them, from the end of August till the beginning of June, which circumstance makes this a very valuable plant.—Native of Persia and Sicily. It is somewhat tender, and generally sheltered during winter in a green-house, where, being placed among other diminutive plants to the front of the house, it makes a pleasing variety, flowering throughout the winter; but though usually thus treated, in moderate winters it will live in the open air, if it be planted in a warm situation and on a dry soil; and if in very hard frost it be covered either with mats, reeds, straw, or pease-haulm, it may be preserved very well, and these plants which grow in the full ground will thrive better, and produce a greater number of flowers, than those which are kept in pots: but the soil in which these are planted, should not be over-rich nor too wet, for in either of these they will grow too vigorously in summer, which will place them in greater danger of suffering by the frost in winter; but when they grow on a gravelly soil, or among lime rubbish, their shoots being short, strong, and not so replete with moisture, will better resist the cold. The plant rarely produces seeds in England, and is therefore only propagated by cuttings, which, if planted during the summer months, and shaded from the sun, and duly watered, will be rooted in two months, and may afterwards be either planted in pots, or into the borders where they are designed to stand.—There is a variety with striped leaves; but not being so hardy as this, must be more tenderly treated in winter, and may also be increased by cuttings.

2. Iberis Sempervirens; *Narrow-leaved Evergreen Candy-tuft.* Frutescent: leaves linear, quite entire, acute. This is of humbler growth than the first species, seldom rising more than six or eight inches high, nor are the branches woody, but herbaceous. The leaves continue green throughout the year.—It flowers from April to June, and is a native of the island of Candia, on rocky ground. As this species rarely produces seeds in England, it is increased by slips, which easily take root in summer: the plant may be treated in the same manner as the first sort, and will thrive in the open air.

3. Iberis Garexiana. Leaves oblong-lanceolate, acute; stems fruticulose, diffused, flexile, warted; branchlets leafy, upright. Root horizontal, with many fibres; stems many, depressed, brown, round, naked, commonly simple; corolla white, the two outer petals double the size of the others. It has no smell. The seed-vessel differs no otherwise from a capsule, than in having deciduous valves, and it has only a single seed in each of the two cells.—Native of Piedmont, about Strop, above Tende, in the high mountains between Briga and Carlin, and above Frabrosa.

4. Iberis Gibraltarica; *Gibraltar Candy-tuft.* Frutescent: leaves toothed at the tip. Stems many, thick, green, striated, ascending, from a foot to eighteen inches in length, divided into several branches; flowers terminating in corymbs, first white, afterwards pale purple, without scent, the two outer petals broader and longer: the flowers bear some resemblance to those of the eighth species, but when they blow in perfection, they are usually twice as large; hence they are highly ornamental in the green-house early in the spring, at which time they appear. It is nearly allied to the first species, but is less shrubby and woody; the leaves are toothed towards the end, and the flowers are in larger corymbs.—Native of Spain. It is easily raised from cuttings, and may be kept through the winter in a common hot-bed frame; in mild winters it will stand abroad, especially if sheltered among rock-work: moisture often destroys it in the winter season; the moisture ought therefore to be dissipated by gentle heat.

5. Iberis Saxatilis; *Rock Candy-tuft.* Suffrutescent: leaves lanceolate-linear, fleshy, acute, quite entire, ciliate. Root woody, hard, twisted, and large; stems diffused, numerous, branched at the base, scarred with fallen branches and leaves, three or four inches high; the stems and branches are almost naked at top, and terminate in a corymb of white or purple flowers: in the progress of the inflorescence the corymb becomes a raceme. It varies with leaves almost flat, and little, if at all, ciliated.—Native of the South of France and Italy. This, and the two following species, are propagated by seeds sown on a shady border in autumn: when the plants are strong enough to remove, transplant them into a shady border, where they are to remain, and they will require no other care but to keep them clean from weeds. The flowers of this plant have a pleasant smell.

6. Iberis Rotundifolia; *Round-leaved Candy-tuft.* Herbaceous: leaves ovate; stem-leaves embracing, even, juicy. Stems naked, slender, creeping, branched; flowers in racemes on spreading peduncles; calix reddish; petals purple, with the border entire, blunt, oval; seed smooth. It flowers from May to July. This, and all the preceding sorts, are perennial: the following are annual, except the next, which seems to be perennial.—Native of Switzerland,

Carniola, the south of France, Italy, and Silesia. See the fifth species.

7. Iberis Cepeæfolia: *Onion-leaved Candy-tuft.* Herbaceous: leaves ovate; stem-leaves sessile, even, juicy. Root long, round, slender, fungous, branched, creeping obliquely, reddish violet-coloured on the outside; stems several, scarcely half a span in height, prostrate, with the flowering tops curved upwards; petals obovate, oblong, entire, equal, lilac-coloured; flowers sweet-smelling like the preceding: they appear in May.—Native of Carinthia. See the fifth species.

8. Iberis Umbellata; *Purple Candy-tuft.* Herbaceous: leaves lanceolate, acuminate, the lower serrate, the upper quite entire. Root annual, white, oblong, fusiform; stem upright, leafy, half a foot, or a span to a foot in height; flowers in a hemispherical corymb, on peduncles half an inch in length; the usual colour is a pale purple, but there is one variety with bright purple, and another with white flowers. The flowers appear in June and July, and may be continued in succession till autumn.—Native of the south of Europe. This, with the ninth and eleventh species, are sown in small patches upon the borders of the flower-garden: and, by sowing them at three or four different times, there may be a succession of them in flower till autumn; when they are grown up, they should be thinned, that they may put out side-branches, flower stronger, and continue longer in beauty. This plant was formerly sown for edgings; for which it is, like all other annuals, extremely unfit.

9. Iberis Amara; *White Candy-tuft.* Herbaceous: leaves lanceolate, acute, somewhat toothed; flowers in racemes. Linneus observes, that this resembles the preceding very much, being only smaller; it differs however in many other respects: stem seven or eight inches high, pubescent, somewhat rugged, branched; branches diffused, alternate; leaves bright green, thickish, smooth; flowers white, in a terminating spike-like raceme, or rather in a corymb lengthened into a raceme as the inflorescence advances.—Native of Switzerland, Germany, Austria, south of France, and England, where it is found about Henley, Nettlebed, and Mungewell, in Oxfordshire, and on Wallingford common, in Berkshire.

10. Iberis Linifolia; *Flax-leaved Candy-tuft.* Herbaceous: leaves linear, quite entire; stem-leaves serrate; stem panicled; corymbs hemispherical. Root simple, white, twisted, having few fibres; stem herbaceous, straight, slender, branched at top; branches mostly bifid; flowers in corymbs, the outer ones peduncled, with the two outer petals larger; the colour is purple, and they appear in July. It is an annual plant.—Native of Spain, Portugal, and Provence.

11. Iberis Odorata; *Sweet-scented Candy-tuft.* Herbaceous: leaves linear, widening at top, and serrate. This seldom grows so large as the Purple Candy-tuft, and the flowers are much smaller, but have an agreeable odour: they are in close corymbs, and of a snowy whiteness.—Native of the mountains near Geneva.

12. Iberis Arabica. Herbaceous: leaves ovate, smooth, veinless, quite entire; silicles two-lobed at the base and tip.—Native of Arabia and Cappadocia.

13. Iberis Nudicaulis; *Naked-stalked Candy-tuft,* or *Rock-cress.* Herbaceous: leaves sinuate; stem naked, simple. The stems are from two to four inches in height, numerous, decumbent when young, but finally upright, simple, round, and smooth; root-leaves spread on the ground in a circle, petioled; flowers in a terminating spike-like raceme, small, white, and scentless, on peduncles half an inch long, and spreading wide.—Native of most parts of Europe, in dry and barren soils. It is found on Hounslow-heath, Putney and Barnes commons, and near Hampton-court and Richmond; at Blackheath by the road from Greenwich to Lewisham; at Ilford, in Essex; near Gamlingay, in Cambridgeshire; Bungay, in Suffolk, and near Norwich; near Pensham, in Worcestershire; at Harmer-hill, near Salop; at Nottingham-park; at Little Creaton, in Northamptonshire; between Corby Castle and Carlisle; and in some parts of Scotland. This diminutive plant is rarely admitted into gardens; the seeds may be sown in autumn where the plants are designed to remain, and require no other care but to keep them clean from weeds.

14. Iberis Pinnata; *Winged Candy-tuft.* Herbaceous: leaves pinnatifid. Stem about a foot and a half in height, commonly simple, but sometimes with a branch or two; flowers in a corymb, clear white, seldom purple.—It flowers from July to August, and is a native of the south of Europe.

Ice-House; a building sunk in the ground, to preserve ice in the summer season. In the choice of a situation for an ice-house, the principal regard should be that of a dry spot of ground, for wherever there is moisture the ice will melt; therefore in all strong lands, which retain the wet, there cannot be too much care taken to make drains all round the building to carry off all moisture; which, when lodged near the building, will produce a damp that will always be prejudicial to the preservation of the ice. The next consideration must be, to have the place so elevated that there be descent enough to carry off whatever wet may fall near the building, or from such portions of the ice as may occasionally melt; also, that the place be as much exposed to the sun and air as possible, and not placed under the drip or in the shade of trees, as has been so often practised, under a false notion, that, if it should be exposed to the sun, the ice will melt away in summer; which never can be the case where there is sufficient care taken to exclude the outward air, (which must always be attended to in the building of these houses,) for the heat of the sun can never penetrate through the double arches of the building, so as to add any warmth to the air: but when it is entirely open to the sun and wind, all damps and vapours will be thereby removed from about the building, which cannot be kept too free from moist vapours. The form of the house may be adapted to the fancy of the owner, but the well into which the ice is to be put, should be circular, and the diameter and depth proportioned to the quantity of ice it is proposed to contain. It is best to take care that it be amply capacious, so as to hold an abundance; for, when the house is well built, it will keep the ice for two or three years, which will secure this advantage, that the stock will hold out during a mild winter whenever it may occur. If the quantity required is not great, a well of six feet diameter and eight feet depth will be large enough; but for a large consumption it should not be less than nine or ten feet in diameter, and as many deep. Where the situation is either dry chalk, gravel, or sand, the pit may be entirely below the surface of the ground; but in strong loam, clay, or moist ground, it will be better to raise it so high above the surface as to obviate the approach of wet. At the bottom of the well, there should be a space left two feet deep, to receive any moisture which may drain from the ice, from which a small underground drain should be laid to carry off the water. Over this should be placed a strong grate of wood, to let the moisture descend. The sides of the well must be walled up with brick or stone, at least two feet thick; but the thicker the better, for the less danger there will be of the ice being affected by any external cause. When the well is brought within three feet of the surface, there must be another outer wall or arch begun, and carried up to the height of the top of the intended

arch of the well; and if there be a second arch turned over from this well, it will add to the goodness of the house; but if not, then the plate into which the roof is to be framed must be laid on this outer wall, which should be carried high enough above the inner arch to admit of a door-way in, to get out the ice. If the building is to be covered with slates or tiles, there should be a thickness of reeds laid under, to keep out the sun and external air: if these reeds be laid two feet thick, and plastered over with lime and hair, there will be no danger of the heat getting through it. The external wall need not be circular; it may be either square, hexangular, or octangular, and, where it stands much in sight, may be contrived so as to form a good object. The aperture at the mouth of the well need not be above two feet and a half in diameter, and there should be a stone fitted to stop it, and the aperture must be closed up as secure as possible after the ice is put in, and all the vacant space above and between this and the outer door must be filled close with barley straw, to exclude the air. The building being finished, should have time to dry before the ice is put into it, for the damp of green walls frequently melts the ice. Upon the wooden grate, at the bottom of the well, some small faggots should be laid, and if a layer of reeds be smoothly placed upon these, it will be better for the ice to lie upon than the straw, which is commonly used. In choosing ice, observe, the thinner it is, the better it may be broken to powder, and the more easily it will unite when put into the well. Care must be taken to ram it close, and, by laying straw all round the wall, to allow a vacancy of about two inches to drain off the moisture that may be occasioned by the melting of the ice on the top, which, if not drawn off, will melt the ice downwards. A little saltpetre mixed with the ice, at every ten inches or a foot thickness, when it is put into the well, will cause it to unite more closely into a solid mass: and there must be a crow, or other iron instrument, always in readiness to break it up, taking out no more at each time than is immediately wanted.

Ice Plant. See *Mesembryanthemum.*

Jerusalem Artichoke. See *Helianthus.*

Jerusalem Sage. See *Phlomis.*

Jesuit's Bark. See *Cinchona.*

Jew's Mallow. See *Corchorus.*

Ignatia; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, short, bell-shaped, five-toothed; teeth upright, ovate, obtuse. *Corolla:* one-petalled, funnel-form; tube filiform, of a span length, smooth, upright; border flat, five-parted; divisions oblong, obtuse, perfectly entire. *Stamina:* filamenta five, inserted into the receptacle, length of the tube, thread-shaped, very smooth; antheræ five, converging into an oblong column, which is five-cornered, sharp, and rough. *Pistil:* germen very small, ovate, very smooth; style filiform, length of the stamina; stigma slender, two-parted; divisions awl-shaped. *Pericarp:* berry pear-shaped, large, one-celled, with a thick woody bark. *Seeds:* several, covered with a thin cuticle, solid, horny, very hard; the lateral ones irregularly tetragonal, with the inner sides flat, the outward gibbose, the interior oblique; the central one hexagonal, with flat sides. Essential Character. *Calix:* five-toothed. *Corolla:* funnel-form, very long. *Fruit:* one-celled, many-seeded.——The species are,

1. Ignatia Amara; *Bitter Beans.* Leaves ovate, acute; stem scandent; peduncles axillary, four-flowered or thereabouts. This is a branching tree; the branches long, round, very smooth, climbing; flowers very long, nodding, white, in small panicles; fruit ovate, with a very smooth dry rind. —Native of the East Indies and Philippine Islands, whence it has been transported to Cochin-china, and other countries, for cultivation. The seeds, known by the name of *St. Ignatius's Beans,* are much used in the East Indies, and are reputed to be tonic, diaphoretic, emmenagogue, and anthelminthic. They are used in the pituitary apoplexy, colic, cardialgia, intermittent fevers, suppression of the menses, and bites of venomous animals. The dose is from six to twelve grains, reduced to powder, either in wine or water. They never produce any bad effect, although they do not always operate, but are often productive of great relief; too large a dose will bring on vertigo and convulsions, which may be easily removed by drinking freely of lemonade. The younger Linneus erroneously asserts, that the seeds are as poisonous to animals as those of the Nux Vomica; for a whole nut, weighing a drachm, has been given to oxen, buffaloes, horses, and swine, without any ill effect.

2. Ignatia Longiflora. Leaves oblong, waving, acuminate; peduncles terminating, six-flowered, or thereabouts. This is a branching shrub, five or six feet high, with a smooth green bark, and a white hard wood; corolla white, with a tube a foot in length. It flowers in November, and fruits in January. —Native of Guiana on the banks of large rivers. The Caribbee name is *Aymara-Posoqueri.*

Ilex; according to Linneus, a genus of the class Tetrandria, order Tetragynia; according to Hudson, class Polygamia, order Dicœcia.—Generic Character. *Calix:* perianth four-toothed, very small, permanent. *Corolla:* one-petalled, four-parted, wheel-shaped; divisions roundish, spreading, rather large, with cohering claws. *Stamina:* filamenta four, awl-shaped, shorter than the corolla; antheræ small. *Pistil:* germen roundish; style none; stigmas four, obtuse. *Pericarp:* berry roundish, four-celled. *Seed:* solitary, bony, oblong, obtuse, gibbose on one side, cornered on the other. Essential Character. *Calix:* four-toothed. *Corolla:* wheel-shaped. *Style:* none. *Berry:* four-seeded.——The species are,

1. Ilex Aquifolium; *Common Holly.* Leaves ovate, acute, spiny, shining, waved; flowers axillary, subumbelled. It rises from twenty to thirty feet high, and sometimes more, for Bradley mentions a tree sixty feet high; but its ordinary height is not above twenty-five feet. The trunk is covered with a grayish smooth bark; and those trees which are not lopped or browzed by cattle, are commonly furnished with branches for the greatest part of their length, and form a sort of cone. Flowers in clusters from the base of the petioles, on very short peduncles, each sustaining five, six, or more flowers, which appear in May; the corolla of a dirty white. They are succeeded by roundish scarlet berries about Michaelmas, continuing most part of the winter. Mr. Miller says, "In some plants I have observed the flowers were wholly male, and produced no berries; in others female and hermaphrodite; but I found all three upon some old trees growing in Windsor Forest." The late Sir William Watson also made an observation of the same sort. Gerarde remarked hermaphrodite flowers with five petals on one tree, and male flowers with a four-parted petal and an abortive germen on another tree. Professor Martin also says, that in the trees which he observed, the petals were four-parted; and Dr. Withering remarks, that he found the Holly in flower so late as the second week in June, and then all the flowers had four stamens and four pistils; which Haller confirms. Mr. Hudson, however, describes a five-toothed calix and five-parted corolla in the hermaphrodite, with five stamens, five stigmas, and a four-seeded berry; in the male, a four-toothed calix, a four-parted corolla, and four stamens: but whether this be

P. 742.

ILEX AQUIFOLIUM — *Common Holly.*

P. 747.

IMPATIENS BALSAMINA — *Garden Balsam.*

W. Mallinson sculp.

Published by Henry Fisher, Caxton, London, 1822.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

from his own observation, or only founded on Gerarde's, we are at a loss to know. He has removed the Holly from the class where Linneus and others have placed it, into the class Polygamia, order Dicœcia, where it certainly ought to be found, according to the above observations. But it is judiciously remarked by Dr. Stokes, that "before it is removed to another class, it is proper to shew that the majority of the other species are liable to similar sexual variations."—This beautiful tree deserves a place in all plantations of evergreens and shrubs, where its shining leaves and scarlet berries make a fine appearance; and, if a few of the best variegated sorts be properly intermixed, they will enliven the scene. The Holly makes an impenetrable fence, and bears cropping well; nor is its verdure, or the beauty of its scarlet berries, ever observed to suffer from the severest of our winters; it would therefore form a better fence that the Hawthorn, were it not for the slowness of its growth whilst young, and the difficulty of transplanting it when grown to a moderate size; but if it once take well, the hedge may be rendered so close and thick, as to exclude all sorts of animals. Evelyn's impregnable Holly hedge, four hundred feet in length, nine feet high, and five thick, has been much celebrated by himself, Mr. Ray, and others. Mr. Miller says, that a Holly hedge should never be clipped with shears, because, when the leaves are cut through the middle, they are rendered unsightly; and should therefore be cut with a knife, close to a leaf; and although by this method it is not shorn so even, it will have a much better appearance. This may be done to ornament a garden hedge, but it is obviously impracticable upon a large scale. The clipping a Holly hedge should not be done later than July. The Holly does best in cold stony lands; prospers on gravel, over chalk; and refuses not, says Mr. Boutcher, the poorest, hot, sandy, gravelly, and rocky ground, nor the coldest clay; on which last, however, it has been observed to advance with a most discouraging slowness. Mr. Marshall relates, "that in the Wolds of Yorkshire, he has seen the Holly raised, by the practice of a man who paid great attention to the business of hedge-planting, with an unusual rapidity and certainty;" this man's secret would be of inestimable value to the public, and perhaps our intelligent readers in that part of the kingdom, may think it worth their while to endeavour to discover and make it known. Forty or fifty varieties, depending on the variegations of the leaves or thorns, and the colour of the berries, all derived from this one species, are raised by the nursery gardeners for sale, and were formerly in very great esteem, but are now less regarded, since the old taste of filling gardens with shorn evergreens has been laid aside; a few, however, of the most lively varieties, would have a good effect in plantations during the winter season, if properly disposed.—The following are the most beautiful varieties: Painted Lady; British; Bradley's-best; Phyllis, or Cream; Milkmaid; Prichet's-best; Cheyne's; Glory of the West; Broderick's; Partridge's; Herefordshire white; Blind's Cream; Longstaff's; Eales's; Gold-edged, and Silver-edged Hedge-hog Holly; Chohole; Box-leaved Green; Chimney-sweeper; Glory of the East; Wife's; Gray's; Common-blotched; Yellow-blotched Hedge-hog; Blotched Yellow-berried; Mason's; Copper-coloured; Sir Thomas Frankland's Britain; Whitmill's; Bradley's Long-leaved; Bradley's Yellow; Bridgman's; Well's; Glass's; Bagshot; Brownrig's; Lanton; Aslet's; The Union; Fuller's Cream; Capel's Mottled; and the White-berried. Of all the varieties above enumerated, the Hedge-hog Holly is the most remarkable. The leaves are not so long as those of the common Holly, and have the edges armed with stronger thorns, standing close together, the upper surface set very close with short prickles: as it retains its difference when raised from berries, Mr. Miller insists that it is a distinct species: he informs us that there are two varieties of it with variegated leaves, one green and yellow, and the other green and white. It grows naturally in Canada.—The wood of the Holly-tree, says Evelyn, is the whitest of all hard woods, and is used by the inlayers, especially under thin plates of ivory. The mill-wrights, turners, and engravers, prefer it to any other; it makes the best handles and stocks for tools, flails, riding-rods, and carters' whips, bowls, clivers, and pins for blocks, and is also excellent for door bars and bolts; it is made even into hones for setting razors: and takes so fine a polish, that it is very suitable for several kinds of furniture. Mr. Miller mentions the floor of a room laid in compartments of this wood, with mahogany, which had a very pretty effect. It is much used with box, yew, and white-thorn, in the Tunbridge ware, and in veneering, and is sometimes stained black to imitate ebony. Sheep are fed during winter with the croppings; birds eat the berries: and the bark fermented, and afterwards washed from the woody fibres, makes the common *birdlime*.—The berries are of a warm carminative nature, and good for relieving the colic; they may be taken to the number of twelve or fourteen at a time; and as they purge, often occasion a considerable evacuation of wind and slime by stool. A decoction of the leaves in milk or ale, produces the same effects, and is serviceable in pains and weakness of the back. A person who was noted for his success in the cure of rheumatic complaints, used no other medicine than a decoction of the young buds or leaves of this tree in water, which, after being strained, was sweetened with coarse sugar, and given to the patient to drink, while warm in bed, to the amount of half a pound weight of the liquid, three or four times a day, till the pain was removed, or at least alleviated; it operated in all cases as a very powerful sudorific; and plenty of small diluting liquors were ordered to be drank during the operation. Culpeper says, "that the dry berries, pounded into powder, will stop fluxes, bloody fluxes, and immoderate menstrual evacuations; and that the bark and leaves are excellent to foment broken bones, or dislocated joints." This tree grows wild in many parts of Europe, North America, Japan, and Cochin-china; and is found in woods and forests in many parts of England, where it is called Hulver and Hulme, as well as Holly: the Germans give it many names, such as *Stechpalme*, *Christdorn*, *Walddistel*, &c.; the Danes call it *Stikpalme*, *Christtorn*, &c.; the Swedes *Jernek*, and *Christtorn;* the French, *Le Houx*, *Le Grand Housson*, *L'Agron*, *Grand Pardon*, *Bois Franc;* the Italians, *Agrifoglio*, *Alloro Spinoso;* the Spaniards, *Acebo*, *Agrifolio;* the Portuguese, *Azevinho*, *Agrifolio*, *Aquifolio;* and the Russians, *Wassoscheld*, *Ostrokrof*, and *Padub*.——The Holly is propagated by seeds, which never come up the first year, but lie in the ground like the Haws; the berries therefore should be buried in the ground, in a large pot or tub, one year, and then taken up in the autumn, and sown upon a bed exposed only to the morning sun; the following spring the plants will appear, and must be kept clean from weeds; and if the spring should prove dry, it will be of great service to the plants if they are watered once a week, but in small quantities, for much moisture is very injurious to them when young: in this seed-bed the plants may remain two years, and then should be transplanted in the autumn, into beds at about six inches' distance each way, where they may stand two years longer, during which time they must be kept constantly clean from weeds; and, if the plants have thriven well, they will be strong enough to transplant where they are intended

to remain; for when they are transplanted at that age, there will be less danger of their failing, and they will grow larger than those removed at a later period: if the ground, however, be not ready to receive them at that time, they ought to be transplanted into a nursery, in rows at two feet distance, and one foot asunder in the rows, where they may remain two years longer; and if they are designed for grafting or budding with any of the variegated kinds, that should be performed after the plants have grown one year in this nursery; but the plants so budded or grafted, should remain two years after that in the nursery, that they may make good shoots before they are removed. The best time for removing Hollies, is in the autumn, especially in dry land; but where the soil is cold or moist, they may be transplanted with great safety in the spring. Evelyn declares, that he has raised hedges four feet high in four years from seedlings taken out of the woods; and that the varieties with white berries, and gold and silver leaves, may be raised from seeds sown and planted in a gravelly soil, mixed with store of chalk, and pressed hard down. The stocks will be fit to be grafted or budded at four or five years' growth; the grafting must be done in March, and the budding in July. For sowing, Boutcher directs that the berries should hang on the trees till December, or, if they could be defended from birds, till February or March; as soon as they are gathered, throw them into a tub with water, and rub them between your hands till the seeds are divested of their thick glutinous covering; pour off the water, with the light seeds and mucilage, and spread the seeds on a cloth, in a dry airy place, rubbing them frequently, and giving them a fresh cloth daily, till the seeds are quite dry: if this be done in autumn or winter, mix them with sand, and keep them dry till spring; but if they have been gathered in spring, let them be immediately sown; this may be done any time, during seasonable weather, in March or April, in beds of loose light mould.

2. Ilex Opaca; *Carolina Holly*. Leaves ovate, acute, spiny, smooth, flat; flowers scattered at the base of the last year's shoots. It flowers in May and June.—Native of Carolina.

3. Ilex Perado; *Thick-leaved Smooth Holly*. Leaves ovate, with a point, unarmed, almost entire. It flowers in April and May.—Native of Madeira.

4. Ilex Prinoides; *Deciduous Holly*. Leaves elliptic-lanceolate, acute, deciduous, serrate; serratures without prickles. It flowers in July.—Native of Carolina and Virginia.

5. Ilex Cassine; *Dahoon Holly*. Leaves alternate, distant, evergreen, lanceolate, serrate; serratures acuminate. It rises with an upright branching stem to the height of eighteen or twenty feet; leaves four inches long, of a thick consistence, light green: the flowers come out in thick clusters from the sides of the stalks, they are white, shaped like those of the common Holly, but smaller; both the female and hermaphrodite flowers are succeeded by small roundish berries, making a fine appearance in winter; but they have not as yet produced any fruit in England. There are two varieties; one with broader leaves, the other with narrower leaves, with scarcely any serratures.—Native of Florida and Carolina. It is tender while young, and requires protection in the winter till the plants are grown strong and woody, when they may be set in the full ground, in a warm situation, where they will endure the cold of our ordinary winters very well, but must be protected from severe frost, which would destroy them. It is propagated from seeds in the same manner as the common sorts, and the seeds will lie as long in the ground; they should therefore be buried a year in sand; when taken up, they should be sown in pots filled with light earth, and placed under a frame in winter, and in the spring the pots should be plunged into a hot-bed, which will bring up the plants; they must be preserved in the pots while young, and sheltered in winter under a common frame till they have obtained strength, when in the spring they may be turned out of the pots, and planted in the full ground in a warm situation.

6. Ilex Vomitoria; *South Sea Tea*, or *Evergreen Cassine*. Leaves alternate, distant, oblong, bluntish, crenate-serrate; serratures without prickles. It rises to the height of ten or twelve feet, sending out branches from the ground upwards, which form themselves into a sort of pyramid; leaves about the size, shape, texture, and colour, of the Small-leaved Alaternus, but somewhat shorter, and a litttle broader at the base; the flowers are produced in close whorls at the joints of the branches, near the footstalks of the leaves, they are white, and are succeeded by red berries, which continue upon the plants most part of the winter, and, being of a bright red colour, make a fine appearance, intermixed with the green leaves; from the berries continuing so long untouched by the numerous birds of their native climate, they are fairly suspected of having a poisonous quality. The leaves of this tree are not so bitter as those of the Cassine, or Cassioberry bush, especially when green, and are therefore preferred for making an infusion in the manner of tea; which the Indians reckon very wholesome, and is the only physic they use in some parts. At a certain time in the year they come down by droves, from a distance of some hundred miles, to the coast, for the leaves of this tree, which is not known to grow at any considerable distance from the sea; they make a fire on the ground, and putting a great kettle of water on it, throw in large quantities of these leaves, and seating themselves round the fire, from a bowl that holds about a *pint*, begin drinking large draughts, which in a short time occasions them to vomit easily and freely: thus they continue drinking and vomiting for two or three days, until they have sufficiently evacuated and cleansed their stomachs, and then, every one taking a bundle of the tree to carry with him, they all return to their respective habitations. This plant is generally supposed to be the same as that which grows in Paraguay, where the Jesuits raise a great revenue from the leaves.—Native of West Florida, Carolina, and some parts of Virginia. It is propagated by seeds, sown in pots filled with light sandy earth, and plunged into a gentle hot-bed, observing to water them frequently until the plants appear, which is sometimes in five or six weeks' time, but at other times they will remain in the ground until the second year; therefore, if they should not come up in two months, remove the pots into a shady situation, where they may remain till October, being careful to keep them clean from weeds, and now and then, in dry weather, give them a little water; then remove the pots into shelter during the winter, and in March put them upon a fresh hot-bed, to forward the seeds for vegetation: when the plants come up, gradually expose them to the open air, to inure them to the climate, yet they should not be exposed to the open sun at first, but have the morning sun only, placing them for some time where they may be sheltered from cold winds: as they grow slowly, they should be kept in pots four or five years.

7. Ilex Asiatica. Leaves broad, lanceolate, blunt, quite entire.—Native of the East Indies.

8. Ilex Cuneifolia. Leaves wedge-form, three-cusped.—Native of South America.

9. Ilex Integra. Leaves oblong, obtuse, entire; peduncles one-flowered. Stem shrubby, upright.—Native of the Cape.

10. Ilex Rotunda. Leaves rounded, acute, entire; peduncles umbelliferous. Stem shrubby; branches subumbelled, somewhat knobbed.—Native country unknown.

11. Ilex Crenata. Leaves ovate, crenate; peduncles on the branches scattered, bearing two or three flowers. Stem shrubby, upright; peduncles simple.—Native country unknown.

12. Ilex Emarginata. Leaves obovate, emarginate; flowers axillary, usually in pairs. Stem shrubby; flowers peduncled.

13. Ilex Serrata. Leaves ovate, acute, ciliate, serrate; flowers axillary, solitary. Stem shrubby, upright, branching very much; flowers on filiform drooping peduncles, half a line long; corolla four-petalled. It flowers in June.

14. Ilex Japonica. Leaves opposite, sessile; flowers in terminating racemes. Stem shrubby, smooth, low; peduncles from the axils of the bractes, solitary, one-flowered, capillary; corolla subrotate; petals obovate, entire, white. It flowers in April.—Native place unknown.

15. Ilex Latifolia. Leaves ovate, serrate; flowers axillary, aggregate. Stem arborescent; branches rigid, angular, brown; flowers superaxillary, many together from the gems, on short peduncles.—Native place uncertain.

16. Ilex Crocea. Leaves oblong, serrate; serratures ciliate-spiny.—Native of the Cape.

17. Ilex Myrsinites. Leaves small, opposite, oblong, or subovate, obtuse; margin bent back, partially serrated; branches cylindrical, dark brown, and thickly set with leaves; peduncles axillary, very short, one-flowered; flowers minute, white; calix four-cleft; corolla rotated, four-cleft; filamenta four, of the length of the calix; germen superior, oval; style very short, clavated; stigma four-lobed, thick; seed one, elliptical.—This very curious plant is a native of North America.

Illecebrum; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved, cartilaginous, five-cornered, with coloured leaflets, which are sharp with distant points, permanent. *Corolla:* none. *Stamina:* filamenta five, capillary, within the calix; antheræ simple. *Pistil:* germen ovate, sharp, ending in a short bifid style; stigma simple, obtuse. *Pericarp:* capsule roundish, acuminate, both ways five-valved, one-celled, covered by the calix. *Seed:* single, roundish, sharp on both sides, very large. *Observe.* The fruit in several species is different. Essential Character. *Calix:* five-leaved, cartilaginous. *Corolla:* none. *Stigma:* simple. *Capsule:* five-valved, one-seeded.——The species are,

1. Illecebrum Brachiatum. Stem upright, herbaceous, brachiate; leaves opposite, even. Spikes several, small, villose, white: annual.—Native of the East Indies.

2. Illecebrum Sanguinolentum. Frutescent: leaves opposite; spikes compound, heaped. Stem usually prostrate, and very much branched; antheræ yellow; pistil purple.—It is a perennial plant; and a native of the East Indies.

3. Illecebrum Canariense; *Canary Illecebrum.* Shrubby: leaves elliptic, acute; stipules and bractes ovate, shorter; panicles terminating, dichotomous. This is distinguished from the rest by its woody stem, and terminating dichotomous panicles.—Found on the island of Teneriffe.

4. Illecebrum Lanatum; *Woolly Illecebrum.* Leaves ovate, somewhat hairy; spikes lateral; calices woolly. Stem rigid, somewhat hairy, branched only at the base. It is biennial, and flowers most part of the year; it varies in size. The great Woolly Illecebrum has solitary, not aggregate spikes. Retzius mentions a remarkable variety with round leaves, found in Malabar.—This, with all the natives of the East and West Indies, or other hot climates, are tender, and will not thrive in the open air in England; their seeds therefore must be sown on a hot-bed, in the spring, with Amaranthus, Gomphrena, and other tender plants; afterwards, if plunged into the tan-bed in the stove, they will put out roots, whereby they may be propagated in plenty: where seeds cannot be obtained, they may be increased this way, and the perennial sorts by cuttings.

5. Illecebrum Javanicum; *Spear-leaved Illecebrum.* Leaves lanceolate, tomentose; spikes cylindrical, numerous, terminating.—Native of the East Indies.

6. Illecebrum Verticillatum; *Whorled Knot Grass.* Flowers in whorls, naked; stems procumbent. Leaves opposite, oval, keeled, fleshy, smooth; flowers small, sitting in the axils of the leaves, white, shining, cartilaginous.—Native of many parts of Europe, in wet pastures. It is sometimes found in Devonshire, and the western parts of Cornwall, flowering in July and August.

7. Illecebrum Suffruticosum; *Shrubby Knot Grass.* Flowers lateral, solitary; stems suffruticose. It has woody stems about a foot high, with small leaves like those of Polygonum. It flowers from May to August; and is a native of the south of Europe. This species, as well as the eighth, tenth, and twelfth, which are natives of the south of Europe, may be propagated by seeds sown on a bed of light earth, in the beginning of April; the plants will come up in May, and should be kept clean from weeds till they are fit to remove, when they should be carefully taken up, planting some of each sort in small pots, and the other in a dry warm border, observing to water and shade them until they have taken new root, after which, those that are planted in the full ground will require no other culture but to keep them clean from weeds; for in the ordinary winters of England, they will survive in the open air; but as they are sometimes killed in severe winters, some should be set in pots to be placed in a common frame, where they may enjoy the open air in mild weather, but be screened from frost. But as their seeds do not constantly ripen, they may also be increased by cuttings, which, if carefully taken off in May and June, and planted in a shady border, will put out roots in two months. In moist weather they may be transplanted, and afterwards treated as the old plants.

8. Illecebrum Cymosum; *Flat Knot Grass.* Spikes cymed, directed one way; stem diffused. Root annual; stems two to four inches long: leaves obovate, in fours or thereabouts, linear, thickish; flowers in spikes composed of cymes, both lateral and terminating; calices coloured, vaulted at the tip, awned; germen roundish.—Native of the isle of Elba, the south of France, and of Portugal.

9. Illecebrum Aristatum; *Bearded Illecebrum.* Flowers subfascicled; leaves lanceolate, silky, awned. It flowers in June and July.—Native of the Canaries.

10. Illecebrum Paronychia; *Mountain Knot Grass.* Flowers fenced, with shining bractes; stems procumbent; leaves even. The flowers appear in June, and there is generally a succession of them for at least two months; and when the autumn proves warm, the seeds will ripen at the beginning of October. The heads of flowers come out from the joints of the stalk, having neat silvery bractes surrounding them, which make a pretty appearance.—It is perennial, and a native of the south of Europe.

11. Illecebrum Divaricatum; *Forked Illecebrum.* Flowers bracted, subfascicled; peduncles dichotomous, panicled; leaves ovate-oblong, petioled.—It flowers in July and August; and is a native of the Canary Islands.

12. Illecebrum Capitatum; *Hooded Knot Grass.* Flowers with shining bractes, hiding terminating heads; stems somewhat erect; leaves ciliate, villose underneath. This is an annual plant, which distinguishes it from the tenth species. Villars contradicts this, and says it is perennial.—Native of Provence, Spain, and the Levant.

13. Illecebrum Benghalense. Stem upright, herbaceous; leaves alternate and opposite, lanceolate, pubescent. Root annual; spikes small, hirsute, white, not only from the axils of the leaves, but also at the top, where they glomerate without the leaves.—Native of Bengal, Java, &c.

14. Illecebrum Arabicum. Flowers scattered, heaped; bractes shining, equalling them; stems procumbent.—Found in Arabia.

15. Illecebrum Acayrantha; *Creeping Illecebrum.* Stems creeping, hairy; leaves ovate, mucronate, one opposite, smaller; heads subglobular, somewhat spiny. Root annual. From the axils of the leaves proceed heads of flowers, the whole length of the stem, but especially on the extreme branchlets; they are chaffy, prickly, and composed of many pale juiceless scales, in which very minute and scarcely conspicuous flowers lie concealed.—Native of Buenos Ayres.

16. Illecebrum Polyganoides. Stems creeping, rough-haired; leaves broad-lanceolate, petioled; heads orbiculate, naked. Flowers axillary, white, and under them a three-leaved bracte shorter than the flower. Browne says that this little plant is found creeping in all the low lands and dry savannas about Kingston in Jamaica; that it generally grows in tufts, and spreads about six or eight inches from the root. He calls it Hairy Rupturewort, supposing it to be a *Herniaria.*—Native of the sea-shores of America.

17. Illecebrum Ficoideum. Stems creeping, smooth; leaves broad-lanceolate, petioled; heads orbiculate, pubescent. It puts out roots at every joint. Heads of flowers roundish, sessile, numerous. Jacquin says, it abounds so in the meadows of Martinico as to be a noxious weed. It grows wild in Spain.—Native of the coast of America.

18. Illecebrum Sessile; *Sessile-flowered Illecebrum.* Stems creeping, bifariously tomentose; leaves lanceolate, subsessile; heads oblong, smooth. Flowers white, in round, axillary, heads, often two together. Annual, flowering from July to October.—Native of the East Indies, and of wet places about Canton in China.

19. Illecebrum Vermiculatum. Stems creeping, smooth; leaves subcylindric, fleshy; heads oblong, smooth, terminating. This plant spreads a great way among the grass, and throws out a few fibrous roots at every joint. The whole plant has a reddish-brown cast, and something the appearance of Portulacca, or Purslain.—Native of Brazil and Curaçao. Very common about Rock-river in Jamaica, and on the sandy shores of South America.

20. Illecebrum Alsinefolium. Stems diffused; leaves ovate; flowers heaped; bractes shining.—Native of Spain.

21. Illecebrum Frutescens. Stems shrubby, diffused, dichotomous; leaves opposite, mealy. Root woody, branched, gray; spikes solitary, axillary, sessile whilst flowering, but peduncled whilst fruiting, ovate, imbricate, three lines long; flowers crowded very close, imbricate, sessile, of an herbaceous colour, two lines long. The flowers appear and ripen into seed in summer.

Illicium; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix*: perianth six-leaved, deciduous; the three inferior leaflets oval; the three superior alternate ones narrower, and resembling petals. *Corolla:* petals many, (twenty-seven,) disposed in a triple series; the nine inferior obtuse, concave; the nine middle shorter and narrower; the interior nine shorter and narrower still. *Stamina:* filamenta very many, (thirty,) short, depressed; antheræ upright, oblong, obtuse, emarginate. *Pistil:* germina very many, (twenty,) disposed in a circle, ending in very short spreading styles; stigmas at the upper side of the style, oblong. *Pericarp:* capsules several, (Loureiro says eight,) ovate, compressed, hard, spreading into a circle, bivalve, (but according to Loureiro, one-valved; and to Gærtner, opening at the upper edge.) *Seed:* solitary, ovate, rather compressed, glossy. Essential Character. *Calix:* six-leaved. *Petals:* twenty-seven. *Capsule:* several, disposed in a circle, bivalve, one-seeded.——The species are,

1. Illicium Anisatum; *Yellow-flowered Starry Aniseed Tree.* Flowers yellow. Stem arboreous, a fathom or more in height, smooth all over; leaves aggregate, in threes or fours, elliptic, broader near the tip, evergreen, two inches long; flowers axillary, peduncled, solitary; capsules six or eight, ovate-lanceolate, compressed a little, horizontal, of a substance like cork, rugged without, smooth and even within, having a strong smell of Anise when rubbed. The whole plant, but especially the fruit, has a pleasant aromatic smell, and a sweetish subacrid taste. It is stomachic and carminative, and is used in eastern countries in the colic, rheumatism, &c. In China it is also in frequent use for seasoning dishes, especially such as are sweet. The Japanese plant bundles and garlands of this tree in their temples before their idols, and on the tombs of their friends. They also use the pounded bark as incense to their idols; and when finely powdered, this bark is used by the public watchmen to make a chronometer, for measuring the hours, by slowly sparkling at certain spaces as it burns in a box, in order to direct when the public bells are to sound.—Native of China and Japan. It may be propagated by seeds, if they can be procured; or by laying down the young branches; or by cuttings, which strike freely. It requires the same management as *Gardenia*; which see.

2. Illicium Floridanum; *Red-flowered Aniseed Tree.* Flowers red. Stem arboreous; general appearance like that of the preceding species; petals from twenty to twenty-seven; leaves extremely fragrant.—Native of Florida.

Immortal Flower, or *Life Everlasting.* See *Gnaphalium.*

Impatiens; (Balsam) a genus of the class Syngenesia, order Monogynia.—Generic Character. *Calix:* perianth two-leaved, very small; leaflets roundish, acuminate, equal, placed towards the sides of the flower, coloured, deciduous. *Corolla:* five-petalled, ringent; petals unequal, of which the superior is roundish, flat, upright, slightly trifid, constituting the upper lip; lower pair reflex, very large, outwardly larger, obtuse, irregular, constituting the lower lip; intermediate pair opposite, rising from the base of the upper petal; nectary one-leafed, receiving in the manner of a hood the base of the flower, oblique at the mouth, rising outwardly, ending in a horn at the base. *Stamina:* filamenta five, very short, narrower towards the base, incurved; antheræ as many, connate, divided at the base. *Pistil:* germen superior, ovate, acuminate; style none; stigma simple, shorter than the antheræ. *Pericarp:* capsule one-celled, five-valved, springing open elastically, the valves rolling up spirally. *Seeds:* several, roundish, fixed to a columnar receptacle. *Observe.* In some species the middle petals are wanting, and in some the horn of the nectary; the capsule also differs in figure. Essential Character. *Calix:* two-leaved. *Corolla:* five-petalled, irregular, with a cowled nectary. *Capsule:* superior, five-valved. The seed of all the plants of this genus, except the eighth and twelfth, should be sown on a moderate hot-bed in the spring, and when they are come up about an inch high, they should be transplanted on another hot-bed

at about four inches' distance each way: observing to shade them from the sun till they have taken new root; after which they should have a large share of free air admitted in favourable weather, to prevent them from drawing up tall and weak. They will require to be often refreshed with water, but it should be sparingly given, as their stems are succulent and apt to rot. When the plants are grown so large as to touch each other, they should be carefully taken up with balls of earth to their roots, and each planted in a separate pot filled with light fresh earth, and plunged into a very moderate hot-bed under a deep frame, to admit the plants to grow, shading them from the sun until they have taken fresh root. They should then have a large share of air admitted to them daily, to harden them by degrees so as to bear the open air, into which some of them may be removed in July. They must be placed in a warm situation, where, if the season proves favourable, they will flower, and make a fine appearance. It will be proper, however, to reserve a part under a glass-case or deep frame, in order to obtain good seeds; for those abroad will not ripen their seed unless the summer turn out very warm. The plants thus sheltered will daily require a large portion of free air, to prevent them from becoming sickly: and they must not be too much exposed to the mid-day sun in very hot weather, for that makes their leaves flag, and makes the plants themselves require more water than is wholesome for them; therefore shade them three or four hours in the middle of the day, and they will retain their beauty longer. Those who are curious to preserve these plants in perfection, pull off all the single and plain-coloured flowers from those which they preserve for seeding, leaving those only which are double and have good colours; and they may thus be continued without degenerating in the least.——The species are,

* *With one-flowered Peduncles.*

1. Impatiens Chinensis; *Chinese Balsam.* Peduncles one-flowered, solitary; leaves opposite, ovate; nectaries bowed. Flowers red purple. This is an annual plant, a foot high, upright, round, alternately branched, red.—Native of China.

2. Impatiens Latifolia; *Broad-leaved Balsam.* Peduncles one-flowered, solitary; leaves ovate; serratures lanceolate; nectaries longer than the flower. The spur is awl-shaped, almost the length of the peduncle. Annual.—Native of the East Indies.

3. Impatiens Rosmarinifolia; *Rosemary-leaved Balsam.* Peduncles one-flowered, solitary; leaves opposite, linear. Nectary larger than the petals.—Native of Ceylon.

4. Impatiens Capensis. Peduncles one-flowered, solitary; leaves ovate; notches piliferous.—Native of the Cape.

5. Impatiens Bifida. Peduncles one-flowered, solitary; leaves oblong, serrate; nectaries very long, bifid.—Native of the Cape.

6. Impatiens Oppositifolia; *Opposite-leaved Balsam.* Peduncles one-flowered, aggregate; leaves opposite, linear. This is an upright plant, with a succulent jointed stem; flowers small, with a nectary much shorter than the petals.—Native of Ceylon. Annual.

7. Impatiens Cornuta; *Horned Balsam.* Peduncles one-flowered, aggregate; leaves lanceolate; nectaries longer than the flower, which are purple or white; spur three times as long as the petals, somewhat bowed. The Ceylonese call it *kudaelu-kola*, or Swallow-leaf.—It is not only a native of Ceylon, but of Cochin-china; where the inhabitants use a decoction of the leaves to wash their head and hair, to which this plant, which is a common weed in their gardens, gives a very sweet odour.

8. Impatiens Balsamina; *Garden Balsam.* Peduncles one-flowered, aggregate; leaves lanceolate, the upper ones alternate; nectaries shorter than the flower, which comes out from the joints of the stem. This plant in its wild state is about two feet high, with an upright, round, hispid, juicy, white stem, and ascending branches. Flowers red or white, coloured. This plant enlarges very much by culture, and becomes very branching. "I have seen," says Professor Martyn, "the stems seven inches in circuit, and all the parts large in proportion, branched from top to bottom, loaded with its party-coloured flowers, and thus forming a most beautiful bush." The varieties which cultivation has produced in this elegant flower are numerous; such as white, purple, red, striped, and variegated of these different colours, single and double of each. Mr. Miller particularly mentions two varieties, which may perhaps belong to some of the other species. First, the Immortal Eagle, a most beautiful plant, from the East Indies; the flowers double, much larger than those of the common sort, scarlet and white, or purple and white; and as the flowers are abundant, the plant is very valuable. Secondly, the Cockspur, from the West Indies; which has single flowers as large as the other, but never more than half double, and only with red and white stripes. This is apt to grow to a very large size before it flowers, which is very late in autumn, so that in bad seasons there will be scarcely any flowers, and the seeds seldom ripen.—Native of the East Indies, China, Cochin-china, and Japan, where the natives use the prepared juice for dyeing their nails red. The common single sort will spring in the open ground; and where the seeds scatter they will come up in the spring. But such self-sown plants do not come to flower so early as those which are raised upon a hot-bed, although they will continue later in the autumn; but to have good flowers, the plant must be raised upon a hot-bed. Gerarde directs the seeds to be sown at the beginning of April in a bed of horse-dung, and replanted abroad from the said bed into the hottest and most fertile place of the garden, when they have got three leaves apiece.

9. Impatiens Mutilia; *Mutilated Balsam.* Peduncles one-flowered; leaves lanceolate, serrate, opposite; nectaries mutilated. Stem annual, a foot and a half high, upright, round, with ascending branches; flowers scarlet, on one-flowered subsolitary peduncles.—Cultivated in Cochin-china, probably from China.

10. Impatiens Cochleata; *Spiral Balsam.* Peduncles one-flowered; leaves oblong, subserrate, opposite; nectaries spiral; root creeping. Stem annual, a foot high, upright, jointed, red, almost without branches; flowers scarlet, very handsome, but not sweet; capsule fleshy.—Cultivated in China.

** *With many-flowered Peduncles.*

11. Impatiens Triflora; *Three-flowered Balsam.* Peduncles three-flowered, solitary; leaves narrow, lanceolate. Stem upright, jointed; flowers large, with the horn of the nectary blunt, curved inwards, thick, scarcely the length of the flower.—Native of Ceylon, and according to Mr. Miller, of many parts of India. He says, the flowers being smaller than the common sort, are not worth cultivating for their beauty; but Burman asserts, that they are large and very elegant.

12. Impatiens Noli Tangere; *Common Yellow Balsam.* Peduncles many-flowered, solitary; leaves ovate; joints of the stem swelling. Root annual; stem a foot high, upright, and, like the branches, of a pale yellowish green, smooth and shining, somewhat transparent, thickest at the joints, succulent and brittle; flowers yellow, the lateral petals spotted with red, by cultivation changing to pale yellow or purplish; seeds large, angular, striated. The elasticity of the seed, which when ripe are thrown out with considerable force upon

any thing touching the capsule, has furnished this plant with names in most of the European languages. Hence we call it, *Quick-in-hand*, (alive as it were in the hand,) and *Touch-me-not*. The Germans call it, *springsame, springraut;* the Swedes, *springkorn;* the Danes, *springkorn* or *springurt;* the French, *impatiente, ne me touchez pas,* from the Latin *impatiens* and *noli tangere,* and also *balsamine jaune;* the Italians, *erba impaziente, balsamina gialla;* the Spaniards, *noquierus tocarme, balsamina amarilla;* and the Portuguese, *melindre nao me toques.* In the day-time the leaves are expanded, but they hang pendent at night, contrary to what is observed in most plants, which, from a deficiency of moisture, or too great perspiration from heat, commonly droop their leaves during the day. The whole plant is rather acrid, so that no animal but the goat is said to eat it. Notwithstanding this, it was formerly considered as diuretic and vulnerary, and was given to relieve the hæmorrhoids and the strangury. Boerhaave considered it as poisonous.—This is the only species of Impatiens found wild in Europe. It is also found in Canada. With us it occurs in Wales, and the northern counties of England, in moist shady places, and by the banks of rivulets: as, on the banks of Winandermere, near Ambleside, near Rydall Hall, and between both those places in Westmoreland; in the parish of Satterthwaite, and on the banks of Coniston Lake, in Lancashire; and about Bingley in Yorkshire; flowering in July and August.—If the seeds of this plant be permitted to scatter, they generally succeed better than when they are sown: for unless they are sown in the autumn soon after they are ripe, they seldom grow. They only require weeding and thinning, and delight in a moist soil and shady situation.

Imperatoria; a genus of the class Pentandria, order Digynia.—Generic Character. *Calix:* umbel universal, flat-spreading; partial unequal: involucre universal none; partial very slender, with one or two leaflets, almost the length of the umbel; perianth proper, obscure. *Corolla:* universal uniform; floscules all fertile; proper of five petals, inflex-emarginate, nearly equal. *Stamina:* filamenta five, capillary; antheræ roundish. *Pistil:* germen inferior; styles two, reflex; stigmas obtuse. *Pericarp:* none; fruit roundish, compressed, gibbose in the middle, margined, bipartile. *Seeds:* two, ovate, marked on one side with two furrows, surrounded by a broad margin. Essential Character. *Fruit:* roundish, compressed, gibbose in the middle, surrounded by a margin. *Petals:* inflex-emarginate.——The only known species is,

1. Imperatoria Ostruthium; *Masterwort.* Root running obliquely in the ground, the thickness of a man's thumb, fleshy, aromatic, with a strong acrid taste, biting the tongue and mouth like Pellitory of Spain. Leaves rising immediately from the root, on footstalks seven or eight inches long, dividing into three very short ones at the top, each sustaining a trilobate leaf, indented on the border. The footstalks are deeply channelled, and when broken emit a rank odour. The flower-stalks rise about two feet high, and divide into two or three branches, each being terminated by a pretty large umbel of white flowers, whose petals are split; succeeded by oval compressed seeds, like those of Dill, but larger. The flowers appear in June, and ripen seeds in August. The root of this plant is warm and aromatic; a sudorific, diuretic, and sialagogue: it is recommended in dropsies, and debilities of the stomach and bowels. An infusion of it in wine is said to have cured quartans that resisted the bark. When chewed, it excites a copious flow of saliva, with a warm and not disagreeable sensation in the gums, and frequently cures the rheumatic toothache. It is most efficacious when newly taken out of the ground; and the best manner of giving it is in a light infusion. Gerarde says, "it greatly helpeth such as have taken great squats, bruses, or falls from some high place, dissoluing and scattering abroad congealed and clotted bloud within the body: the root with his leaues stamped and laid vpon the members infected, cureth the biting of mad dogs, and of all other venomous beasts."—Native of many parts of the Alps, Austria, Silesia, &c. and found on the banks of the Clyde in Scotland, and in the isle of Bute, near Mount-Stewart. This plant is cultivated in gardens to supply the markets. It may be propagated either by seeds or by parting the roots: the former should be sown in autumn, soon after they are ripe, on a bed or border in a shady situation; observing not to sow the seeds too thick, nor to cover them too deep. The plants will appear in the spring, and should be carefully weeded, and refreshed with water in dry seasons, which will greatly encourage their growth. Towards the beginning of May, if you find the plants come up too close together, prepare a moist shady border, and thin the plants carefully, leaving them about six inches asunder; and plant those which you draw up into the border about the same distance apart every way, taking care to water them in dry seasons until they have taken root; after which these plants, as well as those remaining in the seed-beds, will require no other culture but to keep them clear from weeds; which may be easily effected by hoeing the ground between the plants now and then in dry weather; and stirring the ground also will be very serviceable to them. The following autumn they should be transplanted where they are designed to remain, which should be in a rich moist soil, and a shady situation, where they will thrive much better than if exposed to the sun in a dry soil, where they will require a continual supply of water in dry weather. They must not stand less than two feet distant every way. When rooted, they require only to be kept clear from weeds; and in the spring, before they shoot, to have the ground gently dug between them, being careful not to injure the roots. With this management they will continue several years, and produce abundance of seeds. To propagate them by offsets, part the roots at Michaelmas, and plant them in a shady situation, at the same distance as directed for the seedling plants, observing to water them until they have taken root, after which they may be managed exactly in the same way as the seedlings.

Inarching; a method of grafting, commonly called *grafting by approach.* This is used when the stock intended to be grafted upon, and the tree from which the graft is to be taken, stand so near, or can be brought so near, that they may be joined together. The manner of performing it is this: take the branch you would inarch, and having fitted it to that part of the stock where you intend to join it, pare away the rind and wood on one side about three inches in length: after the same manner cut the stock or branch in the place where the graft is to be united, so that the rind of both may equally join together, at least on one side, that the sap may meet; then cut a little tongue upwards in the graft, and make a notch or slit in the stock downwards to admit it, so that when they are joined, the tongues will prevent their slipping, and the graft will more closely unite with the stock. Having thus placed them exactly together, tie them with bass, or other soft bandage; then cover the place with grafting clay, to prevent the air from drying the wound, or the wet from rotting the stock. Fix a stake in the ground, to which the stock, or branch and graft, should be fastened, to prevent the wind from separating them. In this manner they are to remain about four months, by which time they will be sufficiently united, and the graft may then be cut

from the parent tree, observing to slope it close off from the stock; and if at any time the joined parts be covered with fresh grafting-clay, it will be of great service to the graft. This operation is always performed in April or May, that the graft may unite with the stock before the succeeding winter. It is commonly practised upon Oranges, Myrtles, Jasmines, Walnuts, Firs, Pines, and several other trees, which will not succeed so well by common grafting or budding. On Oranges it is chiefly practised as a curiosity, to have a young plant with fruit upon it, in a year or two from seed, by marching a bearing branch into a young stock; but these plants are seldom long-lived, and, as they rarely grow large, we would by no means advise it.

Indian Arrow Root. See *Maranta.*

Indian Corn. See *Zea.*

Indian Cress. See *Tropæolum.*

Indian Fig. See *Cactus.*

Indian Mallow. See *Sida.*

Indian Millet. See *Holcus.*

Indian Oak. See *Tectona.*

Indian Reed, Cane, or *Shot.* See *Canna.*

Indicum, Indigo. See *Indigofera.*

Indigo, Bastard. See *Amorpha.*

Indigofera; a genus of the class Diadelphia, order Decandria.—Generic Character. *Calix:* perianth one-leafed, spreading, nearly flat, five-toothed. *Corolla:* papilionaceous; standard rounded, reflex, emarginate, spreading; wings oblong, obtuse, spreading at the inferior margin, of the shape of the standard; keel obtuse, spreading, deflex, marked on each side by an awl-shaped hollow dagger or point. *Stamina:* filamenta diadelphous, disposed in a cylinder, ascending at their tips; antheræ roundish. *Pistil:* germen cylindric; style short, ascending; stigma obtuse. *Pericarp:* legume roundish, long, (Gærtner says linear-oblong, commonly four-cornered.) *Seeds:* numerous, kidney-shaped; (according to Gærtner, kidney-retuse, or cuboid.) Essential Character. *Calix:* spreading. *Keel* of the corolla with an awl-shaped spreading spur on each side. *Legume:* linear.——The species are,

1. Indigofera Sericea; *Silky-leaved Indigo.* Leaves simple, lanceolate, silky; spikes sessile; stem shrubby. Spike terminating, ovate, villose, with bractes the length of the calices between the flowers; keel of the corolla shorter than the other petals, dark purple, with a long claw, and on each side a spur.—It is a native of the Cape of Good Hope. Like all the other species from that country, it only requires the protection of a dry-stove or glass-case; and may be propagated by cuttings, though some of them do not strike readily. Those that ripen their seeds here, may be propagated from them.

2. Indigofera Oblongifolia; *Oblong-leaved Indigo.* Leaves simple, oblong, silky; racemes axillary. This is a shrub, with tomentose silky branches; flowers numerous; standard of the corolla very finely villose; calix silky-tomentose.—Native of Egypt and Arabia.

3. Indigofera Linifolia; *Flax-leaved Indigo.* Leaves simple, linear, hoary; legumes globular. Stem short, upright; flowers three or four, on short pedicels in the axils of the leaves, red; fruit globular, crowned with the style, snow-white, one-seeded.—Native of the East Indies, and, like the other species imported from thence, propagated by seeds, which should be sown in a hot-bed early in the spring; and when the plants come up two inches high, they should be transplanted into small pots filled with good fresh earth, and the pots must be plunged into a hot-bed of tanners' bark. When the plants have acquired some strength, the glasses must be raised in the day-time. The perennials may also be increased by cuttings.

4. Indigofera Ovata; *Ovate-leaved Indigo.* Leaves simple, ovate; stem herbaceous.—Native of the Cape.

5. Indigofera Spinosa; *Thorny Indigo.* Leaves ternate, obovate; peduncles spinescent; stem shrubby. A shrub, with an ash-coloured bark, and very much branched: calix villose, five-cleft.—Native of the East Indies.

6. Indigofera Trifoliata; *Trifoliate Indigo.* Leaves ternate; flowers sessile, natural.—Native of the East Indies.

7. Indigofera Psoraloides; *Long-spiked Indigo.* Leaves ternate, lanceolate; racemes very long; legumes drooping. Peduncle angular, longer than the leaves, in a many-flowered raceme; pedicels very short; corollas red; germen channelled. —It flowers from July to September; and is a native of the Cape of Good Hope.

8. Indigofera Candicans; *White Indigo.* Leaves ternate, lanceolate-linear, silky underneath: spikes peduncled, few-flowered; legumes cylindric, straight. The flowers are red, not many, five to eight or nine in a spike; they appear from July to September. This species is distinguished by the whiteness of the stem and under side of the leaves.—Native of the Cape.

9. Indigofera Amœna; *Scarlet-flowered Indigo.* Leaves ternate, oval, somewhat hairy; branches round; spikes peduncled; stipules bristle-shaped; calices loose; stem frutescent. It flowers in March and April.—Native of the Cape.

10. Indigofera Procumbens; *Prostrate Indigo.* Leaves ternate, obovate; stem herbaceous, prostrate; spikes peduncled; peduncles many times longer than the leaves; flowers dark purple.—Native of the Cape.

11. Indigofera Sarmentosa; *Dwarf Indigo.* Leaves ternate, ovate, subsessile; peduncles axillary, two-flowered or thereabouts; stem prostrate, filiform. It flowers in June.—Native of the Cape.

12. Indigofera Denudata. Leaves ternate, ovate, smooth; racemes peduncled, longer than the leaf; stem shrubby, upright.—Native of the Cape.

13. Indigofera Mexicana. Leaves ternate; panicle branched into spikes; stem shrubby.—Found by Mutis in New Granada.

14. Indigofera Trita. Leaves ternate, ovate, acute; racemes short; stem upright.—Native of the East Indies.

15. Indigofera Coccinea. Leaves ternate, ovate-oblong; peduncles many-flowered, axillary; legumes round, bowed. Corolla scarlet, with two long reflex spurs to the seed.—Native of China about Canton.

16. Indigofera Rotundifolia. Leaves ternate, roundish, tomentose on both sides; racemes short, axillary; stem twining; corollas yellow, with two long, awl-shaped, curved spurs to the heel.—Native of China, about Canton.

17. Indigofera Bufalina. Leaves ternate, ovate, smooth; racemes axillary; legumes thick, villose; stem climbing.—Native of Cochin-china.

18. Indigofera Fliformis. Leaves quinate, oblong, villose; flowers in spikes, peduncled; peduncles and branches filiform; stem upright.—Native of the Cape.

19. Indigofera Coriacea; *Leathery-leaved Indigo.* Leaves quinate, obovate, mucronate, hairy; stipules awl-shaped; legumes straight, smooth.—It flowers in July and August, and is a native of the Cape.

20. Indigofera Digitata. Leaves digitate; racemes peduncled; stem shrubby.—Native of the Cape.

21. Indigofera Stricta. Leaves pinnate, smooth, oblong; racemes axillary, scarcely peduncled; stem shrubby, upright. —Native of the Cape.

22. Indigofera Frutescens. Leaves pinnate, ovate, smooth; racemes axillary, peduncled; stem shrubby, upright.—Native of the Cape.

23. Indigofera Cytisoides; *Angular-stalked Indigo.* Leaves quinate, pinnate, and ternate; racemes axillary; stem shrubby. Standard of the corolla upright. It flowers in July.—Native of the Cape.

24. Indigofera Fragrans. Leaves quinate, pinnate; leaflets ovate, hairy, the outmost larger; legumes four-cornered. Stems round, somewhat hairy; leaflets hairy on both sides, the end one obovate and larger than the others; peduncles longer than the leaf, axillary, bearing from three to five flowers; corollas red.—Native of the East Indies.

25. Indigofera Enneaphylla; *Trailing Indigo.* Leaves pinnate, wedge-shaped, in sevens; stem prostrate; spikes lateral. Plant depressed to the ground: corolla dark purple, with the bark of the standards paler, and recurved a little to the horns of the keel; seeds two.—Native of the East Indies.

26. Indigofera Semitrijuga. Leaves pinnate, obcordate, in fives; legumes subspiked, pendulous, torulose; stem prostrate, suffruticose. A small shrub, with round simple branches, villose, hoary, as is the whole plant; flowers somewhat remote, commonly from eleven to thirteen; spikes axillary, longer than the leaves.—Native of the East Indies and Arabia.

27. Indigofera Pentaphylla; *Five-leaved Indigo.* Leaves pinnate, oval, in fives; stems prostrate; peduncles two-flowered; flowers red.—Native place unknown.

28. Indigofera Glabra; *Smooth Indigo.* Leaves pinnate and ternate, obovate; racemes very short; legumes horizontal, columnar. Peduncles axillary, having frequently three alternate flowers. It is an annual plant, with a smooth stem and leaflets.—Native of the East Indies.

29. Indigofera Hirsuta; *Hairy-leaved Indigo.* Leaves pinnate, hirsute; stem upright; flowers in spikes; legumes pendulous, woolly. Stem lofty, hairy; spikes upright, longer than the leaves, axillary, very hirsute.—Native of the East Indies.

30. Indigofera Spicata; *Spiked Indigo.* Leaves pinnate, obovate; flowers in spikes; legumes columnar, torulose, pendulous; stem decumbent. Stem herbaceous and villose; spikes longer than the leaves, thrice the size when in fruit.—Native of Arabia.

31. Indigofera Angustifolia; *Narrow-leaved Indigo.* Leaves pinnate, linear; racemes elongated; stem shrubby. Stipules acerose, minute; corolla ash-coloured, purple on the outside; keel with spurs. It flowers from June to October.—Native of the Cape of Good Hope.

31. Indigofera Anil; *Wild Indigo.* Leaves pinnate, lanceolate; racemes short; stem suffruticose. This plant has the habit and appearance of the next species. Mr. Miller says it grows to the height of five or six feet, and that, being a much larger plant, it will afford a greater quantity of Indigo from the same compass of ground than any of the other species, especially if cut before the stalks grow woody; and that it will also grow on poorer land.—Browne says it is a native of the East Indies, and also very common in Jamaica, growing wild in all the savannas, where it has undoubtedly been cultivated in former times; for there we often meet with some of those Indigo works which were then used, remaining very perfect to this day. This is the hardiest plant belonging to the genus; and grows very luxuriantly, even in the driest savanna lands; but it does not yield the greatest quantity of pulp: the dye, however, extracted from it, is generally the best, of a fine copperish cast, and a close grain.

33. Indigofera Tinctoria; *Dyer's Indigo.* Leaves pinnate, obovate; racemes short; stems suffruticose. Branches like the stem, alternate, upright; leaflets in four pairs or more, very blunt with a point, smooth, very finely villose underneath, almost equal; racemes from the axils of the leaves; legumes drooping, subcolumnar, sharp, straight, very finely villose.—Linneus says that it is almost an exotic in Ceylon, but common in Paliacotta and Coromandel. According to Loureiro, it is spontaneous in China and Cochin-china. Dr. Patrick Browne, besides the Wild Indigo, mentions two other sorts, which he calls *the Indigo*, and the *Guatimala Indigo:* the first seldom above two feet and a half high, and seeming to divide rather than to branch in its growth, yielding more of the dye than any of the others, and generally preferred, though subject to many more mischances: the second, commonly three or four feet high, throwing out many suberect branches as it rises; this is hardier than the former, and affords a finer pulp, but yields a less quantity, and is only cultivated where the seasons are certain, or in mixt fields. The ancients were acquainted with the dye which we call Indigo, under the name of *Indicum.* Pliny knew that it was a preparation of a vegetable substance, though he was ill informed both concerning the plant itself, and the process by which it was prepared for use. From its colour, and the country from which it was imported, some authors call it *Atrimentum Indicum*, and *Indicum Nigrum.* The American name is *Nil*, or *Anil*, from which the Portuguese have adopted their *Anil*, or *Anileira;* the other European nations generally call it Indigo. The Arabian name is *Nile;* and the Chinese, *Tien Laam*, or *Sky Blue.*—The works for steeping and fermenting the Indigo in the West Indies, consist of three or five square cisterns or vats, well cemented, terrassed, and seasoned. They are made gradually smaller, and so situated as to have the top of the second and third on a line with the bottom of the first, or a little lower; and the top of the fourth and fifth on a line with, or lower than, the bottom of the second and third. The first is called the *steeper*, and is generally made about eight or ten feet square, by four deep, and opens into the second and third by round holes, made close to the bottom, so as to discharge all the tincture readily. The second, or second and third vats, are called the *beaters.* If there be only one, and the liquor is to be worked up with hand-buckets, it should be eight or ten feet square, and six deep; but if there be two, and the tincture is to be beaten with an engine, they should be so deep as to hold all the liquor a good way below the main or horizontal axis into which the buckets are fixed; and the walls should be nearly as high over the rollers as the cistern is deep below them, to prevent the wasting of the tincture. After the liquor is well beaten, it is left to settle; and when the pulp is deposited, the clear fluid is drawn off by a vent placed some inches above the bottom of each cistern: and the remainder is discharged into the fourth and fifth cisterns, by convenient outlets placed close to the bottom. These last cisterns are small, and are generally made square, and proportioned to the quantity of pulp such works commonly produce at a time. When the works are in good order, and the plants cut and carried to them, they are laid in the steeper; and when that is pretty full, boards are laid over them supported by props, from the beams that overlay the cistern: when these are well settled, they pour in as much water as will cover the weed, and leave it to digest and ferment until the greatest part of the pulp is extracted, without letting the tender tops run to putrefaction: and in the management of this point, the judgment of the planter chiefly consists; for, if he draws off the water but two hours too soon, he loses the greatest part of the pulp; and if the fermentation runs but two hours too long, the

whole is spoiled: they frequently, therefore, draw out a handful of the weed, and when they find the tops grow very tender and pale, and observe the stronger leaves change their colour to a less lively pale, then draw the liquor off without delay. They soon learn to know this critical point, by the height of the fermentation, and grain of the tincture; of which they frequently beat a little in a silver cup kept for that purpose; the pulp being thus extracted, the tincture is discharged into the beaters, and there worked up by two or three negroes, each with a bucket, or by an engine; they agitate it until the dye begins to granulate, or float in little flosculæ in the water, which separation is greatly forwarded by a gradual addition of clear lime-water: the different stages of this operation are distinguished by examining a small quantity of the liquor in the silver cup from time to time; and a little experience soon teaches them when to stop, by a single drop upon the nail, at any degree of height, as they would have their Indigo of a deep copperish blue, or of a paler colour: the liquor is now left undisturbed, until the flosculæ settle, then the water is discharged, and the magma, or mud, let out by a lower vent into its proper receptacles; this is again, by some, put into a caldron, and heated over a gentle fire, but not so as to boil, and then emptied into little bags to drain; by others, it is not heated, but immediately put into the bags; it is afterwards put into square boxes, with the sides not above four inches deep, that it may dry the sooner, without crumbling.—*Propagation and Culture.* In the West Indies, Indigo seems to thrive best in a free rich soil, and a warm situation; but, to answer the planter's ends, it should be cultivated where it may be frequently refreshed with moisture: having chosen a proper piece of ground, and cleared it, hoe it into little trenches, not above two inches or two inches and a half in depth, nor more than fourteen or fifteen inches asunder; in the bottom of these, at any season of the year, strew the seeds pretty thickly, and immediately cover them: as the plants shoot, they should be frequently weeded, and kept constantly clean, until they spread sufficiently to cover the ground. Those who cultivate great quantities, only strew the seeds pretty thickly, in little shallow pits, hoed up irregularly, but generally within four, five, or six inches of one another, and covered as before: plants raised in this manner are observed to answer as well, or rather better, than the others, but require more care in the weeding. They grow to perfection in two or three months, and are observed to answer best when cut in full blossom; this is done with rape hooks, a few inches above the roots: they are then tied in loads, carried to the works, and laid by strata in the steeper. Seventeen negroes are sufficient to manage twenty acres of Indigo; and one acre of rich land will, with good seasons and proper management, yield five hundred pounds of Indigo in twelve months; for the plant ratoons, and gives four or five crops a year, but must be afterwards replanted. Mr. Miller is of opinion that the planters of Indigo sow their seeds too thick, which draws up the plants with slender stems, not sufficiently furnished with leaves, and those leaves not so large and succulent as if the plants were allowed a greater share of room. It is a common observation among the cultivators of Woad, that when the plants spire, and have narrow thin leaves, they produce little dye; they not only therefore make choice of rich strong land, but carefully thin the plants, to allow them room to spread, and produce large succulent leaves. If the planters of Indigo in America would imitate the cultivators of Woad in this practice, they would certainly find it highly advantageous. Another error is, suffering the plants to stand too long before they cut it; for the older it is, the drier and firmer are the stalks, and the less will be dissolved by fermentation; nor will the faces of old plants be half so beautiful: it is therefore highly desirable, that the planters should try the effects of sowing thin, keeping the plants perfectly clean, and cutting them while young and full of juice. The dearness of labour in the West Indies may be the principal objection to this method of cultivation. To avoid this, the seeds might be sown with a drill plough; and, by the use of the hoe-plough, ten acres may be kept free from weeds, at as little expense as one with the hand-hoe; and, by stirring the ground often, and earthing up the plants, they would grow much stronger, be less liable to be destroyed by insects, and produce larger and more succulent stalks and leaves. Though all seasons will admit of sowing Indigo, care must be taken to avoid a drought, because the seeds may be eaten by vermin, carried away by the wind, or choked by the weeds; the planters usually choose a season that promises rain, and then they are sure of seeing the plant spring up in three or four days, and in about two or three months after, it is fit for cutting: in rainy seasons the cutting may be repeated every six weeks; cutting in dry weather kills the plant, which, if that is avoided, continues to afford fresh crops for two years.

34. Indigofera Disperma: *Two-leaved Indigo.* Leaves pinnate, oval; racemes elongated; legumes two-seeded.—Native of the East Indies.

35. Indigofera Argentea; *Silvery-leaved Indigo.* Leaves ternate and pinnate, obovate, silky; legumes torulose, pendulous. The whole plant silky and glaucous.—Found in Egypt and the East Indies.

Inocarpus; a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, bifid; divisions roundish, nearly equal. *Corolla:* one-petalled, tubular; tube cylindric, the length of the calix, (Thunberg says, shorter;) border five or six parted, longer than the tube; divisions linear, acute, undulated, often reflex. *Stamina:* filamenta ten or twelve, very short, inserted into the tube, the alternate ones inferior; antheræ ovate, twin, upright. *Pistil:* germen oblong, villose, superior; style none; stigma an excavated point. *Pericarp:* drupe ovate, incurved, compressed, large, one-seeded. *Seed:* a nut, interwoven with woody fibres; kernel compressed, oval. Essential Character. *Calix:* bifid. *Corolla:* funnel-form. *Stamina:* in a double row. *Drupe:* one-seeded. ——The only known species is,

I. Inocarpus Edulis. Forster describes it as a lofty tree the thickness of a man's body, with a brown chinky bark; the branches woody, round, spreading, variously divided; leaves subdistich, ovate-oblong, scarcely cordate, blunt and retuse, seldom acute, spreading, netted with abundance of veins, a span long, and on young trees a foot; racemes filiform, quite simple; pedicels very short, scattered, clustered; flowers dusky white, scarcely half an inch in length. The kernel, which is kidney-shaped, and about an inch in diameter, is sweetish, but not so pleasant as the Chestnut, harder, and less farinaceous. The bark is astringent, and is used to cure the dysentery. The natives of New Guinea smear the heads of their arrows with the expressed resinous juice; and the kernel of the nut is roasted and eaten by the inhabitants of the Society and Friendly Islands, in the New Hebrides, New Guinea, in the Molucca Isles, and at Amboyna, where it is indigenous.

Inoculating; or Budding: this is commonly practised on all sorts of stone fruit, particularly Peaches, Nectarines, Cherries, and Plums, also Oranges and Jasmines, and is preferable

to any sort of grafting for most sorts of fruit. The method of performing it is as follows: you must be provided with a sharp penknife, having a flat haft, the use of which is to raise the bark of the stock, and admit the bud; procure also some sound bass-mat, which should be soaked in water to increase its strength, and make it more pliable: then having taken off the cuttings from the trees you would propagate, choose a smooth part of the stock, about five or six inches above the surface of the ground, if designed for dwarfs; three feet, for half standards; but six feet for standards: then with your knife make an horizontal cut across the rind of the stock, and from the middle of that cut make a slit downwards, about two inches in length, so that it may be in the form of a T; care must be taken not to cut deeper than the bark, lest you wound the stock; then having cut off the leaf from the bud, and left the footstalk remaining, you should make a cross cut, about half an inch below the eye, and with your knife slit off the bud, with part of the wood to it, in form of an escutcheon; then with your knife pull off that part of the wood which was taken with the bud, observing whether the eye of the bud be left to it or not, for all those buds which lose their eyes in stripping should be thrown away, being good for nothing: after this, having gently raised the bark of the stock, where the cross incision was made, with the flat haft of your penknife clear to the wood, you should thrust the bud therein, observing to place it smooth between the rind and the wood of the stock, cutting off any part of the rind belonging to the bud which may be too long for the slit made in the stock; and so having exactly fitted the bud to the stock, tie them closely round with bass-mat, beginning at the under part of the slit, and proceeding to the top, taking care not to bind round the eye of the bud, which should be left open. When the buds have been inoculated three weeks or a month, you will see which of them have taken; those of them which appear shrivelled and black, being dead, but those which remain fresh and plump, you may depend are joined; you should therefore loosen the bandage, which, if not done in time, will greatly injure, if not destroy, the bud. In March following cut off the stock, about three inches above the place of inoculation, sloping it, that the wet may pass off, and not enter the stock; to this part of the stock left above the bud, it is very proper to fasten the shoot that proceeds from the bud, which would be in danger of being blown out by strong winds: but this must continue no longer than one year, after which it should be cut off close above the bud, that the wounded part may be the more readily barked over. The time for inoculating is from the middle of June until the middle of August, according to the forwardness of the season, and the particular sorts of trees to be propagated; but the time may be easily known by trying the buds whether they will come off well from the wood; however, the most general rule is, when you observe the buds formed at the extremity of the same year's shoots, which is a sign of their having finished their spring growth. The first tree commonly inoculated is the Apricot, and the last the Orange tree, which should never be attempted till the middle of August, and in cloudy weather; for if done in the middle of the day, during very hot weather, the shoots will perspire so fast, as to leave the buds destitute of moisture; nor should you take off the cuttings of the trees long before they are used, for if you are obliged to fetch your cuttings from some distance, which often happens, it will be judicious to provide a tin box or case, having a socket about ten inches long, and a cover to the top, which must have five or six holes: in this socket, put as much water as will fill it about two or three inches high, and place the cuttings therein, in an upright position, so that that part which was cut from the tree, may be set in the water; and fasten down the cover, to keep out the air: the minute holes in the cover will suffice to let the perspiration of the branches pass off, which, if pent in, would be very injurious to them: be careful also to carry it upright, that the water may not reach to the buds, for it is very imprudent to water them all over, and so saturate the buds with moisture, that they have no attractive force left to imbibe the sap of the stock, whereby they very often miscarry. Although it is the ordinary practice to divest the bud of that part of the wood which was taken from the shoot with it, yet in many sorts of tender trees it is best to preserve a little wood to the bud, without which they often miscarry; the want of attention to this circumstance has caused some people to imagine, that certain trees are not to be propagated by inoculation; whereas, they would have succeeded, had they performed it by this method.

Inula; a genus of the class Syngenesia, order Polygamia Superflua.—Generic Character. *Calix:* common imbricated; leaflets lax, spreading, the exterior ones larger, of equal length. *Corolla:* compound radiated, broad; corollules hermaphrodite, equal, very numerous in the disk; females strap-shaped, numerous, crowded in the ray: proper of the hermaphrodite, funnel-form; border five-cleft, rather upright; females strap-shaped, linear, perfectly entire. *Stamina:* in the hermaphrodite, filamenta five filiform, short; antheræ cylindric, composed of five smaller linear conjoined ones, each ending below in two straight bristles of the length of the filamenta. *Pistil:* in the hermaphrodites, germen oblong; style filiform, length of the stamina; stigma bifid, rather upright; in the females, germen long; style filiform, half bifid; stigmas erect. *Pericarp:* none; calix unchanged. *Seeds:* in the hermaphrodites, solitary, linear, four-cornered, pappus capillary, length of the seeds: in the females, like the hermaphrodites. *Receptacle:* naked, flat. *Observe.* This genus differs not only from Aster, but from most others, in having the antheræ terminated below by ten bristles; but this is not apparent in all the species. Essential Character. *Receptacle:* naked. *Down:* simple. *Antheræ:* ending in two bristles at the base.——The species are,

1. Inula Helenium; *Elecampane.* Leaves stem-clasping, ovate, wrinkled, tomentose underneath; scales of the calices ovate. Root perennial, thick, fusiform, brown, branching, and aromatic. It is one of the largest of our herbaceous plants, being from three to five or six feet high, with the stem striated and downy, branched towards the top; lower leaves on footstalks a foot long, and four inches broad in the middle, downy beneath; flowering heads very large, single, terminating the stem and branches; florets all yellow; seeds columnar, four-cornered; pappus, egret, or down, white.—The root is esteemed a good pectoral, and a conserve of it is recommended in disorders of the breast and lungs, to promote expectoration: an infusion of it fresh, sweetened with honey, is said to be an excellent medicine in the hooping cough; and a decoction, outwardly applied, to cure the itch. Bruised and macerated in urine, with balls of ashes and whortle berries, it dyes a blue colour. The decoction of it cures sheep that have the scab; hence in some countries it is called *Scabwort;* and in others *Horse-heal,* from its reputed virtues in curing the cutaneous diseases of horses. The officinal name is Enula Campana, whence our English *Elecampane* is derived; the Germans call it *alant, aland, alantwurz, olant, oltwurz, helenenkraut, gloekenwurz;* the Dutch, *gewoon* and *alant, alantswortel;* the Danes, *aland, alandsroed;* the

Swedes, *alandsrot;* the French, *l'inule aunée, l'aunée, l'enule-campane, l'herbe contre lagale;* the Italians, *enula, enula-campana, ella, elenio;* the Spaniards and Portuguese, *enula-campana, ala;* and the Russians, *dewjatschid, dewesil, oman, krun.* It flowers in June and July, and the seeds ripen at the end of August.—Native of Japan, Denmark, Germany, Flanders, Switzerland, Austria, France, Piedmont, Spain, and Britain. In Essex it is frequent, and not uncommon in Norfolk; it is found at Mettingham, in Suffolk; near Madingley, in Cambridgeshire; Ripton, and Warboys, in Huntingdonshire; Dunstable, and Pertenhall, in Bedfordshire; on the side of Bredon-hill, in Worcestershire; and about St. Ives, in Cornwall, &c. In Scotland, it is doubtful whether it be a native.—It may be propagated by seeds, which should be sown in autumn, soon after they are ripe, for if kept to the spring, they seldom grow; but where permitted to scatter, the plants will come up in the following spring, without any care, and may either be transplanted in the succeeding autumn, or, if they are designed to remain, they should be hoed out to the distance of ten inches or a foot each way, and constantly kept clean from weeds: the roots will be fit for use in the second year. But most people propagate the plant by offsets, which, if carefully taken from the old roots, with a bud or eye to each, will take root very easily: the best time for this, is in autumn, as soon as the leaves begin to decay: they should be planted in rows, about a foot asunder, and nine or ten inches' distance in the rows; in the following spring, the ground must be kept clean from weeds, and, if slightly dug in autumn, it will greatly promote the growth of the roots, which will be fit for use after two years' growth, but will abide many years, if permitted to remain; however, the young roots are certainly preferable to those that are old and stringy. It loves a loamy soil.

2. Inula Odora; *Sweet-rooted Inula.* Leaves stem-clasping, toothed, extremely hirsute; root-leaves ovate; stem-leaves lanceolate; stem few-flowered. Flowers one or two, peduncled, yellow; root perennial, with an aromatic smell and taste.—Native of Provence, Narbonne, Sicily, and Italy. This, with the 3d, 4th, 5th, 16th, 17th, 18th, 19th, 22nd, 24th, and 25th species, which are abiding plants, will thrive and flower in the open air in England: they may all be propagated by parting their roots; the best time for doing this is in autumn, at which time the plants may be removed, and intermixed with other flowering plants, in the borders of large gardens, where they will make an agreeable variety during their continuance in flower. As their roots multiply pretty fast, they should be allowed room to spread, and not be planted nearer than two feet from other plants. If they are removed every third year, it will be often enough, provided the ground between them be dug every winter; and if kept clean from weeds in summer, they will require no other care. As some of them produce good seed in England, they may be propagated by sowing their seeds in autumn, on a border of light earth, exposed to the east, where the morning sun only is admitted; in the spring, when the plants appear, they should be kept clean from weeds till fit to remove, when they may be transplanted on a shady border, six inches asunder, observing to shade and water them till they have taken root. Clean them from weeds during the summer, and in autumn transplant them into borders where they are to remain.

3. Inula Suaveolens; *Woolly-leaved Inula.* Leaves elliptic, attenuated at the base, subpetioled, hairy, lower toothed; stem many-flowered. Root scentless, acrid, consisting of a bundle of round dirty white fibres, issuing from a thicker head; stem usually single, upright, round, purplish, villose, leafy, a foot and half high, branching only at top into few-flowered peduncles; flowers sweet-smelling; radial corollets shorter than the calix, and three-toothed. It flowers from June to August.—Native of the south of Europe.

4. Inula Oculus Christi; *Hoary Inula.* Leaves stem-clasping, oblong, entire, hirsute; stem hairy, corymbed. Root perennial; flowers in a corymb, of a fine yellow or golden colour, large, but smaller than the first sort, appearing in July.—Native of Austria, the south of France, and Silesia.

5. Inula Britanica; *Creeping-rooted Inula.* Leaves stem-clasping, lanceolate, serrate, distinct, villose underneath; stem branched, upright, villose. Root perennial; stem dividing into two or three upright branches or peduncles, each sustaining one pretty large flower, of a deep yellow colour. They are in beauty in July, but seldom ripen seeds here. There is a variety with the stems and under surface of the leaves more villose, and the petals of the ray very narrow.—Native of Germany, Scania, Siberia, and Piedmont.

6. Inula Dysenterica; *Common* or *Middle Fleabane.* Leaves stem-clasping, cordate-oblong; stem villose, panicled; calicine scales bristle-shaped. Root perennial, creeping, whitish, the thickness of a goose-quill, with largish fibres; branches like the stem, upright, the latest growing to the greatest height; flowers an inch or more in diameter, terminating, single, or two together, forming a sort of corymb; florets all yellow, exceedingly numerous in the disk. Ray observes, that the leaves when bruised smell like soap. Rutty informs us, that the juice is saltish, and warms the mouth a little; that the decocton is somewhat acrid in the throat, and at the same time astringent, and turning green with vitriol of iron; that the infusion is also somewhat astringent, very bitter in the throat, and turning black with vitriol of iron. Linneus mentions his having been informed by General Keit, that the Russian soldiers, in their expedition against Persia, were cured of the bloody flux by this plant; this induced Linneus to name it Dysenterica. Our old authors call it Middle Fleabane, it being supposed, when burning, to drive away fleas and other insects by the smoke. Forskal says, the Arabians call it, *rarajeub*, or Job's tears, from a notion that Job used a decoction of this herb to cure his ulcers. It was formerly recommended in the itch, and other cutaneous disorders.—Native of most parts of Europe, in moist meadows, watery places, by the sides of ditches, brooks, and rivers; flowering from July to October, and frequently overrunning large tracts of land. Few cattle will touch it.

7. Inula Viscosa; *Clammy Inula.* Leaves lanceolate, toothletted, sessile, reflex at the base; peduncles lateral, one-flowered, leafy.—Native of the south of Europe. See Erigoron Viscosum, which is the same plant.

8. Inula Undulata; *Wave-leaved Inula.* Leaves stem-clasping, cordate-lanceolate, waved. Stem a foot high, round, upright, subtomentose; peduncles terminating, one-flowered. Flowers in July.—Native of Egypt. This, with the ninth and twelfth species, being annual plants, and natives of hot countries, must be propagated by seeds raised in a hot-bed, and kept in the bark-stove.

9. Inula Indica; *Indian Inula.* Leaves stem-clasping, cordate-lanceolate, serrate; peduncles one-flowered, filiform; flowers globular.—Native of the East Indies.

10. Inula Pulicaria; *Trailing Inula,* or *Small Fleabane.* Leaves stem-clasping, waved: stem prostrate; flowers subglobular, with a very short ray. Annual; with a very trailing stem not at all hairy, and a globular calix. The flowers are solitary, of a pale dull yellow. There is a variety of this with scarcely any flowers of the ray.—Native of Scania,

where water stagnates in the winter, and even in the streets of Lund.

11. Inula Uliginosa; *Small Dwarf* or *Marsh Inula*, or *Fleabane*. Upper leaves stem-clasping, lanceolate, waved, blunt; stem upright, woolly towards the top; calices cylindrical. Root annual, fibrous, whitish, jointed, generally crooked; flowers terminating, numerous, broad, short, cylindrical, on single or branched leafy peduncles, the last-blown standing considerably above the others. This plant is also said to drive away fleas and gnats, and is given by some to horses for the botts.—Native of many parts of Europe, where water has stagnated during the winter, by road-sides, on the borders of ponds, &c. particularly in a stiffish soil. It flowers from August to October. It is seldom admitted into gardens.

12. Inula Arabica; *Arabian Inula*. Leaves oblong, sessile; peduncles filiform; calices cylindrical. This resembles the preceding species so much, that it should be distinguished from it with caution: the peduncles are longer, often in pairs; ray of the corolla longer; disk narrow.—Native of Arabia and the East Indies.

13. Inula Spiræifolia; *Spiræa-leaved Inula*. Leaves subsessile, ovate-oblong, naked, netted, clustered, serrulate; flowers terminating, subsessile. The flowers are scarcely peduncled.—Native of Italy. This, with the two next, and the twenty-seventh species, are propagated by seeds, which should be sown on a bed of light earth early in the spring. In May the plants will appear, and should be kept clean from weeds till they are fit to transplant; when they should be planted in an east border, at about twelve inches' distance each way, watering and shading them till they have taken new root; after which they will only require to be kept clean from weeds till the autumn, when they should be planted where they are designed to remain.

14. Inula Squarrosa; *Net-leaved Inula*. Leaves sessile, oval, even, netted-veined, subcrenate; calix squarrose. Stem pubescent, striated, often one-flowered; root perennial. The flowers are pretty large, of a pale yellow colour; they appear in July, but are not followed by seeds in this country. In the autumn this plant puts on a different appearance: the stalk dies, and several young ones spring from the root, like those of the seventh species, weak, red, clammy-haired; leaves soft, ovate-lanceolate, clammy-pubescent, sessile, with a smell like Elder. It was long mistaken from the sixteenth species, through the above variety in its habit.—Native of Italy and the south of France. This seldom continues above two or three years, and therefore young plants should be constantly raised from seeds to succeed the old ones.

15. Inula Bubonium. Leaves lanceolate, somewhat rigid, toothletted, subvillose, sessile; stem and branches subbiflorous; calix squarrose. Root perennial, consisting of numerous long and thick fibres. The whole plant has some smell, and a bitter unpleasant taste.—It flowers in August and September, and is a native of Austria.

16. Inula Salicina; *Willow-leaved Inula*. Leaves lanceolate, recurved, serrate, scabrous; branches angular; lower flowers highest. Root perennial, aromatic, subastringent, smelling like cinnamon; flowers terminating on alternate, one-flowered, grooved, reddish peduncles, forming all together a corymb. It differs from the next species in having the stem smooth, grooved or angular at top, and the leaves smooth, except that the edge is rugged.—Native of Germany, Switzerland, Austria, and the south of France.

17. Inula Hirta; *Hairy Inula*. Leaves sessile, lanceolate, recurved, subserrate-scabrous; stem roundish, somewhat hairy; lower flowers highest. Flowers handsome, an inch and a half in diameter. It flowers, with us, from June to September.—Native of France, Germany, Switzerland, Austria, and Siberia.

18. Inula Mariana; *American Inula*. Leaves sessile, lanceolate, subserrate, hairy; peduncles subuniflorous, somewhat clammy, leaflets linear. The whole plant has soft white hairs thinly scattered over it, especially the lower surface of the leaves. The flowers terminate the stem in a sort of corymb, but the peduncles or branches are commonly one-flowered, with pedicelled glands scattered over them.—Native of Maryland and South Carolina.

19. Inula Germanica; *German Inula*. Leaves sessile, lanceolate, recurved, scabrous; flowers somewhat sickle-shaped. Stem upright, a foot or eighteen inches high, round, pubescent, somewhat rugged, a little branched at top, and curved towards the bottom; flowers small, terminating in a sort of close umbel.—Native of the south of France, Germany, Austria, and Siberia.

20. Inula Japonica; *Japanese Inula*. Leaves sessile, lanceolate, toothletted; peduncles rod-like, one-flowered. Stem herbaceous, round, striated, villose, upright, a foot high and more.—Native of Japan.

21. Inula Dubia; *Doubtful Inula*. Leaves sessile, oblong, ciliate; stem one-flowered. Stem herbaceous, simple, striated, villose, as is the whole plant; flexuose-erect, a foot high, leafless at top; flower terminating, solitary; calix very hirsute, equal. This plant is doubtful as to what genus it belongs.—Native of Japan.

22. Inula Ensifolia; *Sword-leaved Inula*. Leaves sessile, linear, acuminate, nerved, smooth, scattered; stem one or two-flowered, annual. Root perennial. The flowers have a little smell.—Native of Austria, on rocks and among bushes: flowering in August.

23. Inula Crithmoides; *Trifid Inula*, or *Golden Sampire*. Leaves linear, fleshy, three-cusped. Root perennial, fibrous; stems firm, smooth, striated, much branched; flowers solitary, on thick peduncles, at the summit of the upper branches, very handsome, having yellow rays, and an orange disk. According to Miller, it rises with an upright stalk, a foot and half high; leaves succulent, fleshy, an inch and quarter long, and one-eighth broad, ending in three points, and coming out in clusters. It flowers in July, and ripens seeds in autumn. The younger branches are frequently sold in the London markets for Sampire; but it is a villanous imposition, because this plant has none of the warm aromatic taste of the true Sampire. See *Crithmum Maritimum*.—Native of the coasts of the Mediterranean Sea, Arabia, Barbary, Spain, Portugal, France, and England, in salt-marshes and a muddy soil. It is plentiful near Sheerness, and in the Isle of Shepey; and has been observed in a marsh near Hurst Castle, opposite to the Isle of Wight; on the rocks at Llandwyo, in Anglesea; and on the banks of the river just above Fulbridge, at Maldon in Essex.

24. Inula Provincialis; *Oval-leaved Inula*. Leaves subserrate, tomentose underneath; root-leaves petioled, ovate; stem upright, one-flowered. Flowers rather large; peduncle swelling below the flower. Haller says this is a handsome plant, with a woody root having abundance of fine fibres. It flowers in July and August.—Native of the south of France, where it was found about Narbonne; on the Corbieres, a part of the Pyrenees; also in the upper Valais, and on the mountains of Piedmont.

25. Inula Montana; *Mountain Inula*. Leaves lanceolate, hirsute, quite entire; stem one-flowered; calix short, imbricate. Root hard, fibrous; flowers large; florets of the disk very numerous, of the ray as far as thirty, broad, three-

P. 754.

INULA MARIANA _____ *American Inula.*

P. 755.

G. Dobie sc

IPOMŒA QUAMOCLIT _____ *Wing-leaved Ipomœa.*

Published by Fisher Son & C.° Caxton London. 1828.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

toothed. It varies with subserrate leaves and small flowers. Linneus observes, that the calix and structure of this plant makes it very nearly allied to the Aster; and that it is covered with a snowy-white pubescence.—Native of Spain, and of the country about Montpellier and Vienna; and in the southern part of Dauphiny; near Turin, and in other parts of Sardinia; in the vineyards of the Palatinate; and in Switzerland, and the Valais. It flowers in July and August, but will rarely ripen seed here.

26. Inula Æstuans. Leaves spatulate, tomentose underneath.—Native of South America.

27. Inula Bifrons. Leaves decurrent, oblong, toothletted; flowers heaped, terminating, subsessile. Stem a foot high, somewhat rigid, corymbed, with a strong smell like Tansy; flowers yellow, with a short ray. Biennial. It flowers in July and August, but never perfects seeds in this country.—Native of Italy, Provence, and the Pyrenees. See the 13th species.

28. Inula Cœrulea; *Blue-flowered Inula.* Leaves decurrent, obovate, subserrate; stem suffrutieose; flowers sessile, terminating. Though this has a blue ray to the flower, in which it differs from all the Inulas, yet its appearance or habit is quite foreign to that of the genus Aster. The branches are one-flowered.—Native of the Cape of Good Hope: annual. This, and the two following, may be increased by cuttings, and must be kept in the dry stove.

29. Inula Aromatica; *Aromatic Inula.* Leaves linear, quite entire, tomentose, scattered; stem shrubby. Flowers solitary, terminating, sessile; ray of the flower pale whitish flesh-colour.—Native of the Cape.

30. Inula Pinifolia: *Pine-leaved Inula.* Leaves subulate, linear, three-sided, clustered very much; stem shrubby, half a foot high, verry rugged with the fallen leaves.—Native of the Cape.

31. Inula Fœtida; *Stinking Inula.* Leaves lanceolate-linear, quite entire; corymbs branched; rays of the flower very short. Stems several, a foot high, straight, branched, rough with harsh hairs; leaves hirsute, not unlike those of Hyssop; flowers golden-coloured.—Native of Malta.

32. Inula Canariensis; *Canary Inula.* Leaves linear, fleshy, three-cusped; stem shrubby. This rises with several shrubby stalks, near four feet high; which divide into smaller branches; leaves in clusters, narrow, fleshy, divided into three segments at their points. The flowers come out on the side of the branches at the top of the stalks, and are small, and of a pale yellow, appearing in August.—Native of the Canary Islands. It will not bear the open air in our winters, and must be removed into shelter in autumn, but still have as much free air as possible in mild weather, that it may not be drawn up weak. They must have very little water in cold weather; as their stalks and leaves are succulent, they are very apt to rot. In summer they should be placed abroad, with other hardy exotic plants, in a shaded situation, where they will add to the variety, though they seldom flower except in very warm summers. They are easily propagated by cuttings planted during summer in a shady border, where they will take root in a short time.

33. Inula Satureioides; *Savory-leaved Inula.* Leaves linear, hirsute, opposite; peduncles naked, one-flowered. It rises with a shrubby stalk nearly two feet high; at the ends of the branches arise naked peduncles, four or five inches long, sustaining one small yellow radiated flower.—Found at La Vera Cruz. It is propagated by cuttings during the summer season, which must be planted on a bed of light earth, and shaded till they have taken root; after which, the plants must be treated in the same manner as other hardy exotics.

34. Inula Fruticosa; *Shrubby Inula.* Leaves lanceolate, acute, three-nerved underneath; calicine scales acute; stem shrubby. Stem ten or twelve feet high, divided into several woody branches; at the ends of which the flowers are produced; they have very large scaly calices, are as large as a small sun-flower, and of a pale yellow colour.—Native of Carthagena in New Spain. This is too tender to bear the open air of England, and must be constantly kept in the bark-stove. It is propagated by seeds, which must be procured from the country where it naturally grows, for it does not produce any here. The seeds must be sown upon a hot-bed, and when the plants are fit to remove, they should be each put into a small pot filled with light earth, and plunged into a fresh hot-bed; treating them in the same manner as other tender plants from the same country.

35. Inula Graminifolia. Stalk very simple; leaves lanceolate, linear, very entire, erect, nervose; corymb compound, lax; calices turbinate. It rises a foot high, with small flowers.—Found in the sandy woods from Pennsylvania to Florida.

Job's Tears. See *Coix*, and *Inula Dysenterica.*

Jonequetia; a genus of the class Decandria, order Tetragynia.—Generic Character. *Calix:* perianth five-leaved; leaflets roundish, deciduous. *Corolla:* petals five, roundish, concave, spreading, longer than the calix. *Stamina:* filamenta ten, shorter than the corolla, growing to a glandule; antheræ roundish. *Pistil:* germen pentagonal, surrounded by a glandule; styles none; stigmas five. *Pericarp:* capsule nearly globose, roundish-pentacoccous, one-celled, five-valved. *Seeds:* five, ovate, arillated, each affixed to the valves. Essential Character. *Calix:* five-leaved. *Petals:* five, spreading. *Filamenta:* growing to a glandule. *Styles:* none. *Capsule:* subglobular, one-celled, five-valved, five-seeded.——The only known species is,

1. Jonequetia Guianensis. This is a very large tree, with a trunk forty or fifty feet high, and two or three feet in diameter, with a smooth russet bark, and a white uncompact wood. It has a great number of branching boughs at top, those in the middle erect, the rest horizontal and spreading in all directions. Leaves alternate, unequally pinnate; leaflets in three, four, or five pairs; petiole almost cylindric, eight or nine inches long, fleshy at the base; flowers small, white, axillary, and terminating in large wide scattered panicles.—Native of Guiana, where it is called Tapiriri; flowers in November, and bears fruit in April.

Jonquil, Jonquilla. See *Narcissus.*

Ipecacuanha Plant. See *Psychotria Emetica.*

Ipecacuanha, Bastard. See *Asclepias Curassavica.*

Ipecacuanha, False. See *Triosteum Angustifolium.*

Ipomœa; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth five-toothed, oblong, very small, permanent. *Corolla:* one-petalled, funnel-form; tube subcylindric, very long; border five-cleft, spreading; divisions oblong, flat. *Stamina:* filamenta five, awl-shaped, almost the length of the corolla; antheræ roundish. *Pistil:* germen roundish; style filiform, length of the corolla; stigma headed, globose. *Pericarp:* capsule roundish, three-celled. *Seeds:* some subovate. *Observe.* This genus is rather too nearly allied to *Convolvulus*, but differs in the lengthened tube of the corolla, and the headed stigma. Essential Character. *Corolla:* funnel-form. *Stigma:* headed, globose. *Capsule:* three-celled.——The species are,

* *Flowers distinct.*

1. Ipomœa Quamoclit; *Wing-leaved Ipomœa.* Leaves pinnatifid, linear; flowers subsolitary, pendulous. Stems slen-

der, twining, and rising by support to the height of seven or eight feet, sending out several side-branches, which twine about each other and the principal stem, and about any neighbouring plants. The leaves are composed of several pairs of very fine narrow lobes, not thicker than sewing-thread, an inch long, of a deep green. The flowers come out singly from the side of the stalks, on slender peduncles about an inch long: the tube of the corolla is about the same length, narrow at bottom, but gradually widening to the top, where it spreads open, flat, with five angles; it is of a most beautiful scarlet-colour, making a fine appearance. Browne says, it is cultivated in many of the gardens of Jamaica, on account of its elegant flowers, and minutely dissected thick foliage. He calls it *American Jessamine*, and says it seldom rises above four feet from the ground. It is called *Sweet William* and *Indian Pink* in the West Indies. The flowers appear in July and August, and continue in succession great part of September. Annual.—Native of the East Indies. It is propagated by seeds sown on a hot-bed (for it will not endure the open air of England) in the spring; and as the plants will soon appear, they should be each transplanted into a small pot filled with light earth, before they twine about each other, for then it will be difficult to disengage them without breaking their tops. When they are potted, they should be plunged into a new hot-bed, and sticks placed down by each plant for their stalks to twine about; after they have taken new root, they should have a good share of air in warm weather, to prevent their drawing up weak; and when they are advanced too high to remain under the frame, they should be removed into the tan-bed in the stove, where they should have support, for their branches will extend to a considerable height. They begin to flower in June, and the seed will ripen very well in autumn.

2. Ipomœa Rubra; *Upright Ipomœa.* Leaves pinnatifid, linear; flowers in racemes, pendulous. The young plants in the first year produce numerous leaves, spreading in a circle, elegantly jagged; from the centre of these, the second year, arises a straight stem, the thickness of a straw, about three-quarters of a yard in height, clothed from top to bottom with leaves; flowers from the top of the stem and the ends of the side-branchlets, peduncled, pendulous, usually solitary, but forming all together a thyrse; corolla of a bright red colour, darker on the outside, within paler, and variegated with white spots and purple streaks.—Native of Carolina, in low sandy places, flowering in June.

3. Ipomœa Umbellata; *Umbelled Ipomœa.* Leaves digitate, in sevens; peduncles umbelled, very short. Flowers abundant.—Native of South America.

4. Ipomœa Carolina; *Carolina Ipomœa.* Leaves digitate; leaflets petioled; peduncles one-flowered. Stem slender, trailing; outside of the corolla light green, inside purple.—Found upon rocks in many of the Bahama Islands.

5. Ipomœa Coccinea; *Scarlet-flowered Ipomœa.* Leaves cordate, acuminate, angular at the base; peduncles many-flowered. Stem herbaceous, twining, quadrangular, smooth, flexuose; flowers long, scarlet, longer than those of the first sort. Browne observes, that it is remarkable for the curved or arched figure of the tube in the corollas. It is an annual plant, six or eight feet high: the corolla is not so deeply coloured as that of the first sort; and there is a variety with orange-coloured flowers. This, as well as the seventh species, is propagated by seeds sown on a hot-bed in the spring, and when the plants come up, if they are gradually hardened, and afterwards transplanted into a warm border, in favourable seasons they will flower, and produce good seeds.

6. Ipomœa Lacunosa; *Starry Ipomœa.* Leaves cordate, acuminate, scrobiculate, angular at the base; peduncles one or two flowered, shorter than the flower. Stem from a foot to two feet in height, slightly angular, procumbent unless supported, and then climbing; flowers usually solitary, but sometimes two on a peduncle, small, white, the edges slightly tinged with purple: it flowers here in July. Annual.—Native of Virginia and Carolina.

7. Ipomœa Solanifolia; *Nightshade-leaved Ipomœa.* Leaves cordate, acute, quite entire; flowers solitary, of a rose colour.—Native of America.

8. Ipomœa Tuberosa; *Tuberous-rooted Ipomœa.* Leaves palmate; lobes in sevens, lanceolate, acute, quite entire; peduncles three-flowered. Root tuberous; stems several, shrubby, twining, woody at bottom, and the thickness of the human thumb; flowers yellow: Miller says, bright yellow, Linneus, sulphur-coloured, and Loureiro, purple. It is handsome, two inches in diameter, smelling sweet; capsule membranaceous, shining, subpellucid, square with blunted angles, large, two-celled; in each cell two black villose seeds, among the largest of the genus. This plant is wonderfully beautiful when in flower, and the very fragrant odour of the flowers gives it an additional value. It is much used in the West Indies for arbours, for which it is very fit, on account of the multitude of its branches and evergreen leaves, which the sun cannot penetrate; it spreads to such an extent, that it may be carried over an arbour of three hundred feet in length, from one root. Every part of the plant is purgative, and abounds with milk. Scammony might probably be made from the milky juice of the root. Loureiro asserts, that the tubes are eatable, like Convolvulus Batatas, which they very much resemble in taste, size, and shape.—Native of the West Indies. The natives call it *Seven-year Vine*, or *Spanish Arbour-Vine.* It is a perennial plant, but too tender to thrive in the open air of our climate. The seeds must be sown upon a hot-bed in the spring; and when the plants come up, be transplanted into separate pots, and plunged into a fresh hot-bed; but as they will soon grow too tall to stand under a frame, they should be removed into the bark-stove, where they must be supported, to prevent them from twining about the surrounding plants. As they extend their shoots to a very great length, they require a tall stove, without which they will never produce flowers.

9. Ipomœa Digitata; *Hand-leaved Ipomœa.* Leaves palmate; lobes in sevens, blunt; peduncles three-flowered; flowers purple; seeds brown.—Native of the West Indies. This, with the twentieth and twenty-third species, must also be raised on a hot-bed, in the spring, and afterwards planted in separate pots, plunging them into another hot-bed, where they may remain till they reach the glasses, when they should be removed into a glass-case, where they may have room, and be screened from the cold, but should have a large share of free air admitted to them in warm weather: thus treated, the plants will flower, and produce ripe seeds.

10. Ipomœa Bona Nox; *Prickly Ipomœa.* Leaves cordate, acute, quite entire; stem prickly; flowers in threes; corollas undivided. This is an annual plant, growing to a very great length, covering sometimes many trees, or the banks of rivers for many paces, having a round and reddish stalk, armed with blunt, herbaceous, short, variously-shaped prickles, and winding itself about any thing that comes within its reach, or creeping along the surface of the ground. The flowers are axillary, many, on peduncles an inch long; tube of the corolla seldom less than from three to four inches in length; border white, five inches in diameter, a little sinuated, and has five green streaks on the outside. It flowers here in July and August.—Native of the West Indies.

11. Ipomœa Campanulata; *Bell-flowered Ipomœa.* Leaves cordate; peduncles many-flowered; outer perianth orbicular; corollas bell-shaped, lobed, and thicker than in any of the other species.—Native of the East Indies.

12. Ipomœa Violacea; *Purple-flowered Ipomœa.* Leaves cordate, quite entire; flowers crowded; corollas undivided. The round green sarments or stalks of this plant mount about any tree, shrub, or hedges, to a great height, clothing them green, with their many branches and leaves; flowers pale purple, (Miller says blue, with their brims not angular, but entire,) very large, bell-shaped; capsule brown, having about five valves.—Native of the West Indies.

13. Ipomœa Verticillata; *Whorl-flowered Ipomœa.* Leaves cordate; peduncles axillary, in threes, reflex; calices hispid. Stem seeming to be decumbent, flexuose, half a foot high, branched at the base.—Native country unknown.

14. Ipomœa Carnea; *Flesh-colour-flowered Ipomœa.* Leaves cordate, smooth; peduncles many-flowered; corollas margined. Stem shrubby, in open places almost upright, and supporting itself to the height of a man, but in woods climbing twenty feet high; flowers elegant, but void of smell, three inches in diameter, flesh-coloured, opening in succession; they appear in February and March. Capsules brown and shining, containing blackish seeds wrapped up in abundance of brown ash-coloured wool.—Native of sandy coppices near Carthagena, on the coast of South America.

15. Ipomœa Repanda; *Repand-leaved Ipomœa.* Leaves cordate, oblong, repand; peduncles branched, in cymes; stems round, twining. The plant is very smooth all over, and probably annual; the flowers are elegant, very shining scarlet, inodorous, numerous, two inches in diameter, but the segments being plaited on the sides, appear at first sight much narrower and lanceolate. They appear in December and January.—Native of Martinico, in coppices on the hills near the town of François.

16. Ipomœa Filiformis; *Filiform Ipomœa.* Leaves cordate, blunt, with a point, quite entire; peduncles in racemes, filiform. The whole plant is very smooth, and climbs up shrubs to the height of ten feet; racemes axillary, very loose, slender, and longer than the leaves, spreading out stiffly; flowers purple, inodorous, very numerous; capsules brown, enclosing smooth black seeds.—It flowers from November to January, and is a native of woods, especially on the borders of salt marshes in Martinico.

17. Ipomœa Hastata; *Halbert-leaved Ipomœa.* Leaves sagittate, hastate; peduncles two-flowered; flowers yellow.—Native of Java.

18. Ipomœa Sanguinea; *Bloody-flowered Ipomœa.* Leaves cordate, three-lobed; side-lobes angular and sublobed behind; peduncles three-flowered; calices smooth. Stem twining, angular, with decurrent lines.—Native of Santa Cruz.

19. Ipomœa Glaucifolia; *Glaucous Ipomœa.* Leaves sagittate, truncated behind; peduncles two-flowered. Root perennial; stem half a yard or more high, slender, twining; flowers small, flesh-coloured, or very pale purple.—Native of Mexico.

20. Ipomœa Triloba; *Three-lobed Ipomœa.* Leaves three-lobed, cordate; peduncles three-flowered. Root annual; stem twining, angular, ten or twelve feet high; corollas cylindric, violet-coloured; stigmas two, globular; capsules hairy.—Native of the West Indies and Japan, where it flowers from August to October.

21. Ipomœa Parviflora; *Small-flowered Ipomœa.* Leaves cordate, five-lobed, palmate; umbels axillary, peduncled; calices and capsules hairy. Stem twining, smooth, triangular; flowers purple.—Native of Jamaica.

22. Ipomœa Hederifolia; *Ivy-leaved Ipomœa.* Leaves three-lobed, cordate; peduncles many-flowered, in racemes. It is an annual.—Native of South America.

** *Flowers aggregate.*

23. Ipomœa Hepaticifolia; *Hepatica-leaved Ipomœa.* Leaves three-lobed; flowers aggregate; colour blue or purple.—Native of Ceylon and Cochin-china.

24. Ipomœa Tamnifolia; *Black Briony-leaved Ipomœa.* Leaves cordate, acuminate, hairy; flowers aggregate, closely heaped together in heads, and surrounded with many hairy leaves; they are of a blue colour, soon withering, and becoming brown or black, are very small, short, divided into five roundish segments, commonly plaited and converging, and seldom expanding till about noon, when the sun shines hot.—Native of South Carolina.

25. Ipomœa Pes Tigridis; *Palmated Ipomœa.* Leaves palmate; flowers aggregate. The flowers are white, small, five or seven alternately in each head.—Native of the East Indies.

26. Ipomœa Simplex; *Entire-leaved Ipomœa.* Leaves lanceolate, entire; flowers solitary.—Native of the Cape.

27. Ipomœa Zeylanica; *Ceylonese Ipomœa.* Floral leaflet under each calix one, lanceolate, sessile, permanent, three times as long as the calix. The fruit of this species is properly a berry, fleshy, globular, mucronate at top.—Native of Ceylon, where it is named *kiritiella.*

Iresine; a genus of the class Diœcia, order Pentandria.—Generic Character. *Male. Calix:* perianth two-leaved, very small, acute, glossy. *Corolla:* petals five, sessile, lanceolate, erect; nectary of five scales, the stamina being interposed. *Stamina:* filamenta five, upright; antheræ roundish. *Female. Calix* and *Corolla:* as in the male. *Pistil:* germen ovate; style none; stigmas two, roundish. *Pericarp:* capsule oblong-ovate. *Seeds:* few, downy. Essential Character. *Calix:* two-leaved. *Corolla:* five petalled. *Male. Nectaries:* seven. *Female. Stigmas:* two, sessile. *Capsule:* with tomentose seeds.——The only known species is,

1. Iresine Celosia. Stems weak, requiring support, rising ten or twelve feet high, having large knots at each joint, with oval-lanceolate, or oval-entire smooth leaves; flowers terminating in slender loose panicles, covered with a silky down, and of a pale yellow colour; they appear in July and August, and in warm seasons ripen seeds in autumn. A white wool bursts out from among the scales, after the flowering time is past.—It is found upon a cretaceous soil in Jamaica, and most of the other West India islands.

Iris; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spathes bivalve, separating the flowers, permanent. *Corolla:* six-parted; petals oblong-obtuse, the three exterior ones reflex, the interior upright and sharper: all connected at the claws into a tube of different lengths in the different species. *Stamina:* filamenta three, awl-shaped, incumbent on the reflex petals; antheræ oblong, straight, depressed. *Pistil:* germen inferior, oblong; style simple, very short; stigmas three, petal-form, oblong, carinated within, furrowed without, incumbent on the stamina, two-lipped; outer-lip smaller, emarginate, inner larger, bifid, subinflected. *Pericarp:* capsule oblong, cornered, three-celled, three-valved; seeds several, large. *Observe.* The nectary in the first nine species is a longitudinal villose line, engraven on the base of the reflex petals; but in others it consists of three melliferous pores at the base of the flower; the capsule in some is trigonal, in others hexagonal. Essential Character. *Corolla* six-petalled, unequal petals alternate, jointed and spreading.

Stigmas: petal-form, cowled, two-lipped.—Most of the plants of this genus are cultivated in flower-gardens for their beauty; and would doubtless be more valued, if they were not easily procured and propagated. All the hardy sorts are generally propagated by parting their roots, which most of them multiply fast enough. The best time for removing and parting the roots is in autumn. All those which spread much at their roots, should be transplanted every other year, to keep them within bounds: indeed, the large-growing kinds are most of them too spreading for the flower-garden, so are only fit to fill up spaces between trees and shrubs in large plantations, where they will have a good effect when flowering.——The species are,

** Bearded; having the spreading Petals furnished with hairs. Leaves ensiform.*

1. Iris Ciliata; *Ciliate-leaved Iris.* Bearded: leaves ensiform, ciliate. Bulb ovate, fibrous, netted, the size of a hazel-nut; scapes several, most of them concealed by the sheaths of the leaves, and a single one only flowering; corolla yellow, the smaller petals obovate; capsule three-cornered, three-grooved.—Native of the Cape of Good Hope, on the hills near Cape Town. This, like all the rest from the Cape, must be kept in the dry-stove, and increased and managed in the same way as the Cape bulbs.

2. Iris Minuta; *Minute Iris.* Bearded: leaves ensiform, smooth; scape one-flowered; petals oblong, acute. Bulb ovate, netted, the size of a large pea; corolla yellow; the smaller petals lanceolate.—Found on Leuwestart mountain, near Cape Town.

3. Iris Pumila; *Dwarf Iris.* Bearded: leaves ensiform, smooth; scape one-flowered; petals oblong, blunt. Root brownish on the outside, white within, knobbed with pale fibrils. All the petals are almost entire, blue or purple, varying much in colour, insomuch that the same flower changes, and from blue becomes more and more red. It flowers in April.—Native of Austria and Hungary, on open hills. There are many varieties of this sort, with white, straw-coloured, pale blue, blush-coloured, yellow-variable, blue-variable, and other colours in the flower, which are now greatly neglected. This, and the 3d, 4th, 6th, 23d, 24th, 34th, 36th, and some others, may be propagated by seeds sown soon after they are ripe, when the plants will come up in the following spring; but if the seeds be sown in the spring, they will lie a year in the ground before they vegetate; when the plants appear they must be kept clean from weeds, and in the following autumn should be transplanted into beds at ten inches or a foot distance, where they may remain till they flower, which will be in the second summer after transplanting. They will grow in almost any soil or situation; and as they grow in small compass, may be admitted into large borders, or clumps of flowers in the pleasure-garden, where they will add to the variety.

4. Iris Susiana; *Chalcedonian Iris.* Bearded: leaves ensiform, smooth; scape one-flowered; petals rounded. Corolla the largest of all the species, very thin; the claws of the larger petals purple on the outside, dotted and streaked with purple within. Mr. Miller observes, that the three upright petals of the flower are almost as broad as a hand, but very thin, striped with black and white; the three bending petals, or falls, of a darker colour: hence some gardeners call it the "*Mourning Iris.*" It flowers at the end of May or beginning of June, but never bears seeds in England. Clusius informs us, "that this magnificent Iris, which takes its name from Susa in Persia, was brought from Constantinople to Vienna and Holland, in 1573." It flowers well in favourable situations, but succeeds best in a pure air, loamy soil, and sunny exposure; moisture, which favours the growth of most of the genus, is injurious, and sometimes even fatal, to this species. As it rarely ripens seed in England, it is generally increased by roots; and being unable to bear severe seasons, it will be prudent to keep a few roots of it in pots, either in a green-house or hot-bed frame, during the winter, or it may be purchased of the importers of bulbs from Holland, at a reasonable rate. It bears forcing well.

5. Iris Florentina; *Florentine Iris.* Bearded: leaves ensiform, smooth, shorter than the subbiflorous scape, which bears two or three flowers. Lower petals connate at the base, the claws of the larger ones thickish, with a thin winged edge an inch long, green on the outside, bearded within, with white cilias, yellow at the tip; smaller petals oblong, blunt, emarginate, white; stigma snowy white. Our old writers called this White Flower-de-luce, or Flower-de-luce of Florence. The root of this plant is extremely acrid, and when chewed excites a pungent taste in the mouth, which continues some hours: this acrimony is almost wholly dissipated when the plant is dried, the taste then being slightly bitter, and the smell agreeable, approaching to that of violets. No essential oil has been hitherto obtained from this root, but spirituous tinctures of it contain more of its virtues than watery infusions. The fresh root is a powerful cathartic, and for this purpose its juice has been employed, in the dose of a drachm and upwards, in dropsies. It is now chiefly used in a dry state, and is said to be good for complaints of the lungs, coughs, and hoarseness; but, we believe, it is more valuable for the pleasantness of its perfume, and the flavour which it communicates, than for any other use. For medicinal uses the roots are generally imported from Leghorn.—Native of the south of Europe.

6. Iris Biflora; *Twice-flowering Iris.* Bearded; leaves ensiform, smooth, shorter than the subtriflorous scape; petals violet-coloured, entire.—Native of Portugal and Spain.

7. Iris Aphylla; *Leafless Iris.* Bearded: leaves ensiform, smooth, equalling the many-flowered almost naked scape. This has four large bright purple flowers, which stand above each other, and have purplish sheaths; the three bending petals, or falls, are striped with white from the base to the end of the beard; the capsules are large, blunt, and triangular. It flowers at the end of May, and the seeds ripen at the beginning of August.—Native place unknown.

8. Iris Variegata; *Variegated Iris.* Bearded: leaves ensiform, smooth, equalling the many-flowered scape. Flowers at the top of the scape divided, alternate, coming out successively, handsome yellow, netted with black.—It flowers in June, rarely seeds in England; and is a native of Hungary. Gerarde calls it Variable Flower-de-luce.

9. Iris Germanica; *German Iris,* or *Garden,* or *Blue Flower-de-luce.* Bearded: leaves ensiform, smooth, sickle-shaped, shorter than the many-flowered scape. This has the largest leaves of all the species; they are of a grayish colour, and spread wide, embracing each other at their base, where they are purplish. The stalks rise nearly four feet high, and divide into several branches, each supporting three or four flowers, which are covered with a thin sheath; the three bending petals or falls are of a faint purple inclining to blue, with purple veins running lengthwise; the beard is yellow, and the three erect petals or standards are of a bright blue, with some faint purple stripes: the flowers have an agreeable scent. It flowers in May and June.—Native of Germany, Switzerland, and Dauphiny. The fresh roots of this plant, which are a strong irritating cathartic, may be given in hydropic cases, in doses of one or two drachms,

to three or four ounces, but must be largely diluted with watery or vinous liquors, to prevent its inflaming the throat. The remarkable differences in the dose, as directed by different practitioners, appear to arise from this circumstance, that some have employed the juice in the recent turbid state, loaded with the acrimonious cathartic matter of the root, while others used such as had been depurated by settling, and which had deposited its more active and acrimonious particles. Hill says, two ounces of it bruised, and infused four or five hours in a quarter of a pint of strong beer, is a strong purge, of great efficacy in dropsical complaints. The root, suspended in wine and beer, prevents those liquors from becoming stale, and communicates a very pleasant taste and smell to the wine. The juice is also sometimes used as a cosmetic, and for the removal of freckles from the skin. A most beautiful paint or colour is prepared from the flowers, in the following manner; they are gathered before quite open, and bruised in a stone mortar with a wooden pestle, then put into a glass, and placed for some days in a cellar, or other moist place; in about a fortnight, the mass, which will have become liquid, is to be set over the fire in a glass pot, till about a third part is evaporated; then more or less roche-alum is to be added, till it becomes clear, and acquires a fine blue colour; it may then be put into shells, and used as a water-colour.

10. Iris Lurida; *Dingy Iris.* Bearded: stem higher than the leaves, and many-flowered; outer petals revolute, inner from erect bent in, somewhat waved, and slightly emarginate; stigmas dirty yellow, pale purplish above. This plant may be a variety of the next species, but is scentless. It flowers in April.—Native of the south of Europe.

11. Iris Sambucina; *Elder-scented Iris.* Bearded: leaves ensiform, smooth, erect, shorter than the many-flowered scape; petals bent down flat. It differs from the ninth species, in having the larger petals of a deep violet colour, and subemarginate; the smaller petals emarginate, and of a deeper blue colour. It derives its trivial name from the smell of the flowers, which is very like that of Elder in bloom. They appear at the end of May.—Native of the south of Europe.

12. Iris Squalens; *Brown-flowered Iris.* Bearded: leaves ensiform, smooth, erect, shorter than the many-flowered scape; petals bent down and folded back. The roots of this species are very thick and fleshy, divided into joints, spreading just under the surface of the ground; they are of a brownish colour on their outside, but white within; the stalks divide into three branches, each of which produces two or three flowers, one above another, at distances, each enclosed in a sheath; they have three large violet-coloured petals, which turn backwards, and are called *falls;* these have beards near an inch long on their midrib towards their base, and have a short arched petal which covers the beard, with three broad erect petals of the same colour, called *standards.* Capsule three-cornered, filled with large compressed seeds. It flowers in June, and ripens seed in August. There is a variety with blue standards, and purple falls; and one with pale purple standards, another with white, and a third with a smaller flower; but these are accidental varieties, which have come from seeds.—Native of the south of Europe.

13. Iris Compressa; *Flat-stalked Iris.* Bearded: leaves ensiform, smooth; scape panicled, compressed. Stem frutescent, compressed, smooth, branching dichotomously, jointed, decumbent; branches alternate, elongated, like the scape, one-flowered; corolla white; claws of the larger petals a little widened, bearded within, clotted with yellow; a yellow spot in the flexure; border blunt.—Native of South Africa.

14. Iris Cristata; *Crested Iris.* Bearded: beard crested; stem mostly one-flowered, the length of the leaves; germina three-cornered; petals almost equal. Root tuberous, creeping; stems several, short, inclining upwards, compressed, leafy; flower generally solitary, a little shorter than the leaves, erect, of a pale purplish blue; outer petals drooping, obtuse, blue, with deeper blue spots, crested in the place of the beard with three longitudinal, elevated, waved ribs, variegated with orange and yellow. It flowers in May.—Native of North America.

15. Iris Dichotoma; *Forked Iris.* Bearded: leaves ensiform, smooth; stem panicled, round. Branches simple, elongated, naked; flowers on long peduncles, pale purple, the smallest of the genus.—It flowers in August, and is a native of Siberia.

** *Leaves linear.*

16. Iris Tripetala; *Three-petalled Iris.* Bearded: leaf linear, longer than the one-flowered scape; petals alternate, awl-shaped. Bulb striated, globular, fibrilled; flower terminating, solitary; corolla blue, with a yellow joint; claws of the larger petals broader, linear, dotted on the inside with blue, having a nectareous hollow at the base.—Native of the Cape of Good Hope, near Cape Town, and Picketberg, &c.

17. Iris Tricuspis; *Trifid-petalled Iris.* Bearded: leaf linear, longer than the subbiflorous scape, alternate; petals trifid. Bulb the size of a hazel nut; border of the larger petals white, suborbiculate, with a point: it varies much in the shape and colour of the larger petals, and very much in the colours, blue, purple, yellow, white, and spotted.—Native of the Cape, on the hills below Duyvelsberg, in Swartland, and near Berg-riviere. Mr. Curtis describes it as a small delicate Iris, about a foot and a half high, with very narrow leaves, bearing on the top of the stalk one, or at most two flowers; three of the petals are large and white, with a brilliant blue spot at the base of each, edged on the outer side with deep purple: the delicacy of the flower, and the eye-like spot at the base of the three petals, render it, he says, one of the most striking plants of the genus. The root of the plant which he describes came from Holland.

18. Iris Plumaria; *Feathered Iris.* Bearded: leaves linear; scapes many-flowered; stigmas setaceous, multifid. Petals connate at the base; claws of the larger ones obovate, greenish on the outside, with a thinner blue edge, pale blue within.—Native of the Cape, below Duyvelsberg.

*** *Beardless.—Leaves ensiform.*

19. Iris Xiphium; *Bulbose-rooted Iris.* Beardless: leaves ensiform, channelled, awl-shaped, shorter than the two-flowered scape. The flowers are blue, with emarginate petals. Miller makes two distinct species; which Martyn gives as varieties: there are many varieties of these; the most common colour is blue, deeper or lighter; but it is also yellow, white, blue with white or yellow falls, violet-coloured with blue falls, and variegated.—Native of the south of Europe. It was discovered by the duchess dowager of Portland, on the river side, near Fladbury, in Worcestershire. This, and the thirtieth species, are propagated by offsets from the roots. The bulbs of this species need not be taken up oftener than every other year; and of the latter every third year; this should be done soon after their leaves decay, to prevent them from sending out fresh fibres; nor should they be kept above a month out of the ground, which would cause them to shrink, and flower weakly in the ensuing year. They may be propagated from seeds in the same way as the *Hyacinth:* indeed, the varieties of this species can only be obtained that way; the thirtieth does not vary even from seeds,

These flowers thrive best in a light sandy loam, which will be the better when taken from a pasture ground with the sward, and laid in a heap to rot; for these bulbs do not flourish in a dunged soil, nor should they be too much exposed to the sun; but in an east border they will thrive, and flower extremely well.

20. Iris Pseudacorus; *Common Yellow* or *Water Iris*, *Flower-de-luce* or *Water Flag*. Beardless: leaves ensiform, alternate; petals smaller than the stigma. Root fleshy, the thickness of the thumb, spreading horizontally near the surface, blackish on the outside, reddish and spongy within; leaves from the root, two or three feet long, upright, an inch or more in breadth; stem-leaves shorter, forming a sheath at the bottom; scapes from one to three feet in height, upright, alternately inclined from joint to joint, round or flatted a little, smooth and spongy; peduncles axillary, flat on one side, and smooth, each sustaining two or three flowers; corolla yellow, the three outer petals large.—It is common in most parts of Europe, in marshy meadows and fens, by the sides of rivers, brooks, lakes, pools, and ditches, flowering at the end of June or beginning of July. It is sometimes called *Skeggs* or *Lugs*. The root has an acrid burning taste, and the juice, when snuffed up the nostrils, produces a great heat in the mouth and nose, occasioning a copious discharge, and hence it is recommended as a sialagogue and errhine. This root is such a powerful astringent, that it has been used instead of galls in making ink, and also for the purpose of dyeing black; and owing to that quality it has been successfully given in diarrhœas, for which purpose it should be well dried, for the fresh root and its juice is so strong a cathartic, that eighty drops of the latter produced repeated evacuations, after jalap, gamboge, &c. had failed: this dose was given every hour or two in a little syrup of Buckthorn, and had very speedy effects, causing the patient to discharge by stool several Scots pints of water in the course of the night; and by continuing to use it in increased doses, it cured an inveterate dropsy. Hence Withering says, that, in dropsical cases, attended with obstinate obstructions of the viscera, eighty or a hundred drops of the juice of this root may be given every two hours. Gordon, one of the old writers on medicine, declares, that if man can administer any thing to cure the dropsy, this root will; and Hill says his practice confirms the remark. The expressed juice is also said to be an useful application to serpiginous eruptions, and scrofulous tumors. The root of this plant is recommended by Brookes as a remedy for the toothache. M. Lovrat, a French chemist, has discovered, that the seed, when dried by heat, and freed from the friable shell which envelopes it, produces a beverage similar to coffee, but much superior in taste and flavour.

21. Iris Fœtidissima; *Stinking Iris*, or *Stinking Gladwyn* or *Gladdon*. Beardless: leaves ensiform; scape one-angled. Root thick, tufted, fibrous. The broken leaves emit a strong odour, not much unlike that of hot roast beef at the first scent, but, if smelt too close, becoming disagreeable. Dr. Withering compares the smell of them to rancid bacon. Corolla of a lurid purplish ash-colour, not smelling in the night-time. It runs much at the root, and flowers sparingly.—It is a native of France and Italy; in England also, it is found near Hornsey; about Charlton-wood, and between Eltham and Chiselhurst, in Kent; near Braintree and Woodford in Essex; Bath-hills, Ditchingham, Norfolk; near Cherryhinton, Feversham, Fulborn, and Triplow in Cambridgeshire; between Dunstable and St. Albans; near Pershore in Worcestershire; and very commonly in all the south-west counties. It is found on hedge banks and sloping grounds, flowering from the end of June till August. The country people in some parts of England purge themselves with the decoction of this plant. Those who would not have it work too strongly, make an infusion of the sliced roots in ale: and some take the leaves, which are more convenient for tender stomachs. The juice of the root has also been used as an emmenagogue, as well as for cleansing eruptions of various kinds. Hill says the juice of the root promotes urine and the menses; that the dried root, in powder or infusion, is good in all hysteric disorders, fainting, and nervous complaints. Needham says, that, taken inwardly, and applied outwardly to the affected part, in the form of a poultice, it is an excellent remedy for the scrofula or king's-evil. Gerarde says, "the root of Gladdon is of great force against wounds and fractures of the head: for it draweth out all thorns, stubs, prickles, &c. without griefe.—The root giuen in wine, profiteth much against convulsions, ruptures, the paine of the huckle bones, the strangury, and the flux of the belly, and take away the cause of the laske, otherwise no doubt it moueth vnto the stoole.—The seed therefore mightily purgeth by vrine, as Galen saith; and the country people have found it true."

22. Iris Virginica; *Virginian Iris*. Beardless: leaves ensiform; scape ancipital. Root white within, black without, the thickness of the thumb, having white fibres, and bristly at top with the remains of the leaves; flowers elegant, but without scent; claws of the outer petals channelled, green on the outside, yellow on the inside, streaked with dark purple. It flowers in June and July.—Native of Virginia.

23. Iris Versicolor; *Various-coloured Iris*. Beardless: leaves ensiform; scape round, flexuose; germina subtrigonal. Flowers blue, large. Mr. Curtis remarks, "that this species has, for the most part, a stalk unusually crooked or elbowed." It flowers in May and June.—Native of North America.

24. Iris Ochroleuca; *Pale Yellow Iris*. Beardless: leaves ensiform; scape subcylindric; germina hexagonal. Larger petals dilated at the base, with dusky veins; lesser snowy white, with yellowish veins at the base: stigma snowy white; capsule hexagonal, with blunt angles. This being the highest species of Iris cultivated in our gardens, Mr. Curtis calls it *Tall Iris*. It flowers in July.—Native of the Levant.

25. Iris Halophila; *Long-leaved Iris*. Beardless: leaves ensiform, those next the root very long; stem round; germina hexagonal.—Native of Siberia.

26. Iris Spathacea; *Long-spathed Iris*. Beardless: leaves ensiform, rigid; scape round, two-flowered: spathes very long.—Native of the Cape, near Wolfwekraal, and Langekloof, near Keurbooms riviere.

27. Iris Ramosa; *Branching Iris*. Beardless: leaves ensiform; stem panicled, many-flowered; flowers yellow.—Native of the Cape.

**** *With linear Leaves.*

28. Iris Sisyrinchium; *Crocus-rooted Iris*. Beardless: leaves linear, waved, reflex; scape one-flowered. Petals purple, with a yellow spot in place of the beard. It flowers in May. Gerarde and Parkinson name it *Spanish-nut*.—Native of Spain and Portugal; and found also in Sicily.

29. Iris Verna; *Spring Iris*. Beardless: leaves linear, flat; scape one-flowered, shorter than the leaves; root fibrose, (alternate petals equalling the others;) the flower is purple, with blue standards. It appears in May.—Native of North America.

30. Iris Persica; *Persian Iris*. Beardless: leaves linear, flat; scape one-flowered, alternate; petals shorter, (inner petals very short and spreading.) Root oval, bulbous; flower-stalks seldom above three inches high, supporting one or two flowers, enclosed in spathes; these have three erect petals or standards, of a pale sky-blue colour, and three

reflexed petals or falls, which on their outside are of the same colour, but the lip has a yellow streak running through the middle, and on each side are many dark spots, with one large deep purple spot at the bottom. It is greatly esteemed for the beauty and extreme sweetness of its flowers, as well as for its early appearance in the spring; for it is generally in perfection in February, or at the beginning of March, according to the forwardness of the season. Like the Hyacinth and Narcissus, it will blow within doors in a water-glass, but stronger in a small pot of sand or sandy loam, and a few of its flowers will scent the whole apartment.—See the nineteenth species. In propagating it from seed, the boxes in which the seeds are sown, should be put under a garden frame in winter, to shelter them from hard frost.

31. Iris Angusta; *Narrow-leaved Iris.* Beardless: leaf filiform, linear, upright, smooth; scape smooth, one or two-flowered; spathes blunt. Bulb ovate, tunicated, smooth, fibrose, the size of a hazel-nut; flowers terminating; claws of the larger petals yellow with the edge white, dotted with purple on both sides; smaller petals lanceolate, blunt, yellow, streaked with dusky purple on the outside.—Native of the Cape, on the hills below Duyvelsberg, and Lewekopp.

32. Iris Setacea; *Bristle-leaved Iris.* Beardless: leaf filiform, linear, upright, smooth; scape smooth, one-flowered; spathes acute, membranaceous. Flowers small and blue.—Native of the Cape.

33. Iris Tenuifolia; *Slender-leaved Iris.* Beardless: leaves filiform, linear; scape two-flowered. Flower terminating, pale blue; outer lip of the stigma very short and blunt.—Native of Siberia, in the sands of Dauria, and near the Wolga.

34. Iris Graminea; *Grass-leaved Iris.* Beardless: leaves linear; scape subbiflorous, ancipital; germina hexagonal. Flowers two or three, small; the petals have a broad yellow line with purple stripes; the three falls are of a light purple colour striped with blue, and have a convex ridge running along them; the others are of a reddish purple, variegated with violet, and smell like fresh plums.—Native of Austria.

35. Iris Spuria; *Spurious Iris.* Beardless: leaves linear; scape round, subtriflorous; germina three-cornered. Stem two or three feet high; flowers commonly two, with light blue standards, and purple variegated falls, having a broad white line in the middle instead of the beard. It flowers in July.—Native of wet meadows in Germany and Austria.

36. Iris Sibirica; *Siberian Iris.* Beardless: leaves linear; scape round, subtriflorous; germina three-cornered; flowers blue, in brown scariose spathes. It flowers in May and June.—Native of Siberia, Austria, and Switzerland.

37. Iris Flexuosa; *Wave-leaved Iris.* Beardless: leaves linear, flexuose; stem three-flowered, round, thick; germina three-cornered. Flowers terminating, three, the middle one peduncled, the others, as also the lower solitary one, subsessile; corolla white; the reflex petals have the border toothletted, the claw linear, yellow, with violet-coloured veins; the upright petals shorter by half, wholly white, waved, with very narrow claws. It is very like the preceding species.—Native of the same places.

38. Iris Martinicensis; *Martinico Iris.* Beardless: leaves linear; petals with little glandular pits at the base; germina three-cornered. Stem upright, roundish, two feet high, simple; flowers few, coming out successively from the same spathe, yellow, without scent, peduncled. It flowers here in June; but in Nov. and Dec. in Martinico and St. Lucia, where it is found in moist and mountainous woody pastures.

39. Iris Pavonia; *Peacock Iris.* Beardless: leaf linear, smooth; scape one or two flowered. Scape round, jointed, villose, simple, a foot high, sustaining one or two flowers, which are orange-coloured, with black spots and dots at the base, and a heart-shaped blue spot above the base, which at bottom is tomentose and black.—Native of the Cape, in Swartland, &c. among bushes.

40. Iris Crispa; *Curl-leaved Iris.* Beardless: leaves linear, curled. Scape grooved, flexuose, divided at top, a hand or more in height; flowers terminating, alternate, the lower peduncled, three or four in number; corolla six-petalled; alternate petals larger; border ovate, obtuse, veined, yellow, and very finely dotted at the flexure. This varies in the colour of the corolla, yellow, with blood-red veins, blue, and flesh-colour.—Native of the Cape of Good Hope, on the hills near Cape Town.

41. Iris Papilionacea. Beardless: leaves linear, reflex, rough-haired. Bulb ovate, coated, the size of a pea; scape upright, hairy, divided, many-flowered, a hand in height; flowers expanding successively. There are also several varieties of this species, with the petals and pistils red within, a yellow spot at the knee, and a dusky circle; and the larger petals yellow, with a green circle at the knee; the borders of the lesser petals and inner lips of the stigmas blood-red.—Common on the hills about Cape Town.

42. Iris Edulis; *Edible Iris.* Beardless: leaf linear, pendulous, smooth; scape smooth, many-flowered. Flowers solitary, or several alternate, chiefly directed one way; petals connate at the base. It varies with blue, white, and yellow flowers, the first having dusky streaks, and the last spotted. This, as also several of the African sorts, furnish nutriment both to men and monkeys. The bulbs with the scapes collected in bundles, and gently boiled, are esteemed pleasant and nourishing.—Common at the Cape, in the sands of Greonekloof, Swartland, on Duyvelsberg, and the low plains near Cape Town.

43. Iris Tristis; *Drooping Iris.* Beardless: leaves linear, smooth; scape rough-haired, branched; smaller petals narrower by half than the others, ovate, lanceolate; tube greenish, connate at the base; all the borders dull-coloured or rufescent, with a red keel, bright yellow at the bending.—Native of the Cape, below Duyvelsberg, near Cape Town.

44. Iris Polystachya; *Branching Iris.* Beardless: leaves linear, flat; scape smooth, branched. Flowers large, handsome, blue with yellow at the flexures.—Native of the Cape, between Sondag-riviere and Visch-riviere.

45. Iris Viscaria. Beardless: leaves linear, flat; scape viscid. Border of the larger petals ovate, bluntish, whitish at the flexure.—Native of the Cape, in Saldanha-bay.

46. Iris Bituminosa. Beardless: leaves linear, spiral; scape viscid. Flowers solitary, on peduncles; corolla reflex, yellow all over.—Native of the Cape, near Berg-riviere, &c.

47. Iris Tuberosa; *Snake's-head Iris.* Beardless: leaves quadrangular. This has a tuberous root: from this arise five or six narrow, long, four-cornered leaves; and from between these the stalk supporting one small flower of a dark purple colour.—Native of the Levant. It is propagated by the roots, which send out offsets, and may be taken up and transplanted when their leaves decay, but should not be kept long out of the ground. If planted in a deep loose soil, the roots will run down, and be lost in a few years where they are not disturbed; so they should be annually transplanted, and have a shallow soil. They are hardy, and only require weeding. If they are to be increased, they should not be removed oftener than once in three years. They flower best when planted to an east aspect. The distance which should be allowed is six inches square, and they should be planted three inches deep in the ground. As they multiply pretty fast by the roots, few persons raise them from

seeds, which, nevertheless, may be done in the way directed for the Bulbous Iris and Hyacinth. In light land it will be proper to lay rubbish in the bottom of the border where the Iris is planted, to prevent the roots from running deep into the ground, or they will seldom produce flowers.

***** *New Species.*

48. Iris Japonica. Bearded: leaves ensiform, falcated, shorter, smooth; scape compressed, many-flowered; corollas one-petalled, white.—Native of Japan.

49. Iris Orientalis. Beardless: leaves linear; scapes subbiflorous, round, jointed; germina three-cornered; corollas netted.—Native of Japan.

50. Iris Ensata. Beardless: leaves linear; scape subbiflorous, round; germina hexagonal.—Native of Japan.

51. Iris Cuprea. Beardless: stalk cylindrical, flexuose: leaves broad-sword-shaped; stigmata linear, short; petals reflected, emarginated, obovate; capsules large, hexagonal; flowers of a fine copper-colour, veined with purple.—Found by Mr. Euslen, collector to Prince Lichtenstein of Austria, on the eastern banks of the Mississippi, near New Orleans.

52. Iris Prismatica. Leaves long and very narrow; capsules elongate, prismatical, and acute on both sides; flowers pale purple.—Found in the deep swamps of New Jersey.

Iron-wood. See *Fagara* and *Sideroxylon.*

Iron-wort. See *Galeopsis* and *Sideritis.*

Isatis; a genus of the class Tetradynamia, order Siliculosa. —Generic Character. *Calix:* perianth four-leaved; leaflets ovate, rather spreading, coloured, deciduous. *Corolla:* four-petalled, cross-shaped; petals oblong, obtuse, spreading, gradually attenuated into the claws. *Stamina:* filamenta six, upright, spreading, length of the corolla: of these two are shorter; antheræ oblong, lateral. *Pistil:* germen oblong, ancipital, compressed, length of the shorter stamina; style none; stigma obtuse, headed. *Pericarp:* silicle oblong, lanceolate, obtuse, compressed, ancipital, one-celled, not gaping, bivalve; valves navicular, compressed, keeled, deciduous. *Seed:* single, ovate, within the centre of the pericarp. Essential Character. *Silicle:* lanceolate, one-celled, one-seeded, deciduous, bivalve; valves navicular.——The species are,

1. Isatis Tinctoria; *Dyer's Woad.* Root-leaves crenate; stem-leaves sagittate; silicles obcordate. This is a biennial plant, with a fusiform fibrose root; stem upright, round, smooth, woody at bottom, branched at top; flowers small, terminating the stem and branches in a close raceme; both corolla and calix yellow; petals notched at the end. The stalks of the cultivated plant rise nearly four feet high, dividing into several branches, with arrow-shaped leaves sitting close; the ends of the branches terminated by small yellow flowers, in very close clusters; the pods are shaped like a bird's tongue, half an inch long, and one eighth of an inch broad, turning black when ripe. It flowers in July, and the seeds ripen in the beginning of September. Mr. Miller mentions another species, which he calls the Dalmatian Woad, with flowers of a brighter yellow colour, and larger than the above; but it is probably only a variety.—Dyer's Woad is a native of several parts of Europe, as on the coast of the Baltic and German Ocean, by way-sides in Switzerland; and in England, in and on the borders of corn-fields, as at New Barns, near Ely, and by the river Wear near Durham, &c. Linneus says, it is a maritime plant; but as it seems probable that it is the plaat with which Pliny informs us, the ancient Britons painted their bodies, it must in that case be a native of our islands. Stow and Hume record, that "Good Queen Bess" took such a dislike to the smell of this herb, that she prohibited its cultivation. We were formerly dependent upon France for supplies of Woad, which is much employed by dyers for producing blue, and forming the basis of black and many other colours.—*Propagation and Culture.* It is sown upon fresh land in good heart, for which the cultivators of Woad pay a large rent: they generally choose to have their lands situated near great towns, where there is plenty of dressing; but they never stay long on the same spot, for the best ground will not admit of being sown with Woad more than twice, for if it be oftener repeated, the crop will seldom defray the expense of its culture. After having selected a good spot of land, which should not be too light and sandy, nor over stiff and moist, but rather a gentle hazel loam, whose parts will easily separate; the next is, to plough this up just before winter, laying it in narrow high ridges, that the frost may penetrate through them to mellow and soften the clods; then in the spring plough it again cross-ways, laying it again in narrow ridges: after it has lain some time in this manner, and the weeds begin to grow, it should be well harrowed, and the large perennial weeds must be rooted out, and carried off the ground; which should be ploughed a third time in June, with narrow furrows, and as deep as the plough will go, that the parts may be as well separated as possible; and when the weeds again appear, repeat the harrowing, which will destroy them. At the end of July, or in the beginning of August, the land should be ploughed for the last time, and laid smooth. When there is a prospect of showers, it should be harrowed, to receive the seeds, which should be sown either in rows with the drill-plough, or in broad-cast, after the common method. It will be proper to steep the seeds one night in water, which will prepare them for vegetation, and if they be sown in drills with the plough, they must be covered by an instrument fixed to the plough for that purpose; but those which are sown broad-cast in the common way, must be well harrowed in. If the seeds be good, and the season favourable, the plant will appear in a fortnight, and in a month or five weeks after will be fit to hoe: the sooner the hoeing is performed after the plants are distinguishable, the better they will thrive, and the weeds, being then young, will be destroyed. The method of hoeing these plants is the same as for Turnips, with this difference only, that these require less thinning; for, at the first hoeing, if they be separated at the distance of three or four inches, and at the last to six inches, it will be space enough for the growth of the plants. If the thinning be carefully done in dry weather, most of the weeds will be destroyed; but as some of them may escape in this operation, and young weeds will arise, the ground should be a second time hoed in October, in dry weather, when the plants must be singled out to the distance at which they are to remain. The ground will then remain free from weeds till the spring, when young weeds will come up; therefore about a fortnight in April will be a good time to hoe the ground again, as the weeds will then be young, and it may be performed in less than half the time it would require if they were permitted to grow large; besides, the sun and wind will much sooner kill them. This hoeing will also stir the surface of the ground, and greatly promote the growing of the plants: if it be performed in dry weather, the ground will remain free till the first crop of Woad is gathered, after which it should be again well cleared; and if this be carefully repeated after the gathering of each crop, the land will always lie clean, and the plants will thrive better. The expense of the first hoeing will be about six shillings per acre, and for the after-hoeings half that price will be sufficient, provided they are performed when the weeds are young. If the land in which the seed is sown should have been in culture before for other crops, so not in good heart, it will require dressing before it is sown, in which rotten stable-dung is preferable to any other; but

this should not be laid on till the last ploughing before the seeds are sown, and not spread but as the land is ploughed, that the sun may not exhale the goodness of it, which is soon evaporated if it be spread on the ground in summer. The quantity should not be less than twenty loads to each acre, which will keep the ground in heart till the crop of Woad be spent. The time for gathering the crop is according to the season, but it should be performed as soon as the leaves are fully grown, while perfectly green; for, when they begin to change pale, great part of their goodness is gone, and the quantity also will be much diminished. If the land be good, and the crop well husbanded, it will produce three or four gatherings, but the two first are the best, and are commonly mixed together when used. The after crops are always kept separate, for if mixed they would be of little value. The two first crops will sell at from twenty-five to thirty pounds and upwards per ton, but the latter will not bring more than seven or eight, and sometimes not so much. An acre of land will produce a ton of Woad, and in good seasons nearly a ton and half. When the planters intend to save the seeds, they cut three crops of the leaves, and then let the plants stand till the next year for seed; but if only one crop is cut, and that only of the outer leaves, letting all the middle leaves stand to nourish the stalks, the plants will grow stronger, and produce a much greater quantity of seeds. These seeds are often kept two years, but it is always best to sow new seeds when they can be obtained. The seeds ripen in August, and should be gathered when the pods turn to a dark colour; which is best done by reaping in the same way as for Wheat, spreading the stalks in rows upon the ground. In four or five days' dry weather the seeds will be fit to thresh out; but if they lie long, the pods will open and let them fall out. Some Woad-planters feed down the leaves in winter with sheep, which is a very bad method; for all plants which are to remain for a future crop, should never be eaten by cattle, for that greatly weakens them. Those who cultivate this commodity, have gangs of people who have been bred to the employment, so that whole families travel about from place to place, wherever their principal fixes on land for the purpose. These persons, however, always go on in one track, just as their predecessors taught them, nor have their principals deviated much from the practice of their ancestors; so that there is a large field for improvement, if any of the cultivators of Woad should happily prove men of genius, who could be prevailed upon to adopt the garden culture of this plant. The method practised by some of the most skilful gardeners in the culture of Spinach, would be a great improvement to this plant; for some of them have improved the Round-leaved Spinach so much by culture, as to have the leaves more than six times the size they formerly were, and their fatness has increased in the same proportion upon the same land; which has been affected by thinning the plants while young, and keeping them free from weeds.—Woad, besides the use of it among dyers, is possessed of several medicinal virtues. A strong infusion of the tops of the plant operates by urine; and, when continued to be used for a considerable time, is excellent for curing obstructions of the liver and spleen.

2. Isatis Lusitanica; *Portugal Woad.* Root-leaves crenate; stem-leaves sagittate; silicles subtomentose; flowers white.—Native of Portugal and the Levant.

3. Isatis Armena; *Armenian Woad.* Leaves quite entire, cordate, blunt behind; silicles cordate. Stem a foot high, loaded with yellow flowers.—Native of dry pastures, by the side of brooks, in Armenia.

4. Isatis Ægyptiaca; *Egyptian Woad.* All the leaves toothed. Annual, and a native of Egypt.

5. Isatis Alpina; *Alpine Woad.* Leaves lanceolate, half embracing, cordate; silicles ovate. Stem half a yard high; flowers in a sort of umbel, in short racemes, yellow, on yellow filiform peduncles.—Native of the mountains of Piedmont. This, and the three preceding sorts, are not cultivated for use, but are preserved only in botanic gardens. The second and fifth may be propagated by seeds sown in autumn; the third and fourth are too tender to live in the open air, and must be raised by seeds on a hot-bed in the spring.

Ischæmum; a genus of the class Polygamia, order Monœcia.—Generic Character. *Calix:* glume two-flowered, bivalve, cartilaginous, placed transversely; valves nearly equal, the exterior subovate, gibbose, with a bifid tip, sharp; the upper part of the back flat in the middle, striated, emarginated; the interior oblong, acuminate or awned at the tip, the back beneath the tip increased by a longitudinal membrane. *Floscule:* exterior male, interior hermaphrodite, each less than the calix. *Corolla:* in the hermaphrodite, a bivalve glume: valves membranaceous, thin, colourless; the exterior bellied, either mutic or awned, bifid to the very awn, acute; awn long, slender, jointed, tortile beneath; the interior lanceolate, acute, conduplicate at the edges. In the male, a bivalve glume rather firmer, diaphanous, rather coloured; the exterior oblong, bellied, contracted above, sharp, mutic; the interior oblong, obtuse, with concave back, acutely margined; margin thinner. *Nectary:* in each two-leaved; leaflets small, spatulate, truncate-emarginate. *Stamina:* filamenta three, capillary, short; antheræ oblong, bifid on both sides. *Pistil:* in the hermaphrodites, germen oblong; styles two, capillary, erect, shorter than the corolla; stigmas oblong, plumose, spreading, exserted. *Pericarp:* none; calix and corolla unchanged. *Seed:* (in the hermaphrodite) single, oblong, linear, convex on one side. *Observe.* The flowers are spicated, and grow double; the one subsessile, the other seated on a broad glumaceous footstalk; each hermaphrodite. Essential Character. *Hermaphrodite. Calix:* glume two-flowered. *Corolla:* two-valved. *Stamina:* three. *Styles:* three. *Seed:* one. *Male. Calix* and *Corolla:* as in the other. *Stamina:* three.——The species are,

1. Ischæmum Muticum. Leaves lanceolate; flowers awnless. Culms a foot or eighteen inches high; spike two-parted, terminating, joined so as to appear one, or one divided to the base.—Native of the East Indies, and of the Isle of Tanna.

2. Ischæmum Aristatum. Leaves lanceolate; calices two-flowered; pedicels ciliate; each female flower with a twisted knee-jointed awn. Culm a foot and half high, branched, decumbent, and rooting with hairy joints.—Native of China.

3. Ischæmum Imberbe. Leaves lanceolate; florets naked; outer valve of the sessile calix having two knobs on each side, and the corolla elongated by a twisted awn. Culms two feet high, leafy, somewhat branched.—Native of the East Indies.

4. Ischæmum Barbatum. Leaves lanceolate; calices two-flowered, bearded at the base, and ciliate at the edge, the edge of the sessile one with two knobs on each side; awn twisted, knee-jointed. Culm like the preceding; spike longer, two-parted, awned, with the teeth of the rachis ciliate-bearded.—Native of Java.

5. Ischæmum Muricum. Spike two-parted; calix and seed awned. Culms filiform, slender, simple, a long span in height; spikes closely converging, cylindrical, two inches long.—Native of the Isle of Tanna, on dry sand, near the coast.

6. Ischæmum Involutum. Spike directed one way, awnless, four-flowered, involved in a leafy cone or receptacle.—Native of the Society Isles, Otaheite, &c.

7. Ischæmum Importunum. Panicle contracted; corollas

one-valved. Root-perennial, simple, long, jointed, white, very tough; flowers ovate, smooth, awnless, small.—Native of Cochin-china, where it is a troublesome weed.

8. Ischœmum Rugosum. Outer barren glumes transversely wrinkled; male and female florets fertile, one only awned. Root annual. Plant from seven inches to a foot in height.—Native of the East Indies.

Isertia; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, superior, coloured, four or six toothed, permanent. *Corolla:* one-petalled, funnel-form; tube long, cylindric, slightly curved; border six-cleft; divisions subovate, rather upright, villose. *Stamina:* filamenta six, very short, within the mouth of the corolla; antheræ linear, fastened by the back, upright. *Pistil:* germen inferior, roundish; style filiform, surrounded at the base by a glandule; stigma six-cleft. *Pericarp:* pome subglobose, crowned with the calix, succulent, six-celled; the shell of the cells fragile. *Seeds:* several, small, angular, rough. Essential Character. *Calix:* coloured, four or six toothed. *Corolla:* six-cleft, funnel-form. *Pome:* subglobular, six-celled, many-seeded.——The species are,

1. Isertia Coccinea. Leaves opposite, disposed cross-wise, smooth, entire, oval, ending in a long point; flowers terminating, in a large straight panicle, the branches of which are opposite and subdivided, and come out from between two little scales; tube of the corolla two inches long, bright red. It is a tree, with a trunk ten or twelve feet in height, and about eight inches in diameter; the bark wrinkled, and of a russet colour; the wood light, and of a loose texture; it is bitter. The Creoles use a decoction of the leaves in fomentations.—Common in the island of Cayenne, and on the continent of Guiana, flowering and bearing fruit great part of the year.

2. Isertia Parviflora. Leaves oblong, the lower ones somewhat heart-shaped at the base; bunch of flowers ovate.—Found in Trinidad.

Isnardia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth bell-shaped, half four-cleft; divisions ovate, spreading. *Corolla:* none, unless the calix be so termed. *Stamina:* filamenta four, growing from the middle of the calix; antheræ simple. *Pistil:* germen inferior; style simple, longer than the stamina; stigma thickish. *Pericarp:* capsule four-cornered, obtuse, covered by the calix, and crowned, four-celled, four-valved; valves obscurely keeled, thick, fungous, attenuated on the margin; partitions opposite to the valves. *Seeds:* very many, oblong, sharp, affixed to the pillar. Essential Character. *Calix:* four-cleft. *Corolla:* none. *Capsule:* four-celled, covered by the calix.——The only known species is,

1. Isnardia Palustris. Flowers axillary, opposite, sessile, and green. It is creeping and floating; and has been determined by Swartz to be a species of Ludgwigia, frequent in the rivers of Jamaica, with petals to the flower, though fugacious. Annual.—Found in the rivers of Italy, France, Alsace, Russia, Jamaica, and Virginia.

Isoetes; a genus of the class Cryptogamia, order Filices.—Generic Character. *Male Flowers,* solitary, within the base of the inner leaves. *Calix:* scale cordate, acute, sessile. *Corolla:* none. *Stamina:* filamenta none; antheræ roundish, one-celled. *Female Fowers,* solitary, within the base of the outer leaves of the same plant. *Calix:* as in the males. *Corolla:* none. *Pistil:* germen ovate, within the leaf. *Pericarp:* capsule subovate, two-celled, concealed within the base of the leaf. *Seeds:* numerous, globular. Essential Character. *Male. Antheræ:* within the base of the frond. *Female. Capsule:* two-celled within the base of the frond.——The species are,

1. Isoetes Lacustris; *Common Quillwort.* Leaves awl-shaped, semicylindrical, curved back. Root fibrous; fibres numerous, simple, slender, striking deep into the mud; leaves in thick tufts, extremely like young Rushes, at the base swelling into a kind of bulb, covered by a thin skin, filled with numerous whitish minute seeds. The edges of the inflated base of the outer leaves, where the female flowers reside, form a thin fine membrane, which so closely embraces the gibbous part of the inner leaf, where the male flower is found, as to exclude the water; and by this admirable contrivance, the flowers of each sex are not only near each other, but, though at the bottom of a lake, are kept perfectly dry. Flowering from May to September.—Native of the mountain lakes in the north of Europe; and, with us, of those in Westmoreland, Cumberland, Wales, and Scotland.

2. Isoetes Coromandeliana; *Coromandel Quillwort.* Leaves filiform, erect, smooth. This is larger than the preceding, which it very much resembles.—Native of Coromandel, in wet places that are inundated in the rainy season.

Isopyrum; a genus of the class Polyandria, order Polygynia.—Generic Character. *Calix:* none. *Corolla:* petals five, ovate, equal, spreading, deciduous; nectaries five, equal, tubular, very short, with a three-lobed mouth, the outer lobe larger, the receptacle inserted within the petals. *Stamina:* filamenta numerous, capillary, shorter than the corolla; antheræ simple. *Pistil:* germina very many, ovate; styles simple, the length of the germen; stigmas blunt, the length of the stamina. *Pericarp:* capsules several, lunulate, recurved, one-celled. *Seeds:* very many. *Observe.* This genus is very nearly allied to that of *Helleborus,* but extremely different in habit. Essential Character. *Calix:* none. *Petals:* five. *Nectary:* trifid, tubular. *Capsule:* recurved, many-seeded.—To propagate these plants, sow the seeds in a shady border soon after they are ripe, or permit them to scatter; and when they come up, keep them clean from weeds.——The species are,

1. Isopyrum Fumaroides. Stipules awl-shaped; petals acute. Leaves shaped like those of Fumitory, small, and of a gray colour; the stalk is naked to the top, where there is a circle of leaves just under the flowers, which are small, of an herbaceous colour on the outside, and yellow within; they appear in the beginning of April, and ripen seeds in May. Annual: three or four inches high.—Native of Siberia.

2. Isopyrum Thalictroides. Stipules ovate; petals obtuse. Stem commonly single, near a foot high, terminating in a few spreading slender peduncles, each bearing one small flower; the petals of which, from five to six in number, are first white, but turn to red or purple. All the leaves have a pale roundish stipule on each side; stamina from thirty to thirty-six. It flowers at the end of March, and ripens seed in May. Perennial.—Native of the south of Europe, and found also in Austria, flowering in April or May.

3. Isopyrum Aquilegioides. Stipules obsolete. Stem a long span in height, slender, having two or three short, entire, stipular leaves on it, and a single blue flower five times less than that of the preceding. It is the Aquilegia Viscosa of Linneus.—Native of the mountains of Switzerland, Moravia, Trent, and the Apennines, in meadows, flowering in the spring.

Itea; a genus of the class Pentandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, five-cleft, upright; segments lanceolate, acute, permanent, coloured. *Corolla:* petals five, sessile, lanceolate, acuminate, spreading, deciduous. *Stamina:* filamenta five, awl-shaped, upright, the length of the corolla, inserted into the base of the

calix; antheræ roundish, incumbent. *Pistil:* germen ovate, superior; style permanent, cylindrical, the length of the stamina; stigmas two, blunt. *Pericarp:* capsule ovate, longer than the calix, mucronated by the style, two-celled, two-valved, many-seeded. *Seeds:* very small, oblong, shining. *Observe.* The second species has the petals inserted, not into the calix, but the receptacle; the style bifid, and the capsule not opening. ESSENTIAL CHARACTER. Capsule two-celled, two-valved, many-seeded; stigma emarginate. ——The species are,

1. Itea Virginica; *Virginian Itea.* Leaves ovate, acute, serrate. This shrub is six or seven feet high, sending out many branches from bottom to top; at the extremity of the same year's shoots, in the month of July, are produced fine spikes of white flowers, three or four inches long, and erect. When this shrub is in vigour, it is entirely covered with these flowers, and makes an elegant appearance.—Native of North America. It will live in the open air in England, but will not thrive upon dry gravelly ground. It is propagated by layers; these, if put down in the autumn, will put out roots, so as to be fit to remove in the following autumn, when they may be transplanted to a nursery, or to the place where they are to remain.

2. Itea Cyrilla; *Entire-leaved Itea.* Leaves lanceolate, entire, membranaceous. A shrub, three feet high; stem upright, somewhat branched, round, ash-coloured; flowers scattered, pedicelled, spreading, white, two or three lines in diameter; petals longer than the calix; racemes very many, lateral, at the base of the new shoots, one from each bud, on short peduncles, spreading, four to six inches long.—Native of Carolina and Jamaica. It requires the protection of a green-house; and may be increased by layers and cuttings.

Iva; a genus of the class Monœcia, order Pentandria.—GENERIC CHARACTER. *Calix:* common roundish; leaflets about five, subovate, blunt, almost equal, permanent, containing very many florets. *Corolla:* compound, convex; corollets, male very many in the disk; female five in the ray: proper, males one-petalled, funnel-form, five-toothed, the length of the calix; females none. *Stamina:* males, filamenta five, bristle-shaped, the length of the corollet; antheræ erect, approximating. *Pistil:* females, germen oblong, the length of the calix; styles two, capillary, long; stigmas acute. *Pericarp:* none; calix unchanged. *Seeds:* solitary, naked, the length of the calix, at top thicker, blunt. *Receptacle:* chaffy; chaffs linear, interior. ESSENTIAL CHARACTER. *Male Calix:* common, three or five leaved. *Corolla:* of the disk one-petalled, five-cleft. *Receptacle:* with hairs or linear chaffs. *Female:* in the ray, five, or fewer. *Corolla:* none. *Styles:* two, long. *Seeds:* naked, blunt.——The species are,

1. Iva Annua; *Annual Iva.* Leaves lanceolate-ovate; stem herbaceous. Branches from the sides of the stalk; both branches and stalks are terminated by small clusters of pale blue flowers, which appear in July, and the seeds ripen in autumn.—Native of South America and the West Indies. Sow the seeds on a moderate hot-bed, and, when the plants are fit to remove, transplant them to another hot-bed, and treat them as is directed for Impatiens.

2. Iva Frutescens; *Shrubby Iva,* or *Bastard Jesuit's Bark Tree.* Leaves lanceolate; stem shrubby. Branches terminated by small clusters of pale purple flowers, which appear in August.—Native of Virginia and Peru. This shrub has been preserved in the green-house, though it seldom suffers from the cold of our ordinary winters, if planted in a dry soil and a sheltered situation. If the branches be laid in the spring, they will put out roots in six months; or if the cuttings be planted in a border in May, they will take root.

Judas Tree. See *Cercis.*

Juglans; a genus of the class Monœcia, order Polyandria.—GENERIC CHARACTER. *Male Flowers: Calix:* ament cylindrical, imbricate, scattered all round, with one-flowered scales, turned outwards; perianth elliptic, flat, six-parted; segments upright, concave, blunt. *Corolla:* none. *Stamina:* filamenta many, eighteen to twenty-four, (or, according to Gærtner, twelve to twenty-four,) very short; antheræ oval. *Female Flowers:* heaped. *Calix:* perianth one-leafed, bell-shaped, four-cleft, upright, very short, one-flowered. *Corolla:* one-petalled, four-cleft, upright, acute, a little larger than the calix. *Pistil:* germen oval, large, inferior; style very short; stigmas two, large, reflex, jagged at top. *Pericarp:* drupe dry, oval, large, one-celled. *Seed:* nut very large, roundish, netted, grooved, half four-celled; (according to Gærtner, corticated, two-valved;) nucleus four-lobed, variously grooved. ESSENTIAL CHARACTER. *Male. Calix:* one-leafed, scale-form. *Corolla:* six-parted. *Filamenta:* eighteen. *Female. Calix:* four-cleft, superior. *Corolla:* four-parted. *Styles:* two. *Drupe:* with a grooved nucleus. ——The species are,

1. Juglans Regia; *Common Walnut-tree.* Leaflets about nine, oval or oblong, smooth, subserrate, almost equal, the odd one petioled. A large and handsome tree, with strong spreading boughs. Leaves pinnate, with a very strong but not unpleasant smell; leaflets three pairs (sometimes two or four) nearly equal, entire, smooth, and shining; male flowers in close pendulous subterminating aments; females scattered, frequently two or three together; fruit an ovate, coriaceous, smooth drupe, enclosing an irregularly-grooved nut, which contains a four-lobed oily eatable kernel, with an irregular knobbed surface, and covered with a yellow skin.—The varieties of the common Walnut are, the large Walnut, the thin-shelled Walnut, the double-bearing Walnut, and the late-ripe Walnut. They all vary again when raised from the seed, and nuts from the same tree will produce different fruit: persons therefore who plant the Walnut for its fruit, should choose their trees in the nurseries, while they have their fruit upon them. The flowers begin to open about the middle of April, and are in full blow by the middle of May, before which time the leaves are fully displayed. Even in the south of France, this tree is frequently injured by spring frosts; and to avoid this, the Swiss engraft the common stocks with the late-ripe variety, which does not produce its fruit before the month of May or June. This might probably be too late for us; but in those climates, where, though they are warmer than ours, the olive will not succeed, and where the fruit of the Walnut is therefore of much consequence for the oil which it yields, it may be worth attending to. In France and Switzerland the wood is still in as great request for furniture, as it formerly was in England, until superseded by Mahogany. It is of singular use with the joiner for the best-grained and coloured wainscot; with the gunsmith, for stocks; with the coach-maker, for wheels and the bodies of coaches. The cabinet-maker uses it for inlaying, especially the firm and close timber about the root, which is admirable for flecked and cambleted works. To render this wood the better coloured, joiners put the boards into an oven after the batch is drawn, or lay them in a warm stable; and, when they work it, polish it over with its own oil very hot, which makes it look black and sleek, and the older it is, the more estimable: but then it should not be put in work till thoroughly seasoned, because it is very liable to shrink. It is most unfit for beams or joints, because of its brittleness. The enormous size to which this tree will grow,

and the prodigious quantity of timber it will produce, may be judged from what Evelyn reports, that Scamozzi, the Italian architect, saw a table of Walnut tree in Lorrain, twenty-five feet in breadth, all of one piece, and of competent length and thickness! The younger timber is held to make the better coloured work; but the older, being more firm and close, is finer cambleted for ornament. Those trees which are raised from the thick-shelled fruit become the best timber; but the thin-shelled yield better fruit. Besides the uses of the wood, the fruit, when tender and very young, is used for preserves. The oil is of extraordinary use with the painter, in whites and other delicate colours, also for gold-size and varnish, and for polishing walking-sticks and other works which are wrought in with burning. They fry with this oil in some places, in others they eat it instead of butter; and at Berry in France, where they have little or none good; they plant these trees all over the country for that very purpose, as well as to supply their lamps with oil. The unripe fruit has been long eaten pickled: and is directed for medicinal use by the London College as an anthelminthic; and many authors recommend it for destroying worms. An extract is the most convenient preparation, as it may be kept for a sufficient length of time, and made agreeable to the stomach by mixing it with cinnamon-water. In this state the Walnut is also said to be laxative, and of use in apthous affections and sore throats. The vinegar in which they have been pickled is a very useful gargle. The kernel is similar in qualities to the almond; the oil also does not congeal by cold, and answers the medicinal purposes of the oil of almonds. The bark, says Hill, taken either in substance, when dried and powdered, or made into a strong infusion and drank, vomits easily and plentifully; and the bitter skin with which the kernels are covered may be given in doses of three drachms, for allaying fluxes. The husks and leaves being macerated in warm water, and that liquor poured on grass-walks and bowling-greens, infallibly kills the worms, without endangering the grass. This, says Dr. Hunter, arises not from any thing peculiarly noxious in the decoction, but worms cannot bear the application of any thing bitter to their bodies; which is the reason that bitters, such as gentian, are the best destroyers of worms lodged in the bowels of animals. Worms are seldom observed in the intestines of the human body, excepting in cases where the bile is either weak or deficient. The dye made of this lixive will colour woods, hair, and wool; and the green husks boiled, make a good colour to dye a deep yellow without any mixture. Those nuts which come easily out of their husks, should be laid to mellow in heaps, and the rest exposed in the sun till the shells dry, else the kernels will be apt to perish; some again preserve them in their own leaves, or in a chest made of Walnut-wood; others in sand, especially for a seminary. Old nuts are not wholesome till macerated in warm water; but, if you bury them in the earth in pots, out of the reach of the air, and so as no vermin can attack them, they will remain remarkably plump the whole year round, and may be easily blanched. In Spain they strew the gratings of old and hard nuts, first peeled, into their tarts and other meats. For the oil, one bushel of nuts will yield fifteen pounds of peeled and clear kernels, and these half as much oil, which, the sooner it is drawn, will produce more plentifully, but not of so good a quality as when the nut is drier. The lees or marc of the pressing is excellent to fatten hogs with. After the nuts are beaten down, the leaves should be swept into heaps, and carried away, because their extreme bitterness impairs the ground.—Little use having been made of the wood during late years, the old trees that have been cut down have not been always replaced by young ones, and thus the plantations of this tree have gradually diminished. The wood is now principally used for making gun-stocks; and the fruit being eaten only ripe in desserts, or green in pickles, there is not so much call for it as there was formerly. The English name Wall-nut, is a corruption of *Gaul-nut;* which leads us to conclude that it was imported from France into Great Britain. The French call the tree *noyer,* and the fruit *noix;* as the Romans called it exclusively *nux,* or *The Nut;* the Germans name it *wall-nuss,* or *welsche nuss.* Its native place of growth is uncertain, but Persia seems the most probable. It is much cultivated in some parts of Italy, France, Germany, and Switzerland. In several places between Hanau and Frankfort, in Germany, no young farmer is permitted to marry a wife, till he bring proof that he has planted a stated number of Walnut-trees. It was formerly much cultivated in England, particularly on the chalk-hills of Surry.—*Propagation and Culture.* These trees are propagated by planting their nuts, which seldom produce the same sort of fruit as is sown; so that the only way to secure the desired sort, is to sow the nuts of the best kinds; and if this be done in a nursery, the trees should be transplanted out when they have had three or four years' growth, to the place where they are designed to remain; for these trees do not bear transplanting when they are of a large size; therefore there may be a good number of the trees planted, which need not be put at more than six feet apart, as that will be far enough asunder for them to grow until they produce fruit; when those, the fruit of which is of the desired kind, may remain, and the others cut up to allow them room to grow: by this method a sufficient number of the trees may be generally found amongst them to remain, which will thrive and flourish greatly when they have room. But as many people do not care to wait so long for the fruit, the next best method is to make choice of some young trees in the nurseries, when they have their fruit upon them; but though these trees will grow and bear fruit, yet they will never be so large, or so long-lived, as those which are planted young. All the sorts of Walnuts which are propagated for timber, should be sown in the places where they are to remain; for the roots of these trees always incline downward. If the roots be stopped or broken, it will prevent their aspiring upward, so that they afterwards divaricate into branches, and become low spreading trees; but such as are propagated for fruit, are greatly improved by transplanting, which causes them to produce larger fruit, and in greater abundance; and it is a common observation, that downright shoots greatly encourage the luxuriant growth of timber in all sorts of trees; but such trees as have their roots spreading near the surface of the ground, are always the most fruitful and best flavoured. The nuts should be preserved in their outer covers in dry sand till February; when they should be planted in lines, at the distance you intend them to remain; but in the rows they may be placed pretty close, for fear the nuts should miscarry; and the young trees, where they are too thick, may be removed, after they have grown two or three years, leaving the remainder at the distance they are to stand. In transplanting these trees, observe never to prune either their roots or large branches, both which are very injurious to them; nor should you be too busy in lopping or pruning the branches, when grown to a large size, for that often causes them to decay; but when it is necessary to cut off any of the branches, it should be done early in September, (for at that time the trees are not so subject to bleed,) that the wound may heal over before the cold increases: the branches should always be cut off quite close to the trunk, otherwise the stump which

is left, will decay, and rot the body of the tree. The best season for transplanting these trees, is as soon as the leaves begin to decay, when, if they be carefully taken up, and their branches preserved entire, there will be little danger of their succeeding, although they be eight or ten years old; but it must be remarked, that trees removed at that age, will neither grow so large, nor continue so long, as those that are removed when younger. This tree delights in a firm, rich, loamy soil, or such as is inclinable to chalk or marl; and will thrive very well in stony ground, and on chalky hills, as in the large plantations near Leatherhead, Godstone, and Carshalton, in Surry, where great numbers of those trees are planted upon the downs, and annually produce large quantities of fruit. The distance between these trees ought not to be less than forty feet, especially if regard be had to their fruit; though when they are only designed for timber, if they stand much nearer it promotes their upright growth. The Black Virginian Walnut is much more inclined to grow upright than the common sort, and the wood being generally of a more beautiful grain, renders it preferable to that, and better worth cultivating. Some of the wood is so beautifully veined with black and white, that, when polished, it appears at a distance like polished marble. The cabinet-makers esteem it highly for inlaying, as well as for bedsteads, stools, chairs, tables, and cabinets, for all which purposes it is one of the most durable woods of English growth, and less liable to be infested with insects than most other kinds, which is probably owing to its extraordinary bitterness: but it is not proper for buildings of strength, being liable to break off very short. The general opinion is, that the beating off the fruit improves the trees; which is improbable, because in doing it the younger branches are generally broken and destroyed; but as it would be exceedingly troublesome to gather it by hand, so in beating it off great care should be taken that it be not done with violence, for the reason before assigned. In order to preserve the fruit, it should remain upon the trees till it is thoroughly ripe, when it should be beaten down, and laid in heaps for two or three days; after which it should be spread abroad, and in a little time the husks will easily part from the shells: they should then be well dried in the sun, and laid up in a dry place, secured from mice and other vermin; in this place they will remain good for four or five months. If put into an oven gently heated, and, after remaining four or five hours to dry, be packed up in oil-jars or any other close vessel, mixing them with dry sand, they will keep good six months. The oven dries the germen, and prevents their sprouting, but when too hot will cause them to shrink. In setting the nuts, Dr. Hunter recommends drills to be made at one foot asunder, and two inches and a half deep, into which put the nuts four inches apart. Evelyn advises some chopped furze to be mixed with them, to preserve them from vermin. The spring following, the plants will come up; and in two years they will be of a proper size to plant out in the nursery. There, having shortened their tap-roots, plant them in rows two feet and a half asunder, and at the distance of a foot and a half in the rows. Here they may remain till they are of a proper size for their final planting. If they are to be planted in fields, they should be risen out of the reach of cattle before they are removed from the nursery, which should be done with great caution; the knife should be very sparingly applied to the roots, and they should be planted as soon as possible after taking up, soon after the fall of the leaf. In raising the Walnut for fruit, Mr. Boutcher recommends flat stones, tile-sherds, or slates, to be buried eight inches deep under the nuts when they are set, the distance to be six inches, and the depth two inches. After two seasons, remove them early in autumn, and plant them fourteen or sixteen inches asunder, on the same kind of bottom, or any hard rubbish, to prevent them from striking downwards, and cause them to spread their roots on the surface. At the end of two or three years repeat this again, making the bedding at the depth of fifteen or sixteen inches, and planting them two feet asunder: here let them remain for three or four years, when they will be fit to remove for the last time. The soil for fruit should be dry and sound, with a sandy, gravelly, and chalky bottom. The trees managed in this way will have higher-flavoured fruit, that ripens earlier, and they will bear a plentiful crop, twenty years sooner than in the usual method. The best manure for them is ashes, spread at the beginning of the winter after the lands have been first ploughed or dug. As the plants raised from nuts of the same tree will bear fruit of very different qualities, Mr. Boutcher advises the inarching of one of the best sorts on the Common Walnut-tree; by which method the planter is both sure of his sort, and will have fruit in one third of the time in which he could obtain it from the nut. This however is only practicable in a few situations; and a Walnut-tree is generally about twenty years in bearing fruit from the nut. If these trees be intended to form a wood, for which purpose they answer extremely well, Dr. Hunter advises to take them out of the nursery when they are three or four feet high, to replant them three yards asunder, and thin them when their heads begin to interfere; this method will draw up these large and branching trees with beautiful stems to a great height. For raising timber, Mr. Boutcher's plan is, to set the nuts in February, in drills five feet asunder, eighteen inches distant in the rows, and two or three inches deep, taking up every other plant after two years. They may then stand thus four or five years longer, the ground between being cropped with turnips, cabbages, or other kitchen-garden plants. From time to time, the least promising may be cut off below ground, when they are near touching each other, till they are left at the distance of thirty feet.——All the other sorts of Walnuts are propagated in the same way, but as few of them produce fruit in England, their nuts must be procured from North America. They should be gathered when fully ripe, and put up in dry sand, to preserve them in their passage to England. The sooner they are planted after their arrival, the greater chance there will be of their succeeding: when the plants come up, keep them clean from weeds. If they shoot late in the autumn, and their tops are full of sap, cover them with mats or other light covering, to prevent the early frosts from pinching their tender shoots, which often causes them to die down a considerable length before spring; but if they are screened from these early frosts, the shoots will become firmer, and better able to resist the cold. Some of the sorts being tender while young, require a little care for the two first winters, but afterwards will be hardy enough to resist the greatest cold of this country. The black Virginia Walnut, which is the most valuable, is as hardy as the common sort. They all require the same culture as the Common Walnut; but grow best in a soft loamy soil, not too dry, and where there is a depth of soil for their roots to run down. The Hickory when young is very tough and pliable, sticks of it are therefore much esteemed; but the wood, when large, being very brittle is not of any great use.

2. Juglans Alba; *White Walnut-tree*, or *Hickory*. Leaflets seven, lanceolate, serrate, the odd one sessile. The leaves differ from the common sort, in being serrated, narrower,

and sharper-pointed. The fruit is shaped like the Common Walnut, but the shell is not furrowed, and is of a light colour. It is a tall tree, and often grows to a large bulk, the body being from two to three feet in diameter. The kernel is sweet and well-tasted: the Indians draw a wholesome and pleasant oil from it, and store up the nuts for winter provision. Hogs, squirrels, and other animals, feed upon them. The wood, though coarse-grained, is much used for many agricultural implements. Of the saplings or young trees are made the best hoops. There is a variety, the branches of which are smaller and more spreading, but the leaves narrower, and the bark less wrinkled.—Native of North America.

3. Juglans Nigra; *Black Walnut Tree.* Leaflets many, (about fifteen,) oblong-lanceolate, serrate; fruits globular, valveless; nuts wrinkled; male ament sessile, simple; females peduncled. This tree grows to a large size. The leaves, when bruised, emit a strong aromatic flavour, as does also the outer cover of the nuts, which is rough, and rounder than that of the Common Walnut; the shell is very hard and thick, and the kernel small, but very sweet. Catesby remarks, that it seems to have taken its name from the colour of the wood, which approaches nearer to black than that of any other tree that affords so large timber, and is esteemed for making cabinets, tables, &c. Mr. Miller declares it to be the most valuable wood of all the sorts of Walnut, and that some of the trees are beautifully veined, and will take a good polish, while others have very little beauty. Its growth is remarkably quick; and the roots spread out horizontally to a considerable distance. Nothing will grow under its shade, and, when planted in an orchard, it destroys all the apple-trees that are planted near it. It appears to be much hardier than our Common Walnut-tree, for in Pennsylvania and New Jersey, when the Peach-trees, Hickories, and Mulberry-trees, have been much injured by frost, the Black Walnut has sustained no damage. At eight or ten years old it begins to bear plenty of fruit, and with age increases in fertility. Jacquin observed trees in New Jersey that were forty-four years old, nine fathoms high, and three ells and a half in diameter at the distance of an ell from the ground.—It is found in many parts of the American continent, particularly in North America, where it is much planted near houses for the shade.

4. Juglans Oblonga; *Oblong-fruited Walnut-tree.* Leaflets many, (six or eight pairs,) ovate-lanceolate, serrate, pubescent with the petioles; nuts deeply sinuate-grooved; leaves scentless.—Native of North America.

5. Juglans Cinerea; *Ash-coloured Walnut-tree.* Leaflets eleven, lanceolate, shorter on one side of the base. The leaves are rougher, and of a deeper green than those of the Black Walnut, and having nothing of the aromatic scent which they have. The fruit is very long, the shell deeply furrowed and very hard, and the kernels small, but well-flavoured. Jacquin says, that in habit, trunk, and bark, it is the same with the third species.—Native of North America.

6. Juglans Compressa; *Flat-fruited Walnut-tree.* Leaflets three pairs, lanceolate, serrate, smooth, nearly equal; fruit flatted. A tree, of a middle size. The young shoots are covered with a very smooth brownish bark, but the stems and older branches have so rough and scaly a bark, that it is called *Shagbark* in North America, where it is a native.

7. Juglans Angustifolia; *Narrow-leaved Walnut-tree.* Leaflets thirteen, linear-lanceolate, serrate, sessile, equal at the base; nuts elliptic. This is thought to be the same as, or a mere variety of, the preceding.—Native of North America.

8. Juglans Baccata. Leaflets in threes. This tree is in height about twenty feet, as thick as the human thigh; leaves terminating, always three together. The fruit hangs from the branches on peduncles an inch in length; it is yellowish, oval, as big as a nutmeg, having, under a very thin mucilaginous pulp, a large hard and woody shell.—Native of Jamaica.

9. Juglans Olivæformis. Leaflets numerous, lanceolate, subfalcated, serrated; fruit oblong, tetragonal; nut small, olive-shaped, smooth, with a very thin shell, and a delicious kernel. It blossoms in April and May.—Found on the banks of the Ohio, Mississippi, and other rivers in Upper Louisiana.

10. Juglans Sulcata. Leaflets obovate, lanceolated, acuminated, serrated; fruit subrotund, four-keeled; nut subglobular, large, slightly compressed; kernel finely tasted.—Found in the fertile valleys of the Alleghany mountains, where the Americans call it, *Thick-shell-bark Hickory*, *Springfield* or *Gloucester Nut.*

11. Juglans Amara. Leaflets ovate, oblong, acuminated, slightly serrated, smooth on both sides; fruit subglobose; nuts small; kernel bitter.—It grows in dry fertile woods, and on the mountains from New England to Maryland.

12. Juglans Porcina. Leaflets lanceolate, acuminated, serrated, glabrous; fruit pear-shaped or globose; nut smooth, and very hard. There are two varieties, one with the fruit globose, and the nut obcordated; and the other with the fruit turbinated, and the nut oblong.—Native of North America.

13. Juglans Aquatica. Leaflets narrow, lanceolate, acuminate, subserrate, sessile; fruit pedunculate, ovate; kernel extremely bitter.—Found in the swamps and rice-fields of America. Michaux calls it, *Water Bitter-nut Hickory.*

14. Juglans Myristicæformis. Leaflets ovate-lanceolate, acuminate, serrate, smooth; fruit oval, rugose-scabrous; nut brown, with white lines, oval, slightly acuminated, very hard. It is called the *Nutmeg Hickory*, and is but little known.—Native of South Carolina.

Juncus; a genus of the class Hexandria, order Monogynia.—Generic Character. *Calix:* glume two-valved; perianth six-leaved; leaflets oblong, acuminate, permanent. *Corolla:* none, unless the coloured perianth be regarded as a corolla. *Stamina:* filamenta six, capillary, very short; antheræ oblong, erect, the length of the perianth. *Pistil:* germen three-cornered, acuminate; style short, filiform; stigmas three, long, filiform, villose, bent in. *Pericarp:* capsule covered, three-sided, three or one-celled, three-valved. *Seeds:* some, roundish. Essential Character. *Calix:* six-leaved. *Corolla:* none; capsule one-celled. These plants agree with the Grasses in the glumes of their flowers, and the sheaths of their leaves: they differ in having the stems filled with pith, whereas the stems of Grasses are always hollow. The Rushes naturally form two divisions, one without leaves, and the other with leafy stems; which has induced some authors to divide them into two genera; but all classical botanical writers, says Dr. Smith, have judiciously preserved this very natural genus entire, notwithstanding the capsule is in some species one-celled, in others three-celled.——The species are,

* *With naked Culms.*

1. Juncus Acutus; *Prickly Large Sea Rush.* Culm round, almost naked; panicle conglomerate, with almost equal branches; involucre two-leaved, spinose; seeds ovate. Root perennial.—Native of France, Italy, Carniola, and of Wales, on the coast of Merionethshire.

2. Juncus Maritimus; *Hard Sea Rush.* Culm round, almost naked; panicle with unequal branches, one twice as long as the rest; involucre spinose; seeds lanceolate. The leaves are extremely rigid and sharp. It is found on the west coast of Wales; in the salt marshes about Maldon in Essex; on the coast of Norfolk and Lancashire; and is planted on the sea-banks in Holland. The roots run deep into the sand,

and mat so much, that they hold it together. On the Maese, &c. they grow upwards of four feet high; and in the summer, when they are fully grown, the Dutch cut them, tie them up in bundles, dry them, and work them into baskets, &c.

3. Juncus Conglomeratus; *Round-headed Rush.* Culm naked, stiff; head lateral. Root perennial, horizontal, close, covered with ovate scales; fibres filiform, very long; head of flowers roundish.—Native of Europe, on moist meadows and heaths.

4. Juncus Effucus; *Common Soft Rush.* Culm naked, stiff, smooth; panicle lateral, scattered, close; root-scales opaque. Culm three feet high, easily broken, filled with a soft pith. Flowers brownish; seeds fulvous. They are sometimes used for making little baskets; and the pith of both makes wicks for watch-lights, and toys.—This, and the next species, both grow on moist, strong, uncultivated lands, in most parts of England, and consume the herbage where they are suffered to remain. The best method of destroying them is, to fork them up clean by the roots in July, and, after having let them lie a fortnight or three weeks, to put them in heaps, and burn them gently: the ashes will be good manure for the land. But to prevent their growing again, and to make the pasture good, the land should be drained; and then, if the roots be annually drawn up, and the ground kept duly rolled, the Rushes may be subdued. They flower in July and August.—Native of Europe, in wet meadows, marshes, &c.

5. Juncus Tenax; *Common Hard Rush.* Culm naked, stiff, striated; panicle lateral, thin; root-scales shining. Root perennial.—It is common in pastures and by road-sides, in a moist soil, in England, Madeira, and New Zealand.

6. Juncus Inflexus; *Bending Soft Rush.* Culm naked, membranaceous, and curved in at top; panicle lateral. Roots tufted; flowers abundant, on many peduncles, issuing from a cleft in the culm. This has often been mistaken for the preceding.—Native of the south of Europe, in clear water, upon a strong soil.

7. Juncus Filiformis; *Least Soft Rush.* Culm naked, filiform, nodding; panicle lateral. Roots perennial, horizontal, creeping; peduncles mostly simple, bearing one flower, rarely more, triangular, furnished with a few sheath-like scales at their base; seeds small, numerous.—Native of Lapland, Switzerland, Germany, Italy, and Britain, where it has been observed on turf-bogs near Ambleside in Westmoreland; at Windermere in Cartmel; near Derwentwater in Cumberland; and on Ben Lawers in Scotland.

8. Juncus Trifidus; *Three-flowered Rush.* Culm naked; leaves and three flowers terminating. Root perennial, woody, striking deep, creeping with blackish fibres, putting forth close tufts of stems and leaves.—Native of Lapland, Denmark, Switzerland, France, Silesia, and of Scotland on the summits of the Highland mountains.

9. Juncus Squarrosus; *Moss Rush*, or *Goose Corn.* Culm naked; leaves bristle-shaped; heads glomerate, leafless. Root perennial. Horses are said to eat it. It indicates a barren soil; and the leaves, lying close to the ground, elude the stroke of the scythe.—It flowers in June and July; and is found on moist heathy ground, and turf-bogs, all over Europe.

10. Juncus Punctorius; *Prickly Rush.* Culm naked, round; leaf round, jointed, mucronate; panicle glomerate. Root-leaves none.—Native of the Cape.

11. Juncus Bicornis. Culm erect, naked; leaves subcetaceous, cæniculate, plain; involucre cetaceous, diphyllous, erect; flowers distinct; calix linear, lanceolate, very sharp.—Found in Carolina and Georgia, in sandy wet fields near ponds.

12. Juncus Setaceus. Culm naked, filiform, waving; umbels lateral, compound, with but few flowers; peduncles with many flowers; calix subulate.—Found in low grounds from Virginia to Canada.

13. Juncus Marginatus. Leaves plain, glabrous; corymb terminal, simple, proliferous.—Found on dry shady hills in Pennsylvania.

** *With leafy Culms.*

14. Juncus Nodosus; *Knotty Rush.* Leaves knotted, jointed, petals mucronate.—Native of North America.

15. Juncus Compressus; *Lesser Jointed Rush.* Culm leafy, decumbent; leaves compressed, knotted-jointed; panicle compound. Root perennial, horizontal, woody, round, fibrose.—Native of meadows and marshes.

16. Juncus Nemorosus; *Greater Jointed Rush.* Culm leafy, erect; leaves roundish, knotted-jointed; panicle superdecompound.—Native of moist woods.

17. Juncus Uliginosus; *Least Jointed Rush.* Culm leafy; flowers in bundles; bundles proliferous; leaves bristle-shaped, jointed-knotted. This differs from the two preceding species in having either all the flowers, or a few of them, growing out into green and purple bundles of leaves. It also frequently produces bunches of reddish leaves, instead of umbels of flowers, in bogs and ditches in the autumn. These leaves seem to put on this appearance from some obstruction in the growth of the plant, occasioned by an insect of the Coccus tribe.—Native of wet heaths and bogs; as of Gamlingay heath, Bullington green, and Eynsham heath, &c.

18. Juncus Alpinus; *Alpine Jointed Rush.* Culm leafy; leaves sessile, jointed-knotted; panicle simple; glumes awned.—Native of the Alps, and mountains of Dauphiny.

19. Juncus Bulbosus; *Bulbous Rush.* Leaves linear, channelled; capsules blunt. Root perennial, horizontal, extremely fibrose; flowers solitary, small, coloured, terminating, most usually in threes, the middle one axillary, sessile. With us, this Rush varies in height from two inches to two feet, and is sometimes viviparous. It flowers in August.—Native of wet meadows, heaths, and of the sea-coast.

20. Juncus Bufonius; *Toad Rush.* Culm dichotomous; leaves angular; flowers solitary, sessile. Root annual, fibrose. It flowers from May to August.—Native of wet gravelly or sandy pastures, especially where water stagnates in winter.

21. Juncus Stygius. Leaves bristle-shaped, somewhat depressed; peduncles in pairs, terminating; glumes solitary, subbiflorous. Root perennial, simple, jointed, with solitary radicles, covered with the remains of the leaves of the preceding year. Linneus obtained it from Lapland.—Native of the woody bogs of Sweden.

22. Juncus Jacquini. Leaf awl-shaped; head terminating, four-flowered, or thereabouts. Root perennial, brown, horizontal, knobbed, sending forth very long fibres perpendicularly.—Native of the Alps; flowering in June.

23. Juncus Biglumis Leaf awl-shaped; glume two-flowered, terminating. Root perennial, fibrose, simple, perpendicular. Culm an inch high.—Native of the Lapland Alps.

24. Juncus Triglumis. Leaves flat; glume three-flowered, terminating. Culms in tufts, three inches high or more, soft, covered at the base with brown sheaths.—Native of the Lapland Alps, Denmark, Switzerland, Austria, Italy, and Siberia.

25. Juncus Pilosus; *Small Hairy Wood-Rush.* Leaves flat, hairy; corymb somewhat branched; flowers solitary. Root perennial, with numerous brown fibres, and short pointed shoots, so that it is somewhat creeping; culms many, about a span or more in length, nearly upright; root-leaves numerous, three or four inches long; flowers forming a spreading panicle. This is found only in woods and shady situations, which perhaps accounts for its flowering earlier than any of

the others; for unless the season be very unfavourable, it will begin to flower in February, and is not usually out of bloom till the beginning of May.

26. Juncus Spadiceus. Leaves flat, hairy from the sheath; flowers very small, corymbed, solitary, shortly awned. Culm not more than a foot high; root-leaves scarcely two lines in breadth, subhirsute.—Native of the Alps.

27. Juncus Sylvaticus; *Great Hairy Wood-Rush.* Leaves flat, hairy; corymb decompound; flowers in bundles, sessile. In some situations this species is very large and tall; but it more usually occurs with a stalk little more than a foot high. —It is not uncommon in woods, and flowers in May.

28. Juncus Niveus; *White-flowered Rush.* Leaves flat, somewhat hairy; corymbs shorter than the leaf; flowers in bundles. This is the handsomest belonging to the genus; culm three feet high.—Native of the Alps, of Switzerland, &c.

29. Juncus Campestris; *Hairy Field Rush.* Leaves flat, somewhat hairy; spikes sessile and peduncled. Root perennial, somewhat woody, with numerous blackish fibres, creeping; culm simple, from three to nine inches high; flowers ten or twelve in each spikelet, sessile: they appear in April and May, and ripen seeds in June. It indicates a dry and not luxuriant pasture. The hairs proceed from the edges of the leaves, and appear as if left by some animal in rubbing against them.—Most frequently found in dry pastures.

30. Juncus Spicatus; *Spiked Rush.* Leaves flat; spike racemed, nodding, composed of many flowers.—Native of Lapland, Denmark, and Scotland.

31. Juncus Serratus. Leaves ensiform, flat, serrate, hoary underneath; sheaths of the panicle awl-shaped, perfoliate. Culms leafy, round, as thick as the little finger, from four to six feet high.—Native of the Cape.

32. Juncus Grandiflorus. Leaf round; culm one-flowered; flower upright, single, naked. Scarcely a foot high, very smooth.—Native place unknown.

33. Juncus Polycephalus. Stalk erect, with but few leaves; leaves nodose, articulate; calices linear, triandrous. There are two varieties; one with thicker leaves, compressed, and the other with subfiliform leaves.—Found in inundated places from Pennsylvania to Carolina.

34. Juncus Aristatus. Root bulbous; stalk foliose, erect, compressed; leaves narrow, subcaniculated; panicles compound.—Found in the low grounds of Georgia and Carolina.

35. Juncus Tenuis. Stalk foliose, simple; leaves canaliculate; corymb terminal, dichotomous, shorter than the bractes; capsules oblong, obtuse, shorter than the calix.—Found in abundance in Georgia and Carolina.

36. Juncus Campestris. Leaves plain, pilose; spikes pedunculate, ovate, somewhat stooping.—Found on dry sunny hills from Pennsylvania to Carolina.

Jungermannia; a genus of the class Cryptogamia, order Algæ.—Generic Character. *Male Flowers:* sessile, clustered, on the leaves, stem, and frond. *Calix:* scarcely any. *Corolla:* none. *Stamina:* filamenta hardly any; antheræ ovate, one-celled, gaping at the tip. *Female Flowers,* on the same or on a separate individual. *Calix:* perianth upright, tubular, truncated, crenated or laciniated. *Corolla:* calyptra sessile, smaller than the perianth, subglobose, closed on every side, membranaceous, tender, crowned by the style, at length bursting at the tip. *Pistil:* germen oblong, involved by the calyptra, sessile; style straight, short, passing through the top of the calyptra; stigma simple. *Pericarp:* capsule seated on a long and very tender bristle, globose, one-celled, at length gaping longitudinally into four valves, which are equal, spreading, permanent. *Seeds:* many, globose, adhering by twisted elastic threads, fixed to the bottom, tip, disk, or margin of the valves. *Observe.* Several germina are often found in one perianth, of which, however, only one grows to maturity.—Thirty species of these Mosses are arranged in five subdivisions, in the fourteenth edition of the *Systema Vegetabilium.* Hudson enumerates thirty species, in the second edition of his *Flora Anglica;* and Dr. Withering, in his *Arrangement of British Plants,* describes 48 species, which he distributes into four divisions; many of which are beautiful objects of microscopic observation. It is thought that our native species amount to above sixty, and that in all 150 Jungermannia might easily be reckoned up.

Jungia; a genus of the class Syngenesia, order Polygamia Segregata.—Generic Character. *Calix:* common many-leaved; leaflets somewhat spreading, linear, obtuse, channelled, shorter than the partial perianth, involving three or four flowers; perianth partial, many-leaved, almost equal, many-flowered; leaflets oblong, channelled, obtuse, upright. *Corolla:* compound uniform; corollets hermaphrodite, equal; proper one-petalled, funnel-shaped; tube gradually widened; border two-lipped; the exterior division rolled back, longer, linear, toothed at the tip; the interior two-parted; the segments two, upright, sharp. *Stamina:* filamenta five, very short, inserted into the tube; antheræ connate. *Pistil:* germen inferior, linear, cornered; style filiform; stigmas two, revolute, obtuse. *Pericarp:* none. *Calix:* unchanged. *Seed:* solitary, cornered; down long, sessile, feathered. *Receptacle:* chaffy; chaffs resembling the calicine leaflets. Essential Character. *Calix:* common three-flowered. *Receptacles:* chaffy; florets tubular, two-lipped; outer-lip ligulate, inner two-parted.——The only known species is,

1. Jungia Ferruginea. Stems woody, covered with a ferruginous down; leaves alternate, petioled, remote, flat, rounded, five-lobed, cordate at the base; lobes rounded, blunt, hirsute, and underneath hairy; panicle terminating, large, decompound; heads of flowers small, heaped.—Native of South America.

Juniperus; a genus of the class Diœcia, order Monadelphia.—Generic Character. *Male.* *Calix:* ament conical, consisting of a common shaft, on which are disposed three opposite flowers in triple opposition, a tenth terminating the ament; each flower has for its base a broad, short, incumbent scale, affixed to the column of the receptacle. *Corolla:* none. *Stamina:* filamenta (in the terminal floscule) three, awl-shaped, united below into one body; in the lateral flowers scarce manifest; antheræ three, distinct in the terminal flower, but fastened to the calicine scale in the lateral ones. *Female.* *Calix:* perianth three-parted, very small, growing to the germen, permanent. *Corolla:* petals three, permanent, rigid, acute. *Pistil:* germen inferior; styles three, simple; stigmas simple. *Pericarp:* berry fleshy, roundish, marked on the lower part with three opposite obscure tubercles, (from the calix having grown there,) and at the tip by three teeth, (which before were the petals,) umbilicated. *Seed:* three ossicles, convex on one side, cornered on the other, oblong. Essential Character. *Male.* *Calix:* of the ament a scale. *Corolla:* none. *Stamina:* three. *Female.* *Calix:* three-parted. *Petals:* three. *Styles:* three. *Berry:* three-seeded, irregular with the three tubercles of the calix.——These plants are all propagated by sowing their seeds as soon as they are ripe, if they can be procured; for if kept until the spring before they are sown, they will not come up till the second year. The ground in which the seeds of the hardy sorts are sown, should be fresh and light, but it should not be dunged; when it is well dug and levelled, sow the seeds pretty thick, and sift some earth over them to the depth of half an inch; this bed will only require weeding,

and, towards the middle or latter end of April, some of the plants will appear above ground, though probably the greatest part of them may lie till the following spring before they come up: therefore the beds should be carefully weeded, and watered in very dry weather, which will greatly promote the growth of those plants that are up, and also cause the other seeds to vegetate; but if the bed in which these are sown, is much exposed to the sun, it should be shaded with mats in the day, for, when the plants first come up, they will not bear much heat. In this bed they should remain till the next spring, or second autumn, when you must prepare beds, into which they are to be transplanted, they should be also of light, fresh, undunged soil, well dug, cleansed from all noxious weeds, and levelled. In the beginning of October, which is the proper season for removing these plants, raise them up with a trowel, preserving as much earth as possible to their roots, and plant them into beds about five or six inches asunder each way, or eighteen inches by nine or ten, giving them some water, to settle the earth to their roots: if it should prove very dry weather, you must lay a little mulch upon the surface of the ground, round their roots, which will be very serviceable to the plants; but, as many of the seeds will be yet left in the ground where they are sown, the beds should not be disturbed too much, in taking up the plants: they may remain two years in these beds, observing to keep them clear from weeds: in the spring, stir the ground between them gently, that their roots may the more easily strike into it; after that, they should be transplanted, either into a nursery, at the distance of three feet row from row, and eighteen inches asunder in the rows, or into the places where they are to remain; the best season for transplanting them, we have already observed, is in the beginning of October: they should then be carefully taken up, preserving a ball of earth to their roots, and, when replanted, the roots should be mulched, which, if carefully attended to, and watering them in dry weather till they have taken root, will ensure their growth. They are extremely hardy in bearing cold, and will survive our severest winters, provided they are not planted in a moist or rich soil. Most of them may also be propagated by cuttings, which, if planted in autumn, or at the end of August, in a shady border, will take root: but those plants which are raised from cuttings will never grow so upright, nor to so large a size, as the plants that are raised from seeds; so that raising them by cuttings is practised on those only which do not perfect seeds in England. As several species grow to the height of eighteen or twenty feet, the procuring as many of the sorts as can be gotten from the countries of their growth, will be adding to the variety of our evergreen plantations, which cannot be too much propagated in England, where the winters are in general so temperate, that they may thrive to advantage; almost all of them are hardy enough to live in the open air, and are well worth propagating, as they add to the beauty and variety of a plantation, and especially as some of them rise to such a height that they may produce much useful timber, and may be adapted to such soils as will not suit any other trees. The tender sorts may also acquire strength to resist the frost, for we find many plants that will not live in the open air when first imported, become naturalized, and defy the severest cold of our variable climate. In order to increase the height of these trees, their under branches should be taken off, especially where they are inclined to grow strong; but they must not be kept very closely pruned, for that would retard their growth; for all these evergreen trees do more or less abound with a resinous juice, which, in hot weather, is very apt to flow out from such places as are wounded; so that it will not be advisable to take off many branches at once, especially in hot weather, when their sap would flow so plentifully as to render the trees weak and unhealthy.——The species are,

1. Juniperus Thurifera; *Spanish Juniper*. Leaves imbricate in four rows, acute. It grows to the height of twenty or thirty feet. Berries very large, black when ripe.—Native of Spain and Portugal.

2. Juniperus Barbadensis; *Barbadoes Juniper*. All the leaves imbricate in four rows, the younger ovate, the older acute. This has been confounded with the next species; but the berries are smaller, and of a light brown colour when ripe.—It is a native of the West Indies, where it rises to be one of the largest timber-trees; the wood is frequently fetched from thence by the inhabitants of North America, for building ships. It also grows in China and Japan.

3. Juniperus Bermudiana; *Bermudas Juniper*. Lower leaves in threes, upper in pairs, decurrent, awl-shaped, spreading, acute. The berries are produced towards the end of the branches, and are of a dark red colour, inclining to purple. The wood has a very strong odour, and was formerly in great esteem for wainscoting rooms and also for furniture.—Native of America. Dr. Patrick Browne says that it grows very plentifully in most of the blue mountains of Jamaica, where it is frequently cut down for planks, &c. He says, it is a good timber-wood, admired for its smell, lightness, and close even grain; very fit for wainscoting, and all the inward parts of cabinet-work. It is of a reddish colour, very sweet, and commonly known in England by the name of Cedar-wood. There are several sorts of wood called by that name; but this is the wood used for pencils, wainscoting rooms, and building staircases, because it continues sound longer than most other sorts of timber, which is perhaps owing to some extreme bitter in the resin with which the tree abounds; for it is very remarkable, that worms do not eat the bottoms of the vessels built with this wood, as they do those that are built with Oak, so that vessels built with it are the best for the West Indian seas; but unfortunately the wood is so brittle, and splits so much when struck with a cannon-ball, that it would not at all answer for ships of war. This tree is not only a native of Bermuda, but of the Bahamas.—They are propagated by seeds, in the same way as the first species, except that they should be sown in pots or tubs of earth, that they may be removed into shelter in the winter time, otherwise the young plants will be injured by hard frosts; but they will only require to be placed under a common hot-bed frame, where the glasses may be kept off, and the free air constantly admitted in fine weather: these seeds always remain in the ground till the second year before they come up, therefore the earth in the pots should not be disturbed; and in the summer time they should be placed in the shade, to prevent the earth from drying too fast; they should be often watered in very dry weather, but in small quantities at each time: the next spring, when the plants come up, they must be carefully cleared from weeds, and in dry weather refreshed with water; but should stand during the summer in a place defended from strong winds; and in winter, must be placed under frames, where they may be covered in hard frosty weather, but must have free air when the weather is mild: in the following April, transplant them each into a single halfpenny pot filled with fresh light earth, being careful to raise them up with a ball of earth to their roots; and when they are planted, water them, to settle the earth to the roots, and place the pots in a warm situation, defended from sun and wind; but if you can conveniently plunge the pots into a

moderate hot-bed, it will greatly promote their taking new root: they must be screened from the powerful heat of the sun till they have taken root, and may then be gradually exposed to the open air: if you suffer the pots to remain plunged all the summer, it will preserve the earth in them from drying so fast as it would, if they were set upon the ground. In October, you should again remove these plants into shelter, or else plunge their pots into the ground, under a warm hedge, where they may be protected from the cold north and east winds; and in the spring following, you must shift the plants into pots of a larger size, taking away some of the earth from the outside of the ball, and adding some fresh: after this, continue to manage them as was before directed, until you plant them out in the places where they are designed to remain, which should not be done till they are four or five years old, by which time they will be strong enough to bear the cold of our common winters. The reason for directing these plants to be preserved in pots, until they are planted out for good, is, because they are diffienlt to transplant, and, being tender, will require some shelter while young: and whoever observes the method here laid down, will find the plants so managed to gain two years' growth in six, from those raised in the open air, besides being less liable to be destroyed; and as the trouble and expense of raising them this way is not great, it is worth practising, since in a few years the trees will recompense the trouble.

4. Juniperus Chinensis; *Chinese Juniper*. Leaves decurrent, imbricate, spreading, clustered; stem-leaves in threes; branch-leaves in fours. A shrub three feet high, with twisted and very spreading branches.—Native of China.

5. Juniperus Sabina; *Savin*. Leaves opposite, erect, decurrent; the oppositions boxed. Mr. Miller makes two species of the Common or Cypress-leaved and Tamarick-leaved or Berry-bearing Savin, as he calls it: the former, he says, has been erroneously supposed to be a mere variety: it rises to the height of seven feet, and produces great quantities of berries, whereas the latter very rarely produces either flowers or seeds in our gardens. The latter seldom rises more than three or four feet high, sending out its branches horizontally to a considerable distanee every way. The berries are smaller than those of the Common Juniper, and the whole plant has a very rank odour when handled.—Native of the south of Europe, and the Levant. It is more powerful in its operations, as a medicine, than the Common Juniper, and has been much famed as an emmenagogue; it heats and stimulates the whole system very considerably, and is said to promote the fluid secretions. The leaves and tops have a very strong disagreeable smell, and a hot bitterish taste; they give out their active matter to watery liquors, and still more completely to rectified spirit. When distilled with water, they yield a large quantity of essential oil. Decoctions of the leaves inspissated to the form of an extract, retain a considerable share of their pungency and warmth, together with their bitterness, and have some degree of smell, but not resembliug that of the plant itself. On inspissating the spirituous tincture, there remains an extract consisting of two distinct substances; of which one is yellow, oily, bitterish, and very pungent; the other black, resinous, tenacious, less pungent, and very astringent. Though Savin has sometimes failed when used as an emmenagogue, it has also been sometimes found too powerful, so as to produce dangerous consequences. Dr. Home used it with great success in cases of amenorrhœa, given in powder, from a scruple to a drachm thrice a day. Upon the whole, therefore, Savin may be considered as a warm stimulant and aperient, particularly serviceable in uterine obstructions, proceeding from a laxity of the vessels, or a cold sluggish disposition of the juices. The distilled oil, in addition to the powers just mentioned, in doses of two or three drops, is a strong diuretic, and impregnates the urine with its smell. Country people give the juice, mixed with milk, to their children, in order to destroy the worms, which it generally carries off by stool. The leaves cut small, and given to horses mingled with their corn, destroys those troublesome vermin called the botts.—It may be propagated by slips, which will grow at any time. The upright Savin also may be increased by slips planted in moist weather in August, and kept shaded, and watered in dry weather afterwards. The striped Savin must be increased in the same way, from the branches which are the most variegated. They may also be raised by berries, when the plants produce any, and from these the most upright and best plants are raised. The Common Savin should not be neglected, because it is so very hardy as never to be injured by the severest frosts; and, as it spreads its branches near the ground, if the plants be placed on the borders of woods, they will have a good effect in winter, by screening the nakedness of the ground from sight.

6. Juniperus Virginiana; *Virginian Juniper*, or *Red Cedar*. Leaves in threes, fastened at the base, the younger ones imbricate, the older spreading. Berry dark blue, covered with a whitish resinous meal. Mr. Miller has two species. The first, he says, grows naturally in most parts of North America, where it is called Red Cedar, to distinguish it from a sort of Cypress, which is there called White Cedar; of this there are two varieties, one of which has leaves in every part like those of the Savin, and, upon being rubbed, emit a very strong ungrateful odour; this the Americans call Savin Tree. The second of Miller's species has leaves like the Swedish Juniper, but the upper leaves are like those of the Cypress; which difference it constantly retains. Sloane says, it grows to be one of the largest and highest timber trees in Jamaica, affording very large boards of a reddish-brown colour, close and firm contexture, shining, very odoriferous, extremely like Bermudas Cedar, but being towards its outsides of a paler colour, and looser contexture: it is much used for wainscoting rooms, making escritoires, cabinets, &c.; cockroaches and other insects disliking the smell of it. In its native country it grows to a great height; but with us there are very few trees that exceed thirty feet high, though there is no doubt of their growing larger, for they thrive very fast after the first three years. They are propagated by seeds, which must be procured from Virginia or Carolina, (for they seldom produce seeds in England,) and sown as was directed for the other Junipers: but as this seed cannot be procured in England till spring, so, when sown at that season, it remains in the ground until the succeeding spring before the plants appear; the beds therefore must remain undisturbed, and be kept clear from weeds, for it is sometimes two years after sowing before they come up. When the plants appear, they must be carefully weeded, and refreshed with water in dry weather, to forward their growth: in the following autumn, they should have a little rotten tan laid between them, to keep out the frost; in this bed the plants may remain till they have had two years' growth; they should then be transplanted into other beds, as directed for the other species, observing to preserve a ball of earth to their roots, and, after they are planted, to water them carefully in dry weather, and cover the surface of the ground with mulch, to prevent the sun and wind from drying the earth so as to affect their roots; they may remain two years in these beds, keeping them clear from weeds, and in winter laying fresh mulch upon the

surface of the ground round their roots, to preserve them from frost; by which, while the plants are so young, they are liable to be injured, if much exposed, but when they have acquired strength, they will resist the severest of our cold. After two years, they should be either removed into the nursery, (as was directed for the first species,) or transplanted where they are intended to remain, observing always to take them up carefully, otherwise they are subject to fail upon transplanting; as also to mulch and water the ground as before, until they have taken root; after which, they will require no further care, than only to keep the ground clear about their roots, and to prune up their side branches to make them aspire in height. The soil in which these trees are finally planted, should be fresh and light, but must not be dunged, especially at the time when they are planted, for dung is very injurious to them, unless it be quite rotted to mould: hence the mulch laid upon the surface of the ground should not be dung, but rather some old tanner's bark, or sea-coal ashes, which will prevent the frost from penetrating deep into the ground. These trees being thus managed, will, in a very few years, rise to a considerable stature, and will resist the sharpest frost of our climate exceedingly well; and, by the variety of their evergreen leaves, and manner of growth, will greatly add to the beauty of all plantations where they are rightly disposed: unfortunately, however, there are few persons who consider the different growth of the several trees with which they compose such plantations, so as to place the tallest-growing trees the backwardest from sight, and the next tallest next to them, gradually diminishing, till we come to the Common Juniper, and others of the same growth; whereby all the trees will be seen, and the gradual declivity of their tops will exhibit a verdant slope, and be much more agreeable to the sight, as well as more advantageous to the growth of the trees, than to place shrubs of humble growth near such plants as will grow to the first magnitude, and not only hide the shrub from sight, but overshadow and destroy it: nor can the distance which each requires be so justly proportioned any other way; for in this distribution, the larger trees being separated by themselves, may be placed at a due distance; and then those of a middling growth succeeding, may be accordingly allowed sufficient room; and the smaller, which are next the sight, being placed much closer, will hide the naked stems of the larger trees, and produce an agreeable effect to the eye.

7. Juniperus Communis; *Common Juniper.* Leaves in threes, spreading, mucronate, longer than the berry. It is a low shrub, seldom rising above three feet high; much branched, rigid, smooth, evergreen. The juice of the whole plant is a kind of turpentine. The male flowers are sometimes on the same flowers with the female, but at a distance from them: but they are commonly on distinct plants: the female flowers are succeeded by roundish berries, which are first green, but when ripe, of a dark purple colour. There are two varieties; the Swedish, or Tree-Juniper, and the Alpine, or Mountain Juniper, which are scarcely to be distinguished from the common sort; the first varies with narrower leaves and longer berries, the second with broader and thicker leaves and oval berries. When planted in a good soil, the Juniper will rise fifteen or sixteen feet high, and form a well-looking bushy shrub, which is easily transplanted, and bears cropping. Grass will not grow beneath it, but the Avena Pratensis destroys it. The wood is hard and durable, and the bark may be made into ropes. Spirit, impregnated with the essential oil of these berries, is every where known by the name of *gin.* Gum Sandarach, known under the name of Pounce, in its powdered form, is the produce of this shrub. Horses, sheep, and goats, feed upon this plant; several insects, as the Cimex Juniperus, Thrips Juniperina, and Coccinella Novempunctata, live upon it; indeed, sometimes the leaves of the calix grow double the usual size, approaching, but not closing, and the three petals fit exactly close, so as to keep the air from the Tipulæ Juniperi, or Juniper Spiders, which inhabit them. This plant is celebrated for its diuretic properties; the berries are principally used; and a spirit prepared from them is kept in the shops, and used plentifully in hydropic cases, and in diuretic draughts; these berries, boiled in water, yield a sweet decoction tasting very strongly of the Juniper; from this decoction, a quantity of sugar may be obtained: the berries are also considered as stomachic, carminative, and diaphoretic; of their efficacy in many hydropical affections, we have various relations from physicians of high authority, such as Du Verney, Boerhaave, Hoffman, and Van Swieten. Authors, however, do not seem agreed which preparation of the Juniper is most efficacious; some preferring the rob or inspissated decoction; of which the celebrated Cullen disapproved, alleging, that in boiling it loses great part of its essential oil, in which he thought the virtue of Juniper principally consisted. Hoffman, on the other hand, strongly recommends the rob, which he declares to be of great utility in weakness of the stomach and intestines, especially for elderly persons; but, as the modern practice generally depends on more powerful medicines, the Juniper being considered in a secondary view, it may perhaps be allowed that as good a form as any for its use, is that of a simple decoction, which either by itself, or with the addition of a small quantity of gin, may be a useful drink for hydropic patients. Medical writers have also recommended it in scorbutic cases, and in some cutaneous diseases; but in these cases, a decoction, prepared from the wood and the tops of the plant, is thought preferable to that from the berries. Linneus informs us, that his countrymen, the Swedes, prepared a beer from the berries, which they consider as very efficacious in scorbutic cases, and that the Laplanders drink infusions of Juniper berries, as we do tea and coffee, for the same purpose. Hill says, the berries are excellent in colicky complaints, and for the stone and gravel. He agrees with Hoffman in observing that the rob or jelly made from the berries is excellent in catarrhs, defluxions or humours on the lungs and breast, weakness and debility of the stomach and intestines, difficulty of making water in people of an advanced age, and other similar disorders. Juniper wine is sometimes made, and is said to be very wholesome.

8. Juniperus Oxycedrus; *Brown-berried Juniper.* Leaves in threes, spreading, mucronate, shorter than the berry. Height ten or twelve feet, branched the whole length. This shrub will be feathered from top to bottom, if left untouched from the first planting, or if not crouded with other trees. The leaves are awl-shaped, and finely spread open; they are also very short, sharp-pointed, and give the shrub a fine look; and the large brownish-red berries make a handsome appearance when they are ripe, being as large as a hazel-nut. —Native of Spain, Portugal, and the south of France.

9. Juniperus Phœnicea; *Phœnician Juniper*, or *Cedar.* Leaves in threes, obliterated, imbricated, obtuse. It grows with the branches in a pyramid. Ray thinks it scarcely distinct from the following species.—Native of the south of Europe and the Levant.

10. Juniperus Lycia; *Lycian Juniper*, or *Cedar.* Leaves in threes, imbricate on all sides, ovate, obtuse. The branches are erect, and covered with a reddish-brown bark; leaves

small, obtuse; male flowers at the ends of the branches, in a conical ament; and the fruit single from the axils below them, on the same branch; berries large, oval, brown. Pallas says it is difficult to distinguish it from the Savin; that the bruised leaves have the same smell; and that the principal difference consists in the greater thickness of the shoots, and in the leaflets being acute and less clustered. He says the leaves are never in threes with them.—Native of the south of France, the Levant, and Siberia. This is the species from which the gum resin, called Olibanum, is obtained; it has a strong smell, and a somewhat bitterish and pungent taste. Though not the same substance as is sold by the above name in the shops, it is supposed to have been the incense used by the ancients in their religious ceremonies, and has been adopted by the Roman Catholics in their churches, for similar uses. As a medicine, it has chiefly been used in disorders of the head and breast, and in hæmoptoes, and alvine and uterine fluxes, from a scruple to the amount of a drachm or more each dose. It has also been employed in plasters, and as an ingredient in various pills.

11. Juniperus Drupacea. Leaves in threes, spreading, acute, three times shorter than the drupe; nut three-celled. Stem frutescent, erect, branched; branches spreading; branchlets three-sided.—Native of Mount Cassius.

12. Juniperus Dauriea; *Siberian Juniper.* Leaves opposite, acute, imbricate, decurrent, spreading, awl-shaped. This is usually shrubby, with the stems lying prostrate on the rocks, the principal ones often the thickness of the human arm; branches thickish, testaceous; shoots green, dichotomous.—Native of Siberia.

Jupiter's Beard. See *Anthyllis.*

Jussieua; (Tree Primrose) a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-cleft, superior, small; leaflets ovate, acute, permanent. *Corolla:* petals five, roundish, spreading, sessile. *Stamina:* filamenta ten, filiform, very short; antheræ roundish. *Pistil:* germen oblong, inferior; style filiform; stigma headed, flat, marked with five streaks. *Pericarp:* capsule oblong, crowned, five-celled, gaping at the corners. *Seeds:* very many, disposed in rows. Essential Character. *Calix:* four or five parted, superior. *Petals:* four or five. *Capsule:* four or five celled, oblong, gaping at the corners. *Seeds:* numerous, minute.——The species are,

1. Jussieua Repens; *Creeping Jussieua.* Creeping: flowers five-petalled, ten-stamined; leaves ovate-oblong. Roots simple, filiform, short; stem branching, creeping; branches somewhat succulent, round, smooth; leaves scattered, small, entire, very smooth. The flowers are small and yellow. There is a variety with herbaceous, ascending, simple, even stems. They flower in spring.—Native of moist watery places in Jamaica; where, Brown says, it is frequent in our low lands about Plantain-garden river. This, with all the plants of the genus, should be sown early in the spring, in pots filled with a soft loamy soil, and plunged into a moderate hot-bed; but as the seeds often lie a whole year in the ground before they vegetate, the earth must be kept moist, and the glasses of the hot-bed shaded in the heat of the day, by which means their vegetation will be hastened. When the plants come up, and are fit to remove, they should be each planted into a small separate pot filled with light loamy earth, and plunged into a hot-bed of tanner's bark, where they should be shaded from the sun till they have taken new root, then have free air admitted to them every day, in proportion to the warmth of the season: water should be frequently given, but in small quantities. When the roots have filled these small pots, the plants should be removed into others a size larger, and if too tall to stand under the frames of the hot-bed, must be placed in the bark-stove, where they may remain to flower and perfect their seeds: for when the plants rise early in the spring, and are brought forward in hot-beds, all the sorts will flower, and perfect their seeds in the same year; which is better than to have them to keep through the winter.

2. Jussieua Tenella. Smooth: flowers five-petalled, subsessile; leaves opposite, linear-lanceolate, quite entire.—Native of Java.

3. Jussieua Peruviana. Upright: flowers five-petalled; peduncles leafy.—Native of Lima.

4. Jussieua Pubescens; *Hairy Jussieua.* Upright, villose: flowers five-petalled, ten-stamined, sessile. Stem usually brown, strong, four or five feet high, having several hairy, red, angular branches; this is set on every side with long, narrow, hairy-nerved leaves; flowers large, yellow.—Native of Jamaica.

5. Jussieua Suffruticosa; *Shrubby Jussieua.* Upright, villose: flowers four-petalled, eight-stamined, peduncled. It rises with a shrubby stalk three feet high, and sends out several side-branches; petals yellow.—Native of India.

6. Jussieua Erecta; *Upright* or *Red-stalked Jussieua.* Upright, smooth: flowers four-petalled, eight-stamined, sessile. Root annual; stem from two to four feet high, herbaceous, very much branched, four-cornered, smooth, reddish. Flowers abundant, yellow, small.—It is a vernal marsh-plant, native of Jamaica, and of the other West India Islands; also of the American continent; and of Ceylon, Java, and Japan.

2. Jussieua Inclinata. Upright, smooth: flowers four-petalled, eight-stamined, peduncled. Stem simple, round, thick, porous, watery, rooting at the lower joints; peduncles one-flowered. Annual.—Native of the marshes of Surinam.

8. Jussieua Octovalvis. Upright: flowers four-petalled, eight-stamined, peduncled; capsules many-valved; leaves lanceolate, acuminate. Flowers on short peduncles, large, yellow; seeds very many, roundish.—Native of South America and the West Indies, in marshy watery places.

9. Jussieua Hirta. Upright, hirsute; flowers four-petalled, eight-stamined; leaves ovate, acuminate, rough-haired underneath. A shrubby plant, with a hispid stem; branches hispid, alternate.—Native of South America and Jamaica.

10. Jussieua Onagra. Upright, smooth, branching: flowers four-petalled, eight-stamined, sessile; leaves lanceolate. Flowers small, yellow.—Native of South America.

11. Jussieua Hirsuta. Upright, hirsute, simple: flowers five-petalled, ten-stamined, sessile; leaves lanceolate. Stalks red, three feet high, hairy, and channelled; petals yellow.—Native of La Vera Cruz.

12. Jussieua Grandiflora. Leaves very entire; lower leaves spathulate; upper leaves lanceolate; flowers decandrous, large, and yellow; peduncles and calices villose. Roots creeping.—Found in the swamps of Virginia and Carolina, about the Dismal Swamp.

13. Jussieua Subacaulis. Leaves linear-lanceolate; flowers solitary, octandrous, pedunculated, small, and yellow; filamenta alternate, very short; petals obovate.—Found by Lewis on the banks of the Missouri.

Justicia; a genus of the class Diandria, order Monogynia.—Generic Character. *Calix:* perianth one-leafed, very small, five-parted, acute, upright, narrow. *Corolla:* one-petalled, ringent; tube gibbose; border two-lipped; lip superior, oblong, emarginate; lip inferior, of the same length, reflex, trifid. *Stamina:* filamenta two, awl-shaped, hid under the upper lip; antheræ upright, bifid at the base. *Pistil:* germen top-shaped; style filiform, length and situation of the stamina; stigma simple. *Pericarp:* capsule oblong,

obtuse, narrowed at the base, two-celled, two-valved; the partition opposite to the valves, gaping with an elastic claw. *Seeds:* roundish. *Observe.* Some species recede so much from this character as to seem a distinct genus. ESSENTIAL CHARACTER. *Corolla:* ringent. *Capsule:* two-celled, opening with an elastic claw. *Stamina:* with a single anther. —It appears from the recent observations of Jacquin, Jussieu, Vahl, and others, that the two antheræ on each filamentum are not a sufficient generic distinction; for in some species of Dianthera the filamenta are divided into two segments, each of which has an anther; but in others the filamenta are undivided, and have two antheræ indeed, but so approximated as almost to coalesce into one. But not only Diantheræ, properly so called, have two antheræ, but most of the Justiciæ, if not all, are really Diantheræ; for not only several of Linneus's Justiciæ have two antheræ quite distinct, (as Hyssopifolia, Orchioides, &c.) but the rest have generally twin or double antheræ, with this difference, that, being parallel to each other, they seem to be but one, although they are really two. If this natural genus, consisting of Justicia and Dianthera, is to be separated, Vahl recommends it to be grounded on the capsule rather than the antheræ.—These plants are all the produce of warm climates; not one a native of Europe. They may be increased, some by seeds, others by layers and cuttings, but the latter modes are mostly practised, as the seeds are obtained with difficulty.——The species are,

* *With a double Calix.*

1. Justicia Fastuosa; *Superb Justicia.* Shrubby: leaves lanceolate-elliptic; flowers in terminating thyrses; calices two-flowered. Stem smooth, round, and even; leaves opposite, petioled, quite entire, hairy underneath, and round the edges; flowers very abundant, clustered in axillary racemules.—Native of Arabia Felix, and the island of St. Johanna.

2. Justicia Forskahlei. Shrubby: leaves ovate, acuminate; flowers in axillary and terminating thyrses; calices one-flowered.—Native of Arabia Felix.

3. Justicia Purpurea. Herbaceous: branches pubescent; flowers in axillary and terminating spikes; bractes lanceolate, smooth. Stem rooting, brachiate; corollas purple.—Found near Canton in China.

4. Justicia Verticillaris. Villose: leaves ovate; flowers axillary, in whorls; outer calices awnless.—Native of the Cape.

5. Justicia Aristata. Villose: leaves ovate; flowers axillary, in whorls, subsessile; outer calices awned.—Native of the Cape.

6. Justicia Chinensis. Herbaceous: leaves ovate; peduncles axillary, in whorls, trifid; bractes ovate, mucronate, coloured at the base. Stems procumbent, a foot long, branched at bottom; corolla pale violet colour.—Native of China.

7. Justicia Triflora. Herbaceous: leaves ovate; peduncles axillary, elongated, subtriflorous; bractes linear-lanceolate, —Native of Arabia Felix.

8. Justicia Serpens. Herbaceous, creeping: leaves oblong, smooth; flowers axillary, solitary. Stem filiform.—Native of the Isle of France.

9. Justicia Sulcata. Herbaceous: leaves ovate-cordate; spikes terminating; flowers in whorls. See *Dianthera Sulcata.*

10. Justicia Bicaliculata. Leaves ovate-acuminate; flowers in axillary dichotomous panicles; outer bracte linear, double the length of the other; antheræ binate. Flowers purple.—Native of the East Indies.

11. Justicia Bivalvis. Shrubby: leaves ovate-lanceolate; peduncles axillary, trifid, lateral; pedicels two-flowered; bractes ovate, awned, nerved; capsule villose.—Native of the East Indies and Arabia Felix.

** *With a single Calix.—Corollas two-lipped; lips undivided.*

12. Justicia Sexangularis; *Chickweed-leaved Justicia.* Herbaceous: leaves ovate; peduncles three-flowered; bractes wedge-shaped; antheræ parallel. The flowers appear in small spikes at the sides of the branches, and are of a beautiful carmine colour; stalk upright. It is annual, and a native of La Vera Cruz and Jamaica.—This, as also the 13th, 16th, 72d, 79th, and 80th species, may be propagated by seeds sown early in the spring, in small pots filled with light fresh earth, and plunged into a moderate hot-bed of tanner's bark, observing to water the earth gently when it appears dry. As the seed frequently lies a year in the ground, the pots must not be disturbed in case they should not immediately appear. In the winter, they should be kept in the stove, and the spring following plunged into a fresh-hot-bed. When the plants begin to appear, the glasses of the hot-bed should be raised every day in warm weather, to admit fresh air; they ought also to be frequently watered at the same time, but in small quantities while they are young, as they are subject to rot at bottom with much moisture. When the plants are about two inches high, take them up carefully, and transplant each into a small pot filled with fresh light earth, plunging them into the hot-bed again, and watering and shading them till they have taken new root: then they should have air admitted every day in proportion to the warmth of the season, and should be duly watered every two or three days in hot weather. As the plants advance in their growth, they should be shifted into larger pots; for when their roots are too much confined, they will not make any considerable progress. To over-pot them, however, would be of still worse consequence than the other, because, when they are planted in very large pots, they will starve, and decay, without producing any flowers. They are too tender to endure the open air in this country; therefore should always remain in the hot-bed, giving them air in hot weather, and the 12th sort should be brought forward as far as possible in the spring, that it may flower early, otherwise it will not produce good seeds in England.

13. Justicia Scorpioides. Shrubby: branches round; leaves lanceolate-ovate, hirsute, sessile; spikes axillary, recurved; bractes minute; antheræ parallel. Flowers large, of a carmine colour, and ranged on one side at the spike; stem brittle, five or six feet high, sending out many branches. —Discovered at Vera Cruz. See the preceding species. This and the seventy-ninth species should remain in the hot-bed during the summer season, provided there be room for them under the glasses without being scorched; but at Michaelmas they should be removed into the stove, and plunged into the bark-bed, where they must remain during the winter season, observing to keep them warm, as also to water them gently once or twice a week, according as they shall require. The following summer these plants will flower, and abide several years; but they rarely produce good seeds in Europe.

14. Justicia Assurgens. Herbaceous: branches angular; leaves ovate-elliptic; spikes axillary and terminating, branched; flowers alternate; bractes linear; antheræ parallel.—Native of Jamaica.

*** *Corollas two-lipped; lower lip divided.*

15. Justicia Acaulis. Stemless: leaves crenate; veins villose underneath. Root pubescent, woolly at top.—Native of the East Indies.

16. Justicia Ecbolium; *Long-spiked Justicia.* Shrubby: spikes terminating, four-cornered; bractes ovate, imbricate, ciliate, mucronate; upper lip linear, reflex; antheræ paral-

lel. Stem roundish, compressed, jointed. Mr. Miller says that it rises ten or twelve feet high in its native soil; and that the flowers grow from the ends of the branches in very long spikes, and are of a greenish colour with a shade of blue.—Native of the East Indies, and Cochin-china. This is propagated in the same way as the twelfth species; but may be more hardily treated when the plants have obtained strength. It may also be increased by cuttings, as is directed for the sixty-fourth species, and when the plants are two or three years old, they will thrive with a moderate degree of warmth in winter. In summer they may be placed abroad two months during the warmest season, but always in a sheltered situation; and when the nights begin to grow cold, they must be removed into the stove, but still have free air admitted to them in warm weather.

17. Justicia Pulcherrima. Shrubby: spikes axillary, and terminating; bractes ovate-imbricate, ciliate, awnless; upper lip lanceolate, straight. Stem upright, five or six feet high; flowers without smell, in four rows, of a fine bright red.—Native of South America, near Carthagena.

18. Justicia Carthaginensis. Herbaceous: leaves elliptical; spikes axillary and terminating; bractes imbricate, all wedge-shaped, ciliate; upper lip emarginate; antheræ binate. This appears to be an annual plant. It is upright, growing six feet high among bushes and in hedges, but only three feet in other situations; flowers void of scent, purple.—Native of Carthagena in Spanish America.

19. Justicia Tetragona. Shrubby: leaves crenate, smooth; spikes terminating, four-cornered; bractes ovate, imbricate in four rows, keeled, ciliate. Branches round, smooth, opposite.—Sent from Cayenne.

20. Justicia Coccinea; *Scarlet-flowered Justicia.* Shrubby: leaves and bractes elliptical, acuminate; upper lip undivided; antheræ parallel. Stem six feet high, nearly erect, round, covered by a smooth brown bark, cracking longitudinally; spikes terminating, mostly solitary, erect, simple, dense, many-flowered; flowers sessile, one between each pair of the smaller bractes, erect, large, handsome, scarlet, becoming tawny in decay: they are only to be found on old plants, and have no smell. The leaves when bruised have an herbaceous scent. This is the largest species known in England, and, when cultivated, grows in the hot-house almost to the size of a tree.—Native of South America.

21. Justicia Hirsuta. Herbaceous: leaves toothed; spikes axiltary and terminating, four-cornered; bractes ovate, imbricate, hirsute. Flowers opposite, with two bristle-shaped bractes at the base.—Native of Java.

22. Justicia Sphærosperma. Herbaceous: spikes axillary, opposite, in pairs on each side; bractes linear, elongated; seeds globular, shining. Branches round.—Native of the Caribbee islands.

23. Justicia Gandarussa. Shrubby: leaves lanceolate, elongated; spikes terminating, leafy; flowers in whorls; bractes minute; upper lip undivided; antheræ binate; stem smooth, round.—Native of the East Indies.

24. Justicia Procumbens. Herbaceous: stem procumbent; leaves lanceolate, quite entire; spikes axillary and terminating; calices four-cleft.—Native of Ceylon and Java.

25. Justicia Echioides. Herbaceous: leaves lanceolate-linear, rough-haired; spikes axillary, opposite, pointing one way, ascending; antheræ parallel, bearded at the base.—Native of the East Indies.

26. Justicia Longifolia. Herbaceous: leaves lanceolate, elongated; spikes axillary, in pairs, opposite, pointing one way. Stem smooth; flowers alternate; corolla small.—Native of the island of Mahe.

27. Justicia Latifolia. Shrubby: leaves ovate, acuminate; spikes terminating, somewhat branched; lower flowers in whorls; branches round, smooth.—Native of the East Indies.

28. Justicia Picta. Shrubby: leaves ovate, painted; spikes axillary, and terminating; flowers in whorls; upper lip bifid; antheræ parallel. Stem striated, eight feet high, corolla red.—Native of the East Indies.

29. Justicia Nitida. Shrubby: leaves elliptic, acuminate; racemes spike-form, whorled; bractes minute; pedicels and calices smooth; antheræ parallel.—Native of the West Indies, as Martinico, Guadaloupe, and Santa Cruz.

30. Justicia Stricta. Herbaceous: leaves lanceolate-elliptic; racemes axillary, two-parted, pointing one way; filamenta smooth. Stem smooth, quadrangular; flowers small.—Native of Malabar.

31. Justicia Paniculata. Herbaceous: leaves lanceolate; panicles axillary and terminating, dichotomous; flowers pointing one way; filamenta hirsute; capsules compressed.—Native of the East Indies.

32. Justicia Nutans. Herbaceous: leaves toothed; racemes terminating, nodding at top; flowers inverted. Stem very finely striated.—Native of Java.

33. Justicia Nasuta. Suffruticose: leaves elliptic, quite entire; peduncles axillary, dichotomous, upper lip upright, bifid; antheræ divaricating.—The bruised leaves are used in the East Indies, where it is a native, for the cure of cutaneous eruptions.

34. Justicia Scandens. Shrubby: leaves ovate, acuminate, subrepand; branches villose; peduncles axillary, trichotomous, divaricating. It varies with the branches and veins of the leaves less villose.—Native of Malabar.

35. Justicia Ciliaris. Herbaceous: leaves lanceolate, bluntish; flowers axillary, opposite; antheræ parallel, appendicled. The whole plant is rugged. It flowers throughout the summer; scentless.—Native place unknown.

36. Justicia Secunda. Herbaceous: leaves ovate-lanceolate, acuminate; racemes terminating, compound; racemelets pointing one way; antheræ binate; flowers on the racemelets alternate, four or five, on short pedicels; corolla purple.—Native of the island of Trinidad.

37. Justicia Debilis. Shrubby: spikes axillary and terminating; bractes ovate, imbricate, ciliate; antheræ binate. See *Dianthera Debilis.*

38. Justicia Violacea. Shrubby: leaves lanceolate; spikes terminating; bractes lanceolate, imbricate, ciliate; antheræ binate. See *Dianthera Violacea.*

39. Justicia Rohrii. Herbaceous: leaves elliptic, quite entire; spikes terminating, compound, imbricate, pubescent: bractes ovate; antheræ binate. Stem upright, somewhat hoary. Flowers opposite.—Native of Cayenne.

40. Justicia Polystachya. Herbaceous: leaves lanceolate-ovate; spikes axillary, opposite, pointing one way; bractes ovate, hirsute; antheræ binate. Flower solitary, sessile, in the axils of the bractes.—Native of Cayenne.

41. Justicia Retusa. Herbaceous: leaves ovate, acuminate; spikes terminating; bractes obovate, subretuse, imbricate; antheræ binate. The whole plant smooth: corolla large, purple, cloven beyond the middle; stamina the length of the upper lip.—Native of the island of Santa Cruz.

42. Justicia Flava. Shrubby: leaves lanceolate-oblong; spikes terminating; flowers in pairs; bractes lanceolate, blunt. See *Dianthera Flava.*

43. Justicia Americana. Herbaceous: leaves linear-lanceolate; spikes axillary, solitary, like corymbs; peduncles filiform, alternate, the length of the leaves; antheræ binate. See *Dianthera Americana.*

44. Justicia Punctata. Herbaceous: leaves lanceolate-ovate; spikes terminating; flowers remote, in a sort of whorl; bractes lanceolate, acuminate. See *Dianthera Punctata.*

45. Justicia Eustachiana. Shrubby: leaves oblong, acuminate; spikes axillary and terminating; flowers in remote whorls, two or three together, solitary at top; bractes wedge-shaped. Flowers purple, inodorous.—Native of the West Indies, common on the open arid hills of St. Eustatia.

46. Justicia Pectoralis. Herbaceous: leaves lanceolate, petioled; spikes panicled; bractes minute; upper lip undivided; antheræ binate. An upright plant, two or three feet high; flowers numerous, red, sessile. The whole plant has the smell of new hay, mixed with a refreshing aromatic scent. —Native of St. Domingo and Martinico. The inhabitants make a syrup of it, which they use in disorders of the breast. The bruised leaves are also good in wounds and cuts; and hence the French call this plant *herbe à charpentiere.*

47. Justicia Comata. Herbaceous: leaves linear-lanceolate, subsessile; spikes subumbelled, whorled; bractes minute; antheræ binate. See *Dianthera Comata.*

48. Justicia Undulata. Herbaceous: leaves lanceolate, waved; peduncles terminating, umbelled, simple, and trifid; antheræ binate. Capsules villose.—Observed by Kœnig in Malabar.

49. Justicia Frondosa. Herbaceous: umbels axillary, peduncled, compound; peduncles elongated; bractes ovate, rhombed, smooth, blunt; antheræ binate. Stem round, smooth. —Native of Otaheite.

50. Justicia Pubescens. Shrubby: peduncles axillary, opposite, four-flowered, pedicelled; bractes ovate-roundish, mucronate, pubescent; antheræ binate. Stem branched, pubescent, round.—Native of Botany Island.

51. Justicia Lævigata. Shrubby: peduncles axillary, opposite, three-flowered, pedicelled; bractes oblong, mucronate, pubescent; antheræ binate. Stem covered with an ash-coloured bark, except at top, where it is green.—Native of Java.

52. Justicia Cuspidata. Peduncles axillary, in whorls, subtriflorous, pedicelled; bractes wedge-form, awned; antheræ binate.

53. Justicia Biflora. Suffruticose: peduncles axillary, two-flowered, pedicelled, equalling the leaves; bractes awl-shaped; antheræ binate. Branches obscurely quadrangular, smooth; pedicels unequal.—Native of the East Indies.

54. Justicia Sessilis. Shrubby: leaves ovate-acute, subserrate; flowers solitary, sessile; upper lip quite entire. Flowers inodorous, purple.—Native of the West Indies, in the coppices and hedges of the island of St. Eustatia, where it is found flowering in August.

55. Justicia Nigricans. Shrubby: leaves lanceolate-linear, blunt, blackish; spikes distich, terminating. Stem upright, six feet high; corolla white, variegated with red.—Native of Cochin-china.

56. Justicia Tinctoria. Herbaceous: leaves lanceolate, subcrenate, pubescent; flowers axillary, heaped. Corolla rose-coloured. The leaves dye cloth of a fine green colour. —Native of Cochin-china.

**** Corollas ringent.*

57. Justicia Adhatoda; *Malabar Nut.* Arboreous: leaves ovate-lanceolate, acuminate; spikes axillary, opposite; bractes ovate-elliptic, leafy; antheræ parallel. It rises with a strong woody stem to the height of twelve or fourteen feet, sending out many spreading branches; flowers on short spikes at the end of the branches; corolla white, with some dark spots. It flowers in July, but does not bear seeds in England.—Native of Ceylon. It may be propagated by cuttings, which, if planted in pots during June or July, and plunged into a very moderate hot-bed, will take root. They must be screened from the sun, and will succeed the better for the exclusion of the external air. It may also be propagated by laying down the young branches, which will take root in the tubs or pots in one year; then the young plants should be put each into a separate pot, filled with soft loamy earth, and placed in the shade till they have taken new root, when they may be placed in a sheltered situation during the summer; but in winter they must be housed, and treated in the same way as Oranga-trees, with only this difference, that they require more water.

58. Justicia Betonica. Shrubby: leaves elliptic; spikes terminating, elongated; bractes ovate-acuminate, membranaceous, netted, coloured; antheræ binate, appendicled.—Native of the East Indies.

59. Justicia Repens. Herbaceous: leaves elliptic, subsessile; spikes axillary and terminating, pointing one way, smooth; bractes ovate, membranaceous at the edge; antheræ binate, appendicled.—Native of Ceylon.

60. Justicia Pectinata. Herbaceous: leaves oblong; spikes axillary, pointing one way, tomentose; bractes half lanceolate, distich. Corolla minute, white, with a green upper lip.—Native of the East Indies.

61. Justicia Sanguinolenta. Herbaceous: stem creeping; leaves oblong; peduncles axillary, solitary, one-flowered. The whole plant is of a blood-red colour, whence it derives its trivial name.—Native of Ceylon.

62. Justicia Japonica. Herbaceous: leaves ovate-oblong, acuminate; peduncles axillary, alternate, four or five flowered; pedicelled; bractes lanceolate-ciliate. See *Dianthera Japonica.*

63. Justicia Trisulca. Shrubby: leaves oblong, blunt; peduncles axillary, subtriflorous, opposite; flowers sessile; antheræ binate. This is a stiff shrub, with opposite, distorted, warted, round branches; corolla an inch and a half in diameter.—Native of Arabia Felix.

64. Justicia Hyssopifolia; *Snap Tree.* Shrubby: leaves lanceolate, blunt; peduncles axillary, one or two flowered: bractes shorter than the calix; calicine segments oblong; antheræ binate, appendicled. Stem from three to four feet high, sending out branches on every side from the bottom, so as to form a pyramid; flowers white, with long calices; capsules oblong, when ripe throwing out their seeds, whence its name of Snap-tree.—Native of the Canary islands. It is propagated by cuttings during any of the summer months; they should be planted in pots filled with light loamy earth, plunged into a moderate hot-bed shaded from the sun, and now and then gently refreshed with water; they must not have much air admitted to them. In about two months the cuttings will have taken root, then they must be gradually inured to the open air, by placing them in a sheltered situation, where they may remain till autumn. If they take root early in the summer, separate them each into a small pot, placed in the shade; but if it be late in the season before they have taken root, let them remain in the same pots till the following spring. In winter these plants must be placed in a warm green-house, or moderately warm stove, for they are impatient of cold and damp, nor will they thrive in too much warmth; they often require watering in winter, but it must be sparingly given. In summer they must be removed into the open air in a warm sheltered situation, and in warm weather have plenty of water.

65. Justicia Orchioides. Shrubby: leaves lanceolate, sessile; peduncles axillary, solitary, one-flowered; bractes shorter than the calix; antheræ binate, appendicled. This

is a very stiff smooth shrub, with small crowded harsh leaves: the flowers are white, with a reddish tinge about the palate, and grow solitary or in pairs, on axillary stalks, longer than the leaves. It flowers in August and September.—Native of the Cape.

66. Justicia Madurensis. Shrubby: leaves oblong, toothed; peduncles axillary, one-flowered. Stem solid, round, smooth, whitish; bractes in pairs, deciduous; flowers few. —Native of Madura.

67. Justicia Cuneata. Shrubby: leaves obovate, emarginate; flowers axillary, solitary, sessile; antheræ binate. Corolla like that of the Snap-tree.—Native of the Cape.

68. Justicia Tranquebarensis. Suffruticose: leaves obovate, on hoary branches; flowers axillary, solitary, sessile; bractes remote, obcordate; antheræ binate, appendicled. Stem round, red, covered with slender white soft hairs.—Found by Kœnig in Tranquebar.

69. Justicia Odora. Shrubby: branches smooth; leaves roundish; flowers axillary, solitary, sessile, opposite. Stem ash-coloured.—Native of Arabia Felix, where they make wreaths of it to wear about their heads on festivals. It has little scent while green, but, when dried, smells like Anthoxanthum, or Vernal Grass.

***** *Corollas almost equal.*

70. Justicia Infundibuliformis. Shrubby: leaves lanceolate-ovate, in fours; spikes terminating. Branches round; corolla handsome, white, with a filiform tube.—Native of the East Indies.

71. Justicia Sinuata. Shrubby; leaves linear, oblong, sinuate-pinnatifid; peduncles axillary, trifid; corolla salver-shaped; antheræ parallel.—Native of the Isle of Tanna in the South Seas.

72. Justicia Spinosa. Shrubby: leaves ovate or obovate; spines axillary; lateral peduncles simple; corollas salver-shaped; antheræ parallel. Stem five feet high, dividing into few, round, weak, pliant, leafy, very long branches; flowers inodorous, less than an inch long, purple. It is armed with strong, opposite, very spreading, awl-shaped, acuminate spines, half the length of the leaves; between the leaves and spines come out the peduncles, three or four together.—Native of St. Domingo and Jamaica. See the twelfth species. It, as well as the 80th, must constantly remain in the bark-stove.

73. Justicia Repanda. Shrubby: leaves elliptic, repand; peduncles axillary, trifid; corollas salver-shaped; antheræ parallel.—Native of the isle of Tanna.

74. Justicia Armata. Shrubby, prickly; leaves oblong, emarginate, coriaceous, shining.—Native of Jamaica.

75. Justicia Acicularis. Shrubby, diffused, spiny: spines bristle-shaped; flowers peduncled, axillary, solitary.—Native of Jamaica.

****** *New Species.*

76. Justicia Reptans. Stem herbaceous, creeping; leaves blunt; spikes terminating, undivided. Annual.—Native of St. Domingo.

77. Justicia Humifusa. Stem herbaceous, decumbent; leaves ovate and cordate; spikes umbelled. Annual.—Native of Jamaica.

78. Justicia Nemorosa. Stem herbaceous, four-cornered, somewhat upright; leaves ovate-lanceolate; spikes ovate. Perennial.—Native of St. Domingo and Jamaica.

79. Justicia Fruticosa. Shrubby: leaves ovate or ovate-lanceolate, hirsute, petioled; bractes cordate acuminate. It rises with a hairy stem four or five feet high; flowers in loose clusters, from the axils towards the end of the branches, of a pale red colour.—Discovered by Dr. Houstoun, at Campeachy. See the twelfth species.

80. Justicia Arborea. Arboreous: leaves lanceolate-ovate, sessile, tomentose underneath; flowers in clustered terminating spikes. It rises with a strong woody stem twenty feet high, dividing into many crooked irregular branches: the flowers are small and white.—Sent from Campeachy. See the twelfth species.

Ivy. See *Hedera.*

Ivy, Ground. See *Glechoma.*

Ixia; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* spathe bivalve, inferior, shorter than the corolla; valves oblong, permanent, the exterior wider, sheathing the interior. *Corolla:* one-petalled, regular, superior; tube filiform, gradually enlarged, straight; border regular, bell-shaped, six-parted; divisions oblong, obtuse, equal, spreading. *Stamina:* filamenta three; thread-subulate, inserted into the tube near the orifice, shorter than the corolla; antheræ oblong, furrowed. *Pistil:* germen inferior, triangular; style simple, filiform, upright; stigmas three, filiform. *Pericarp:* capsule ovate, three-sided, obtuse, three celled, three valved. *Seeds:* several, roundish, smooth. Essential Character. *Corolla:* one-petalled, tubular; tube straight, filiform; border six-parted, bell-shaped, regular, or nearly so; stigmas three or six, simple.—Several of the plants of this genus will ripen their seeds in our climate, and may be propagated by sowing the seeds in pots, and plunging them into a moderate hot-bed, which will bring up the plants much sooner than when they are sown in the full ground. When fit to remove, they should each be set in a small pot filled with light earth, and, if they are placed under a frame till they have taken good root, it will greatly forward their growth; afterwards they may be placed in the open air, in a sheltered situation, and may remain there till autumn, when they must be placed under a frame to screen them from the frost. In the spring the plants may be turned out of the pots and planted in a warm border, where they will endure the cold of common winters very well; but in severe frosts they are often killed, unless protected by tan, or some other covering. They multiply very fast by offsets, so that when they are once obtained, there will be no occasion to raise them from seeds: most of them will flower in the ensuing season; whereas those from seeds are three or four years before they flower. The stalks and leaves of these plants decaying to the root in autumn, the roots in borders should then be covered two or three inches thick with tan, to keep them from frost, and also from mice, which are very fond of them. The spring before the roots shoot, is the best time to remove and part them; but this should not be done oftener than every third year, for if oftener parted, they will not flower well.——The species are,

1. Ixia Fruticosa; *Shrubby Ixia.* Stem branched, covered with imbricate leaves. Flowers terminating, blue; tube of the corolla yellow, half an inch long.—Native of the Cape of Good Hope, and of Terra del Fuego.

2. Ixia Minuta; *Minute Ixia.* Scapes one-flowered, shorter; leaves even. Bulb globular, covered with a net, the size of a pea: tube of the corolla white, with purple streaks; antheræ upright, yellow.—Native of the Cape.

3. Ixia Bulbocodium; *Crocus-leaved Ixia.* Stem one-flowered; leaves linear, closely complicated; stigmas six. Flower lateral, inodorous; corolla pale violet, yellow on both sides at the base. It flowers about the middle of April; but the blossoms do not fully expand unless exposed to the sun, nor are they of long duration. It affects dry hilly situations.—Native of Italy. This is not the Bulbocodium of Miller.

4. Ixia Rosea; *Rose-coloured Ixia.* Scapes one-flowered; leaves linear, nerved, incrassated at the edge; stigmas six.

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

P. 779.

P. 780

P. 789.

IXIA — *Deep Yellow Cape Ixia.*

KALMIA LATIFOLIA — *Broad-leaved Kalmia*

IRIS SQUALENS — *Brown-flowered Iris.*

H Frederick sc

Published by Nuttall, Fisher & Dixon, Liverpool, Dec.r 1831.

Flowers at the ends of the branches, rather large, coming one after the other; tube of the corolla very short; segments of the border yellow within. It varies with the three inner segments of the corolla yellow, and the three outer green; the three inner white-yellow, and the three outer greenish; the three inner blue-white, the three outer greenish; the three inner white, the three outer green; with corollas wholly yellow, or wholly blue, or rose-coloured with a yellow base. It varies also in the size of the flowers.—Native of the Cape.

5. Ixia Parviflora; *Small-flowered Ixia.* Leaves linear, compressed; segments of the corolla lanceolate, retuse, the inner scarcely wider; stigmas bifid, spreading, revolute.—Gathered wild in Jersey by Mr. R. Finlay.

6. Ixia Fugax; *Fugacious Ixia.* Leaves linear, compressed; segments of the corolla linear-lanceolate, blunt, the inner wider and more erect; stigmas bifid, horizontal, recurved.—Native of the Cape.

7. Ixia Humilis; *Humble Ixia.* Scape branched; flowers pointing one way; leaves grooved, erect, longer. It varies with the corolla yellow, whitish, rufescent, or flesh-coloured; with an undivided few-flowered scape, and a branched many-flowered scape.—Native of the Cape.

8. Ixia Pilosa; *Hairy Ixia.* Leaves linear, hairy, shorter; flowers alternate, sessile, somewhat nodding; corolla rufescent without, white within. The flowers open from four in the afternoon.—Native of the Cape.

9. Ixia Hirta; *Rough-haired Ixia.* Leaves ensiform, rough-haired, shorter; flowers pointing one way, dark blue.—Native of the Cape.

10. Ixia Secunda; *One-ranked Ixia.* Leaves elliptic, ensiform, shorter; scape villose, rugged; flowers generally from five to six, upright, blue. It varies with the scape simple and branched.—Native of the Cape.

11. Ixia Crispa; *Wave-leaved Ixia.* Leaves linear, waved, shorter; flowers alternate. Tube of the corolla greenish; segments of the border blue. It varies with the scape simple and branched, and with the corollas blue and white.—Native of the Cape.

12. Ixia Cinnamomea; *Cinnamon-coloured Ixia.* Leaves lanceolate, waved, shorter; flowers alternate; bulb conical; tube of the corolla a little enlarged, and somewhat c[illegible]d, purplish.—Native of the Cape.

13. Ixia Corymbosa; *Corymbed Ixia.* Leaves lanceolate, waved, shorter; scape ancipital. It varies with white and blue flowers.—Native of the Cape.

14. Ixia Linearis; *Linear-leaved Ixia.* Leaves linear, shorter; scape simple upright. Bulb ovate, fibrous, even, the size of a hazel nut; flowers terminating the branches, at the end of the scape.—Native of the Cape.

15. Ixia Capillaris; *Slender-scaped Ixia.* Leaves linear, shorter; scape branched; spathe scariose. Bulb netted, fibrous, the size of a hazel nut.—Native of the Cape.

16. Ixia Setacea; *Bristle-leaved Ixia.* Leaves linear, shorter; scape flexuose, smooth. The three outer segments of the border of the corolla are white within, red-streaked without; the three inner entirely white. It varies with a greenish corolla, white at the tips, and with a yellow corolla, with the base of the border dusky; with the scape one-flowered, many-flowered and simple, many-flowered and branched.—Native of the Cape.

17. Ixia Scillaris; *Squill-flowered Ixia.* Leaves linear, shorter; flowers pointing one way; rachis flexuose. Scape round, upright, smooth.—Native of the Cape.

18. Ixia Aulica; *Cluster-flowered Ixia.* Flowers in racemes; bractes entire; leaves ensiform, flat, nerved, even. It flowers in April.—Native of the Cape.

19. Ixia Bulbifera; *Bulb-bearing Ixia.* Leaves ensiform, shorter; spathes membranaceous, bristle-shaped, jagged. Flowers three or more, large, with the rachis between the flowers flexuose. It varies with the corolla purple, red, white, and yellow; with the scape very short and simple, higher and branched, and bulbiferous.—Native of the Cape.

20. Ixia Aristata; *Bearded Ixia.* Leaves ensiform, smooth; flowers alternate, sessile; spathes the length of the tube, and jagged. Bulb netted, the size of a hazel-nut; scape simple, round, upright, smooth, from a hand to a foot in height, or more; corollas white, flesh-coloured. It varies with whitish corollas having a purple star, and violet-coloured and yellow.—Native of the Cape.

21. Ixia Reticularis; *Netted Ixia.* Border of the corolla four times as long as the tube, recurved, funnel-form at the base; segments spatulate, somewhat acuminate, the inner narrower; filamenta erect; stigmas at the base of the antheræ.—Native of the Cape.

22. Ixia Villosa; *Dark-red Ixia.* Leaves oblong, lanceolate-acute, villose, somewhat plaited, distich; tube equal to the spathe. Flowers alternate, sessile, upright, often three.—Native of the Cape.

23. Ixia Pendula; *Pendulous-flowered Ixia.* Leaves linear-ensiform, shorter; scape branched; spikes pendulous. Root jointed like a necklace; corollas on the branches alternate, large, flesh-coloured, with a short tube. This is the loftiest of the genus, and the large pendulous corollas are very handsome.—Native of the Cape. It is well worth the trouble of cultivating.

24. Ixia Flexuosa; *Bending-stalked Ixia.* Leaves linear; raceme flexuose, many-flowered. Bulb very small, round; stem very slender, round, a foot and half high. The corolla is pure white, and small.—Native of the Cape.

25. Ixia Polystachia; *Many-spiked Ixia.* Leaves ensiform, shorter; scape branched; flowers alternate, unspotted; border of the corolla incurved, and spreading very much; segments lanceolate, blunt, equal in breadth; filamenta spreading and recurved; stigmas at the base of the filamenta. Stalk slender, ten inches high; flowers from the side in one or two clusters, and at the top of the stalk in a loose spike: they are of a pure white, and appear in May.—Native of the Cape.

26. Ixia Longiflora; *Long-flowered Ixia.* Leaves ensiform, linear, stiff; tube filiform, very long. Scape four or five spans high, the thickness of a rye-straw, upright, round, even, yellowish, naked at top, and branched; flowers in spikes, yellow. This is easily distinguished by the extraordinary length of the tube of the corolla. The flowers appear from April to June.—Native of the Cape.

27. Ixia Plantaginea; *Fox-tail Ixia.* Leaves linear, stiff; spike distich, imbricated. Root consisting of several little bulbs; flowers very small. It varies with the corollas white and blue.—Native of the Cape.

28. Ixia Marginata; *Broad-leaved Ixia.* Many-spiked: leaves ensiform, nerved, thicker at the edge; spikes pressed close; tube curved inwards; stigmas six. Flowers large, pendulous.—Native of the Cape.

29. Ixia Patens; *Spreading-flowered Ixia.* Leaves ensiform, smooth; raceme terminating; corolla bell-shaped, patulous; alternate segments narrower; filamenta upright; stigmas above the base of the antheræ. Flowers in a sort of spike containing from ten to twenty. It flowers in April.—Native of the Cape.

30. Ixia Maculata; *Spotted Ixia.* Leaves ensiform, shorter; scape branched; flowers alternate; corollas spotted at the base. Bulb double the size of a hazel-nut, oval and

compressed; stalk slender, stiff, a foot and a half long, naked to the top, where it is terminated by a round bunch of flowers, on short peduncles, of a deep yellow colour, with a dark purple bottom.—Native of the Cape.

31. Ixia Deusta; *Copper-coloured Ixia.* Leaves lanceolate, nerved; flowers alternate, sessile; tube shorter than the bractes; borders blunt, the outer spotted at the base, and keeled; stigmas under the middle of the antheræ. It flowers in May.—Native of the Cape.

32. Ixia Crocata; *Crocus-leaved Ixia.* Leaves ensiform; flowers alternate; tube the length of the bractes; borders of the corolla ovate, quite entire, hyaline at the base; stigmas at the tip of the antheræ. The flowers appear in May and June, they point one way, are bell-shaped, with a short orange-coloured tube, with a paler hyaline or transparent mark above the mouth of the tube. This is one of the handsomest of the genus, and, like all the rest, becomes handsomer and more branched by cultivation.—Native of the Cape.

33. Ixia Squalida; *Squalid Ixia.* Leaves linear-lanceolate; flowers alternate, sessile; tube longer than the bractes; borders ovate-oblong; stigmas below the tip of the antheræ. It strongly resembles the preceding, and flowers in May.—Native of the Cape.

34. Ixia Lancea. Leaves ensiform, shorter; flowers pointing one way; scape simple, flexuose. Flowers about six, purplish-white.—Native of the Cape.

35. Ixia Pentandria. Leaves ensiform, shorter; flowers five-stamined. Scape branched or simple, round, flexuose, smooth, a foot high; spike of flowers long, interrupted, flexuose; tube of the corolla greenish, short; segments of the border purple.—Native of the Cape.

36. Ixia Falcata. Leaves ensiform, reflex-sickle-shaped, shorter. Bulb conical, imbricate downwards, truncated, with a sharp fibrose margin, the size of a pea; flowers alternate, one or more; tube of the corolla red. It varies with the scape simple or branched, a hand or a span in height; with flowers alternate, or pointing one way.—Native of the Cape.

37. Ixia Excisa. Leaves ovate, shorter; flowers pointing one way; scape flexuose. Bulb globular, smooth, less than a pea; scape round, upright, smooth, one-flowered or many-flowered, a finger or a hand in length; tube of the corolla red.—Native of the Cape.

38. Ixia Chinesis; *Chinese Ixia.* Leaves ensiform; panicle dichotomous; flowers peduncled. Scape round, fistulous, jointed, upright, simple at bottom: the flowers are of a yellow colour within, and variegated with dark-red spots, the outside orange-colour. The Indians consider this plant as an antidote to poisons in general, and regard the bruised root as peculiarly efficacious in curing the bite of the serpent called Cobra de Capello.—Native of the East Indies, China, Cochinchina, and Japan.

39. Ixia Fallax. Border of the corolla incurved, and spreading very much; segments oval, slightly emarginate, equal in breadth; filamenta spreading, and recurved; stigmas as at the base of the filamenta; corolla violet-coloured.—This, and the remaining species, are taken from Mr. Salisbury's Catalogue of Plants in the Botanic garden at Chapel Allerton.—They are all natives of the Cape.

40. Ixia Mutabilis. Border of the corolla reflex, salver-shaped at the base; segments broadly obovate, retuse, the inner narrower; filamenta from upright spreading; stigmas below the apex of the tube. Border of the corolla one, and one-third longer than the tube.

41. Ixia Socialis. Border of the corolla horizontal; segments elliptical, the outer emarginate, the inner narrower, blunt; filamenta from upright spreading; stigmas at the middle of the filamenta. Border of the corolla four-sevenths longer than the tube; corolla white, with a green base.

42. Ixia Lineata. Border of the corolla incurved, and spreading very much; segments oval, blunt, inner narrower; filamenta recurved at the tip; stigmas below the tip of the filamenta. Border of the corolla one and a half longer than the tube.

43. Ixia Amœna. Border of the corolla incurved and horizontal; segments oval-lanceolate, somewhat retuse, inner narrower; filamenta from upright spreading; stigmas at the base of the filamenta. Corolla rose-purple-coloured, with a deep purple base; limb longer by half than the tube.

44. Ixia Retusa. Border of the corolla incurved, and spreading very much; segments oval, retuse, inner narrower; filamenta upright; stigmas at the middle of the filamenta. Limb of the corolla as long again as the tube.

45. Ixia Spectabilis. Border of the corolla incurved and horizontal; segments lanceolate, outer emarginate, inner narrower, blunt; filamenta from upright spreading; stigmas at the base of the filamenta. Flowers peduncled, and forming a dense pyramidal spike; border of the corolla three times longer than the tube, deeply six-parted, green or blue-green, with a dark purple base. It flowers from May to August.

46. Ixia Concolor. Border of the corolla incurved, and horizontal; segments elliptical, blunt, inner narrower; filamenta from upright spreading; stigmas above the middle of the antheræ. Limb of the corolla five times longer than the tube; corolla deep red.

47. Ixia Conica. Border of the corolla reflex, shaped like a dish at the base; segments elliptical, blunt, inner broader; filamenta upright; stigmas above the base of the antheræ. Corolla vermilion-coloured, with a variegated star at the base; limb twice as long as the tube.

48. Ixia Conspicua. Border of the corolla incurved and horizontal; segments elliptical, blunt, inner narrower; filamenta from upright recurved; stigmas at the base of the filamenta. Corolla orange-coloured, with a dark base; limb one-third longer than the tube.

49. Ixia Concinna. Border of the corolla reclining, funnel-form at the base; segments elliptical, blunt, inner narrower; filamenta from upright recurved; stigmas below the middle of the filamenta. Corolla pale yellow; limb longer by half than the tube.

50. Ixia Columnaris. Border of the corolla the length of the tube, reflex, salver-shaped at the base; segments elliptical, the inner a little wider; filamenta monadelphous; stigmas above the base of the antheræ. Limb of the corolla the same length as the tube.

51. Ixia Erosa. Margins of the nerves duplicate-ciliate; base of the corolla funnel-form; segments elliptical, gnawn at the tip. This sort is singular in its almost total want of a tube, but in other respects has the characters of this genus.

52. Ixia Tardiflora. Border of the corolla recurved at top; segments broadly spatulate, emarginate, the three lower at the disk of the base within, putting out a little keel; stigmas at the base of the antheræ. The limb of the corolla is six times longer than the tube.

53. Ixia Propinqua. Border of the corolla recurved and spreading at top; segments spatulate, slightly emarginate, the three lower approximating a little, at the disk of the base within, putting out a little keel; stigmas at the middle of the antheræ.

54. Ixia Ambigua. Border of the corolla recurved a little at top; segments rhomb-spatulate, equal in breadth, the outer somewhat gibbous at bottom, emarginate, inner blunt; stigmas above the middle of the antheræ. Limb of the corolla

three and a half longer than the tube.—The roots of this (and indeed of almost all the plants of this genus) are frequently eaten by the inhabitants of the Cape of Good Hope, where it is a native.

Ixora; a genus of the class Tetrandria, order Monogynia. —Generic Character. *Calix:* perianth four-parted, very small, upright, permanent. *Corolla:* one-petalled, funnel-form; tube cylindric, very long, slender; border four-parted, flat; divisions ovate. *Stamina:* filamenta four, above the mouth of the corolla, very short: antheræ oblong. *Pistil:* germen roundish, inferior; style filiform, length of the tube; stigma two-cleft. *Pericarp:* berry roundish, two-celled. *Seeds:* by fours, convex on one side, cornered on the other. *Observe.* Gærtner says the seeds are solitary; partition perforated through the middle. Essential Character. *Corolla:* one-petalled, funnel-form, long, superior. *Stamina:* above the mouth. *Berry:* four-seeded.—The plants of this genus are propagated from seeds, when the seed can be procured from their native countries; for they do not perfect seeds in England. They should be sown as soon as they arrive, in small pots, and plunged into a hot bed: if they arrive in autumn or winter, the pots may be plunged into the tan-bed in the stove, between the pots of other plants, where they will take up little room; but when they arrive in the spring, it will be best to plunge them into a tan-bed under frames. The seeds when fresh will sometimes come up in about six weeks; when not fresh, they often lie four or five months, and sometimes even a whole year, in the ground. On this account the earth should not be thrown out of the pots till there is no hope of their growing. When they come up, and are fit to remove, they should be each placed in a separate small pot, filled with light earth, and afterwards treated in the manner directed for the Coffee-tree. They may also be increased by cuttings during the summer months. The cuttings should be planted in small pots, plunged into a moderate hot-bed, covering them close with bell or hand glasses, to exclude the external air, and shading them carefully from the sun in the heat of the day, until they have put out good roots; when they should be parted, and each put into a separate pot, treating them as the seeding plants. Mr. Curtis remarks, that though we have been accustomed to treat the Ixoræ as stove-plants, they may perhaps be more hardy than we suspect.——The species are,

1. Ixora Coccinea; *Scarlet Ixora.* Leaves oval, half stem-clasping; flowers in bundles. Stem woody, five or six feet high, sending out many slender branches, covered with a brown oark; flowers with very long tubes, cut into four ovate segments, and of a deep red colour.—Native of the East Indies, China, and Cochin-china.

2. Ixora Alba; *White Ixora.* Leaves lanceolate-ovate: flowers in bundles. The flowers terminate in small clusters, have long slender tubes, divided into four segments at top, and are white and scentless; stem woody, six or seven feet high, sending out weak branches.—Native of the East Indies and Cochin-china.

3. Ixora Americana; *American Ixora* or *Jasmin.* Leaves in threes; lanceolate-ovate; flowers thyrsoid. The flowers appear at the ends of the branches in a loose spike, are white, and have a scent like Jasmin; whence, in Jamaica, and other islands of the West Indies, where it is a native, it is called Wild Jasmin. It rises with a shrubby stalk four or five feet high, sending out slender branches, opposite.

4. Ixora Fasciculata. Leaves ovate, elliptic, those of the branchlets subfascicled; peduncles subtriflorous.—Native of Jamaica.

5. Ixora Multiflora. Leaves lanceolate-ovate, bundled; peduncles aggregate, one-flowered, very short; berries one-seeded.—Native of Jamaica.

6. Ixora Montana. Leaves turbinate-oblong, cordate at the base; flowers fastigiate. Stem shrubby, upright, branched, four feet high; flowers terminating, scarlet. Perhaps a variety of the first species.—Native of Cochin-china.

7. Ixora Novemnervia. Stem scandent; leaves nerved, rough; cymes terminating. This is a large, climbing, branched, unarmed shrub; flowers white; stamina above the throat; stigma ovate, bifid.—Native of Cochin-china.

8. Ixora Violacea. Leaves nerved, hairy; flowers axillary; they are violet-coloured. This also is a large, climbing, branching, unarmed shrub.—Native of Cochin-china.

9. Ixora Parviflora. Leaves subsessile, lanceolate-oblong; panicle terminating. Branches smooth, jointed, round at bottom, but compressed at top; flowers scarlet, some say white.—Native of the East Indies.

10. Ixora Flammea. Leaves elliptic-lanceolate, bluntish, stalked, narrow at the base; segments of the corolla orbicular, obtuse, rather convex; style extended to half the length of the limb. Flowers flame-coloured, splendid.—Native of Java and China.

11. Ixora Longifolia. Leaves ovato-lanceolate, taper-pointed; segments of the corolla elliptical, sharpish, reflexed. Corymbs of innumerable flowers, of a vermilion hue inside, become darker by age.—Native of most of the islands in the East Indies.

KÆMPFERIA; a genus of the class Monandria, order Monogynia.—Generic Character. *Calix:* perianth superior, obscure. *Corolla;* one-petalled; tube long, slender; border flat, six-parted; the three alternate divisions lanceolate, equal; the other two divisions ovate; the upper one two-parted, the divisions obcordate; all equal in length. *Stamina:* filamentum one, membranaceous, subovate, emarginate; antheræ linear, doubled, entirely adnate, scarce emerging from the tube of the corolla. *Pistil:* germen roundish; style the length of the tube; stigma two-plated, roundish. *Pericarp:* capsule roundish, three-sided, three-celled, three-valved. *Seeds:* several. *Observe.* It rarely bears fruit: the germen is seated near the root. Essential Character. *Corolla:* six-parted, three of the parts larger, spreading, one or two parted. *Stigma:* two-plated.——The species are,

1. Kæmpferia Galanga; *Galangale.* Leaves ovate, sessile; segments of the corolla lanceolate-linear. It is an annual, stemless, juicy plant; root bulbous, palmate, creeping; flowers radical, solitary, juicy, very white, with a large violet spot in the middle. The smell of the whole plant is aromatic, pleasant, and permanent; the taste is sharpish; the colour of the root white within, purple on the outside. An infusion of the roots (which are kept by the druggists) in boiling water, or a tincture made with brandy, is a good medicine in windy complaints, and other disorders of the stomach, as well as for head-aches, which arise in general more from debility than any other cause.—Native of the East Indies. This and the next species, being natives of hot countries, will not bear the open air in England, and require a warm stove to preserve them through the winter: but as

their leaves decay in the autumn, the plants should not have too much wet while they remain in an inactive state. If they are placed in the bark-stove, and treated in the same manner as is directed for Ginger, they will thrive and produce plenty of flowers every summer. They are both propagated by parting their roots, the best time for which is in the spring, before they put out their leaves.

2. Kæmpferia Rotunda. Leaves lanceolate, petioled; segments of the corolla linear. The roots are shorter than the above, growing in large clusters, covered with an ash-coloured skin, white within. The flowers appear in the spring, before the leaves; they are sweet-scented, white, except the lower lip, which is of a light purple, prettily variegated.—Native of the East Indies.

3. Kæmpferia Angustifolia. Upper segments of the inner limb of the corolla linear, obtuse; lower one emarginate; leaves lanceolate, pale beneath. It flowers in the stove about March or April.—Native of the East Indies.

4. Kæmpferia Ovata. Lower segments of the inner limb of the corolla lanceolate, undivided; leaves ovate. Root a globose tuber, an inch in diameter, yellow internally, with concentric red and orange lines; flowers six or seven from the centre among the leaves, short-lived, white, with a tinge of red; tube much longer than the limb.—Native of the East Indies.

Kale. See *Brassica Oleracea.*

Kalmia; (Dwarf American Laurel,) a genus of the class Decandria, order Monogynia.—Generic Character. *Calix:* perianth five-parted, small, permanent; segments imbricate, acute, rather columnar. *Corolla:* one-petalled, salver-funnel-form; tube cylindric, longer than the calix; border with a flat disk, the margin upright, half five-cleft; ten nectariferous hornlets projecting outwardly from the corolla, and surrounding it where the border of it is upright. *Stamina:* filamenta ten, awl-shaped, upright, spreading, rather shorter than the corolla, inserted into the base of the corolla; antheræ simple. *Pistil:* germen roundish; style thread-form, longer than the corolla, bent down; stigma obtuse. *Pericarp:* capsule subglobose, depressed, five-celled, five-valved, five-partile. *Seeds:* numerous. *Observe.* The horned nectaries projecting outwardly from the corolla, and surrounding it, sufficiently distinguish this genus from the Bicornes. Essential Character. *Calix:* five-parted. *Corolla:* salver-form, with the border five-horned beneath. *Capsule:* five-celled.——The species are,

1. Kalmia Latifolia; *Broad-leaved Kalmia.* Leaves ovate-elliptic, by threes, and scattered; corymbs terminating. This shrub in its native soil continues flowering great part of the summer, and is one of the greatest ornaments of the country. Deer feed on its green leaves with impunity, yet in severe winters, when cattle and sheep are obliged to feed on it alone, great numbers of them die. The stem rises to the height of ten or twelve feet, and is sometimes as large as the small of a man's leg. The flowers burst out from their empalements in June, forming a round bunch or corymbus, sitting very close to the branch: they are of a pale blush colour, the inside of the petal of a peach colour. The wood is like that of Box, very close-grained, heavy, and hard. The Indians are said to make small dishes, spoons, and other domestic utensils, out of the roots, which are large, of a soft texture, and easily wrought while green, but when dry becoming hard and smooth.—Native of Carolina, Virginia, and other parts of North America, where it is generally found upon rocks, hanging over rivulets, and on the sides of barren hills, in most sterile soils. The Kalmias multiply in America by their creeping roots, and here by throwing up suckers, if not removed. The seeds seldom ripen in England, and those sent from America lie in the ground a whole year before the plants appear, and afterwards make very little progress. The plants that come up from suckers are most likely to produce others, and flower much sooner. They succeed best in a northern aspect, well sheltered, in a moderately moist situation, upon loam and bog-earth, and in a pure air. The first sort being difficult to propagate by suckers or layers, is generally raised from American seeds.

2. Kalmia Angustifolia; *Narrow-leaved Kalmia.* Leaves lanceolate; corymbs lateral. Stem from three to six feet high, dividing into small woody branches; flowers in loose bunches, on the side of the branches, upon slender peduncles: they are bright red when they first open, but afterwards fade to a blush or peach-bloom colour. The varieties with pale and deep red flowers, differ in their habit: the latter, the most humble of the two, not only produces the most brilliant flowers, but in greater abundance.—It is a native of North America, and is reputed poisonous to sheep and cattle. It is extremely hardy, thrives best in bog-earth, and is generally propagated by layers. See the first species.

3, Kalmia Glauca; *Glaucous Kalmia.* Leaves opposite, oblong, levigated, glaucous underneath, revolute; corymbs terminating; branchlets ancipital. It flowers in April and May; rarely exceeding two feet high.—Native of Newfoundland.

4. Kalmia Hirsuta. Leaves ovate, attenuated to both ends; peduncles axillary, one-flowered; flowers purple-coloured, in racemes. It can hardly be kept alive in this country by the most careful management.—Native of Carolina, North America.

5. Kalmia Cuneata. Leaves scattered, sessile, cuneate-oblong, pubescent underneath, slightly aristated at the extremity; corymbs lateral, with few flowers, which are white, with red at the bottom.—Native of the mountains of Carolina.

Kidney-Bean. See *Phaseolus.*

Kidney-Bean Tree. See *Glycine.*

Kidney-Vetch. See *Anthyllis.*

Kidneywort. See *Saxifraga.*

Kiggelaria; a genus of the class Dicœcia, order Decandria.—Generic Character. *Male. Calix:* perianth one-leaved, five-parted, concave; divisions lanceolate, concave. *Corolla:* petals five, lanceolate, concave, rather longer than the calix, and forming with it a pitcher-shaped figure. *Nectary:* glandules obtusely three-lobed, middle lobe largest, depressed, coloured, each growing to the claw of each petal. *Stamina:* filamenta ten, very small; antheræ oblong, shorter than the calix, gaping at the tips with two holes. *Female. Calix* and *Corolla:* as in the male. *Pistil:* germen roundish; styles five, simple; stigmas obtuse. *Pericarp:* capsule leathery, globose, rough, one-celled, five-valved. *Seeds:* about eight, roundish, cornered on one side, covered by a proper coat. Essential Character. *Male. Calix:* five-parted. *Corolla:* five-petalled. *Glands:* five, three-lobed. *Antheræ:* perforated at the tip. *Female. Calix* and *Corolla:* as in the male. *Styles:* five. *Capsule:* one-celled, five-valved, many-seeded.——The only known species is,

1. Kiggelaria Africana. This is a tree, exceeding the height of a man, with the trunk and branches gray; leaves alternate, lanceolate, petioled, smooth, stiff, and straight, sharply serrate, acute, spreading. On the male plant, one or two branched peduncles bear several flowers, nodding, in a panicle; the petals are white, and the nectaries yellow. The female produces a single flower on a simple peduncle.—Native of the Cape of Good Hope. It will not live in the open air of our climate, and therefore cannot grow very large. They are very difficult to propagate except by seeds,

which are seldom ripened in England. The best time to plant the cuttings is in the spring, just before the plants begin to shoot: they should be placed in pots of soft loamy earth, and plunged into a very moderate hot-bed, covering them close with a glass to exclude the air. They must be shaded from the sun; and have very little water after their first planting. If any of them grow, remove them into separate small pots filled with loamy earth, and expose them to the air in a sheltered situation till autumn, when they must be removed into the green-house, and treated in the same manner as Orange-trees.

King's-Spear. See *Asphodelus.*

Kleinhofia; a genus of the class Gynandria, order Decandria, according to Linneus: but Schreber classes it under Dodecandria, order Monogynia.—Generic Character. *Calix:* perianth five-leaved; leaflets oblong, nearly equal; the lower one rather shorter, deciduous. *Corolla:* petals five, lanceolate, sessile, rather longer than the calix; the upper one shorter, wider, and arch-truncated; nectary central, seated on a column of the length of the calix, surrounded at the base by glandules, ascending at the tip, bell-shaped, very small, half five-cleft; divisions recurved. *Stamina:* filamenta fifteen, very small, three of them sitting on each division of the nectary, two of them being terminal, the third rather lower; antheræ twin. *Pistil:* germen in the hollow of the nectary, ovate, five-cornered; style simple; stigma somewhat crenated. *Pericarp:* capsule five-lobed, five-cornered, ten-valved, inflated. *Seeds:* solitary, roundish, subechinated. Essential Character. *Calix:* five-leaved. *Corolla:* five-petalled. *Nectary:* bell-shaped, peduncled, staminiferous. *Capsule:* inflated, five-lobed.——The only known species is,

1. Kleinhofia Hospita. Leaves alternately scattered, longer than the petioles; flowers in racemes, small, numerous, bright purple; trunk the height of a common apple-tree, thick, incurved, and knobbed. The whole plant is smooth; its leaves, when bruised, especially the young ones, smell like violets.—Native of Java, Amboyna, and the Philippine Islands, where it flowers frequently in the year, and has commonly fruit on it, but most abundantly in October.

Knapweed. See *Centaurea.*

Knautia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth common, containing the floscules disposed in a simple orb, simple, cylindric, oblong, upright; divisions awl-shaped, approximated, of the number of the floscules; perianth proper, very small, crowning the germen, quite entire, coriaceous, pervious at top. *Corolla:* universal equal; proper one-petalled, unequal; tube the length of the calix; border unequal, four-cleft, the exterior segment larger, ovate. *Stamina:* filamenta four, longer than the tube of the corolla, inserted into the receptacle; antheræ oblong, incumbent. *Pistil:* germen inferior; style filiform, length of the stamina; stigma thickish, two-cleft. *Pericarp:* none. *Seeds:* solitary, four-sided, crowned with the down, and covered with the proper involucre of the flower; receptacle common, scarcely remarkable, flat, naked. *Observe.* This genus is distinguished from Scabiosa by the tubulated calix, and the simple orbit of flowers. Essential Character. *Calix:* common, oblong, simple, five to ten flowered; proper simple, superior. *Corollets:* irregular. *Receptacle:* naked.——The species are,

1. Knautia Orientalis. Leaves gashed; corollets in fives, longer than the calix. It rises with an upright, branching stalk, four feet high; the branches terminated by single peduncles, each supporting one flower, with the florets of a bright red colour. It is annual, and a native of the Levant.—This, and the other species also, are easily propagated. If the seeds be permitted to scatter in the autumn, the plants will come up soon after; and if some of them be planted in the borders of the pleasure-garden, or among low shrubs near the walks in October, the plants will survive the winter, and flower in June.

2. Knautia Propontica. Upper leaves lanceolate, quite entire; corollets in tens, equal to the calix. Stem biennial, the thickness of a finger, two feet high, villose.—Observed by Forskal in the Levant.

3. Knautia Palæstina. Leaves entire, six-leaved; seeds pappose. Stem upright, straight, round, brachiate, somewhat hairy, scarcely a foot high; leave opposite, hairy. It is an annual plant.—Native of Palestine.

4. Knautia Plumosa. Upper leaves pinnate; calices ten-leaved; seeds pappose. Stem upright, straight, round, brachiate, pubescent, a foot and a half high; corolla pale blue.—Native of the Levant.

Knee Holly, Knee Holm, Knee Hulm. See *Ruscus.*

Knot Grass. See *Illecebrum Verticillatum,* and *Polygonum Maritimum.*

Knoxia; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* perianth four-leaved, superior, small, deciduous; leaflets sharp-pointed, one lanceolate, thrice the size of the rest. *Corolla:* one-petalled, funnel-form; tube filiform, long; border four-parted; divisions equal, somewhat oblong, rounded. *Stamina:* filamenta four, capillary, within the mouth of the corolla; antheræ oblong, equal. *Pistil:* germen roundish, inferior; style filiform, length of the stamina; stigmas two-headed. *Pericarp:* fruit naked, subglobose, sharp-pointed, furrowed. *Seeds:* two, roundish, sharp-pointed, outwardly convex, marked with three streaks; inwardly flat, connected at the upper part to a thread-form receptacle. Essential Character. *Corolla:* one-petalled, funnel-form. *Seeds:* two, grooved. *Calix:* one leaflet larger.——The only known species is,

1. Knoxia Zeylanica. This plant has the appearance of a Plumbago, or a Lychnis. Stem upright, a foot high, smooth, jointed; leaves opposite, lanceolate, subsessile, veinless, smooth; spikes long, narrow, with scattered sessile flowers.—Native of Ceylon, and other parts of the East Indies.

Koelreuteria; a genus of the class Polygamia, order Monœcia. Essential Character. *Calix:* five-leaved. *Petals:* four. *Nectary:* double, four scalelets and three glands. *Stamina:* eight, fixed to a column. *Germen:* three-sided, fixed to the same column. *Capsule:* three-celled, with two seeds in each.——The only known species is,

1. Koelreuteria Paulinioides. Leaves equally pinnate, with six pairs of leaflets, which are ovate, laciniate, serrate, acute, smooth, flat.—It is a polygamous tree; and a native of China.

Kobresia; a genus of the class Monœcia, order Triandria.—Generic Character. *Male. Calix:* the inner scales of a catkin, each oblong, slightly concave, single-flowered, permanent, sometimes wanting. *Corolla:* none. *Stamina:* filamenta three, capillary, erect, longer than the calix; antheræ vertical, linear, erect. *Female. Calix:* the outer scales of the same catkin, rather larger, sheathing, elliptic-oblong, single flowered, permanent. *Corolla:* none. *Pistil:* germen superior, triangular; style cylindric, short; stigmas three, bristle-shaped, downy. *Pericarp:* none, except the permanent scales. *Seed:* one, triangular pointed, hard, naked. Essential Character. *Male. Calix:* the inner scales of an imbricated catkin, solitary. *Corolla:* none. *Female.*

Calix: the outer scales of the same catkin, sheathing, permanent. *Corolla:* none. *Stigmas:* three. *Seed:* triangular, naked.—The species are,

1. Kobresia Scirpina. Spike solitary, simple, cylindrical. Root perennial, tufted, consisting of numerous blackish fibres running deep into the crevices of rocks; stems numerous, about a span high, composing dense tufts; spike terminal, solitary, erect, of from ten to twenty pair of flowers; glumes brown, shining. Native of dry elevated spots in the mountains of Savoy, Italy, the Tyrol, &c.

2. Kobresia Caricina. Spike compound, dense, somewhat ovate; spikelets alternate, imbricated.—Native of Mount Cenis, in moist muddy spots.

3. Kobresia Cyperina. Umbel twice compound, leafy; spikes cylindrical; spikelets spreading; male flowers without their proper calix.—Grows in the Caraccas, in wet situations.

Kœnigia; a genus of the class Triandria, order Trigynia.—Generic Character. *Calix:* perianth three-leaved; leaflets ovate, concave, permanent. *Corolla:* none. *Stamina:* filamenta three, capillary, shorter than the calix; antheræ roundish. *Pistil:* germen ovate; styles none; stigmas three, (often only two,) approximated, villose, coloured. *Pericarp:* none; but the calix protects the seeds, without entirely covering it. *Seeds:* single, ovate, naked, length of the calix, terminated by the permanent stigmas. Essential Character. *Calix:* three-leaved. *Corolla:* none. *Seed:* one, ovate, naked.——The only known species is,

1. Kœnigia Islandica. Stem a finger's length, somewhat succulent, with very few branches opposite to the leaves, and spreading very much.—Native of Iceland, where it was found by Kœnig, (after whom it has been named,) in overflown clayey soils, both on the mountains and the coast.

Krameria; a genus of the class Tetrandria, order Monogynia.—Generic Character. *Calix:* none, except the corolla be so termed. *Corolla:* petals four, equal, spreading, oblong, acute, the uppermost wider, the lateral ones ovate; nectaries two, the upper superior, erect, linear, three-parted; divisions linear, thickish, ovate at the tips, membranaceous, the lower inferior, two-leaved; leaflets linear, convex, clavated, wrinkled. *Stamina:* filamenta four, within the nectary, ascending; antheræ small, with two foramina at the tip. *Pistil:* germen ovate; style awl-shaped, ascending, length of the stamina; stigma acute. *Pericarp:* berry dry, globose, unilocular, echinated on all sides with stiff hairs directed backwards. *Seed:* single, ovate, smooth, hard. Essential Character. *Calix:* none. *Corolla:* four-petalled. *Nectary:* upper three-parted, lower two-leaved. *Berry:* dry, echinated, one-seeded.——The only species yet discovered is,

1. Krameria Ixina. A shrub with alternate lanceolate leaves; flowers alternate, in terminating racemes.—Found in South America.

Kuhnia; a genus of the class Syngenesia, order Polygamia Æqualis.—Generic Character. *Calix:* perianth common oblong, imbricated; scales very many, unequal, lanceolate, gibbose, permanent. *Corolla:* common equal; floscules from ten to fifteen; corollets one-petalled, funnel-form, twice the length of the calix; border five-cleft, upright. *Stamina:* filamenta five, capillary, very short; antheræ subcylindric, shorter than the tube of the corollet, gaping with a lip at the top. *Pistil:* germen inferior; style the length of the stamina; stigmas two, clubbed. *Pericarp:* calix unchanged. *Seeds:* solitary, oblong, columnar, striated, smooth, crowned with a feathery down, longer than the calix or seed. *Receptacle:* naked, scrobicular, somewhat rugged. Essential Character. *Flowers:* floscular. *Calix:* imbricate, oblong, cylindrical. *Down:* plumose. *Receptacle:* naked. *Style:* deeply bifid. *Stigmas:* club-shaped. *Antheræ:* distinct.—The species are.

1. Kuhnia Eupatorioides. Leaves alternate, petioled, broad-lanceolate, naked, somewhat wrinkled, veined underneath, somewhat toothed, with the middle serratures larger; branches alternate from the middle of the stem; stem a foot and half high, upright, even, and stiffish; corollas white; stamina yellowish white.—Native of Pennsylvania.

2. Kuhnia Critonia. Leaves narrow-lanceolate; upper leaves linear, very entire, sessile. The flowers are of a pale yellow. The whole plant is pubescent. It flowers in August and September.—Found on the mountains of Pennsylvania and Virginia.

Kyllingia; a genus of the class Triandria, order Monogynia.—Generic Character. *Calix:* ament ovate or oblong, imbricated; scales oblong, distinguishing the flowers. *Glume:* unequal, compressed, bivalve; valves lanceolate, channelled, acute, much shorter than the corolla, the one shorter than the other. *Corolla:* glume longer than the calix, compressed, bivalve; valves keeled, unequal, divaricated at the tips, of which one is larger, lanceolate, very sharp, complicated, embracing the margin of the other; the other shorter, narrower. *Stamina:* filamenta three, awl-shaped, flat; antheræ linear, erect. *Pistil:* germen obovate, flattened, gibbose on one edge; style filiform; stigmas two or three, capillary. *Pericarp:* none; the glumes of the corolla preserving the seed till ripe. *Seed:* oblong, three-sided, destitute of hair. Essential Character. *Ament:* ovate or oblong, imbricate. *Flowers:* with a bivalve calix and corolla.—The species are,

1. Kyllingia Monocephala. Culm filiform, three-sided; head globular, sessile; involucre three-leaved, very long. Culm a foot high. Native of the West Indies, where it is very common; also of Japan, and of the Society Isles.

2. Kyllingia Triceps. Heads terminating in threes, or thereabouts, glomerate, sessile. Culm half a foot high, commonly decumbent at the base, naked, three-cornered.—Native of both Indies, Japan, and the Society Isles.

3. Kyllingia Panicea. Umbel terminating with spikes, sessile and peduncled, cylindrical, imbricated; universal involucre four-leaved, or thereabouts; partial none. Culm setaceous, three-sided, a span high, without knots, leafy at bottom, naked above.—Native of the East Indies.

4. Killingia Filiformis. Umbel terminating, simple: spikes sessile and peduncled, ovate; spikelets ovate, acute: involucre three-leaved; partial none.—Native of Jamaica and Hispaniola.

5. Kyllingia Umbellata. Umbel terminating; spikes sessile and peduncled, cylindrical, squarrose; universal involucre many-leaved; partial three-leaved. Culm three-sided, striated, slender, a foot at the base, naked above.—Found by Kœnig in the East Indies.

6. Kyllingia Sumatrensis. Umbel terminating; spikes sessile and peduncled, cylindrical, squarrose; universal involucre many leaved; partial none.—Found by Wennerberg, in Sumatra.

7. Kyllingia Cyperina. Culm three-sided, striated, leafy at the base; umbel simple; spikes strict, sessile; universal involucre many-leaved, very long; partial none.—Native of the East Indies.

8. Kyllingia Pumila. Culm setaceous; floscules diandrous: capitulum globose, sessile, solitary; involucre short.—It flowers and grows in the western parts of South Carolina and Georgia.

INDEX OF DISEASES,

REFERRING TO MEDICINAL PLANTS IN VOL. I.

ABDOMEN, Swelling of, see Curcuma Longa, 411.
Abscess, see Asclepias Vincetoxicum, 131.
Acrid Juices, see Amygdalus Communis, 91.
Acrimonious Humours, see Amygdalus Communis, 91; Hæmatoxylum Campeachianum, 653.
Ague, see Acorus Calamus, 57; Aloe Socotorina, 79; Angelica Archangelica, 102; Anthemis Nobilis, 103; Anthemis Pyrethrum, 104; Artemisia Vulgaris, 125; Asarum Europæum, 130; Betula Alnus, 170; Carduus Marianus, 250; Cinchona Officinalis, 301; Citrus Aurantium, 316; Fraxinus Excelsior, 578; Gentiana Centaurium, 603; Geum Urbanum, 611; Gratiola Officinalis, 642; Humulus Lupulus, 715; Hypericum Perforatum, 729; Imperatoria Ostruthium, 748.
Ague Kernels, see Artemisia Vulgaris, 125.
Alexipharmics, see Aristolochia Serpentaria, 122; Asclepias Vincetoxicum, 131; Carlina Acaulis, 257; Dorstenia Contrayerva, 469; Galega Officinalis, 588.
Anthelmintics, see Amygdalus Communis, 91; Chenopodium Ambrosioides, 290; Helleborus Fœtidus, 678.
Antiarthritic, see Aristolochia Clematitis, 122; Arnica Montana, 123. See *Gout* and *Sciatica*.
Antiparalytics, see Arnica Montana, 123.
Antiscorbutics, see Anagallis Arvensis, 93; Apium Graveolens, 111; Cochlearia Officinalis, 333; Empetrum Nigrum, 492. See *Scurvy*.
Antispasmodic, see Anthemis Nobilis, 103; Asphodelus Ramosus, 136; Carum Carui, 261; Chenopodium Ambrosioides, 290.
Aperients, see Amygdalus Communis, 91; Glechoma Hederacea, 617; Hedera Helix, 657; Juniperus Sabina, 772. See *Purge*.
Appetite, see Artemisia Maritima, 124; Artemisia Dracunculus, 126; Capsicum Baccatum, 245; Centaurea Benedicta, 277; Cinchona Officinalis, 301; Cochlearia Officinalis, 333; Cornus Suecica, 368; Crithmum Maritimum, 386; Dipsacus Fullonum, 461; Gentiana Lutea, 600; Gentiana Centaurium, 603. See *Loss of Appetite*.
Asthma, see Allium Sativum, 75; Allium Moly, 77; Anthemis Nobilis, 103; Arctium Lappa, 116; Bignonia Catalpa, 172; Bryonia Dioica, 201; Camphorosma Monspeliaca, 238; Chenopodium Ambrosioides, 290; Cluytia Eluteria, 330; Cochlearia Officinalis, 333; Conyza Squarrosa, 358; Datura Stramonium, 437; Dracontium Fœtidum, 474; Erysimum Officinale, 521; Ferula Assafœtida, 557; Hymenœa Courbaril, 724. See *Shortness of Breath*.
Astringents, see Achras Mammosa, 55; Hieracium Pilosella, 689.
Atrophy, see Hedera Helix, 657; also *Phthisis*.
Attenuants, see Aristolochia Trilobata, 121; Aristolochia Clematitis, 122; Gnaphalium Stœchis, 625; Guaiacum Officinale, 648; Helleborus Niger, 677.

B.

Back, Pains and Weakness of, see Ilex Aquifolium, 743.
Balsamics, see Artemisia Santonica, 124; Cupressus Sempervirens, 409; Hedera Helix, 657.
Bilious Disorders, see Asperula Odorata, 135; Averrhoa Bilisubi, 155; Berberis Vulgaris, 166; Citrus Aurantium, 316; Fraxinus Rotundifolia, 580; Fumaria Officinalis, 585.
Bleeding, see Alchemilla Vulgaris, 72; Alisma Plantago, 73; Centaurea Cyanus, 276; Geranium Robertianum, 609; Hieracium Pilosella, 689. See *Hæmorrhage*.
Bleeding at the Nose, see Cupressus Sempervirens, 409.
Blood, Purifier of the, see Boxus Sempervirens, 213; Fumaria Officinalis, 585; Galium Aparine, 593; Guaiacum Officinale, 648.
Bloody Flux, see Achillea Millefolium, 54; Amaranthus Blitum, 84; Anagallis Tenella, 93; Antirrhinum Elatine, 108; Argemone Mexicana, 120; Bixa Orellana, 174; Bursera Gummifera, 211; Chelidonium Majus, 288; Convallaria Multiflora, 350; Cupressus Sempervirens, 408; Cynoglossum Officinale, 410; Filago Germanica, 570; Geranium Robertianum, 609; Geum Urbanum, 611; Gossypium Barbadense, 634; Gratiola Officinalis, 642; Hieracium Pilosella, 689; Ilex Aquifolium, 743.
Blows, Poultice for, see Alsine Media, 81; Centaurea Cyanus, 276. See also *Bruises* and *Poultice*.
Breast, Disorders of, see Alchemilla Vulgaris, 72; Allium Moly, 77; Chenopodium Ambrosioides, 290; Chrysanthemum Leucanthemum, 294; Crocus Officinalis, 384; Cuminum Cyminum, 406; Eryngium Maritimum, 521; Erysimum Officinale, 521; Ficus Carica, 562; Fraxinus Rotundifolia, 581; Glechoma Hederacea, 617; Hedwigia Balsamifera, 662; Hyoscyamus Album, 725; Hyssopus Officinalis, 733; Jasminum Officinale, 736; Inula Helenium, 752.
Breasts, Sore, see Apium Petroselinum, 111; Geranium Robertianum, 609.
Breath, Offensive, see Apium Graveolens, 111; Geum Urbanum, 611.
Bruise, External, see Artemisia Absinthium, 125; Bupleurum Rotundifolium, 209; Carum Carui, 261; Convallaria Multiflora, 350; Conyza Squarrosa, 358; Geum Urbanum, 611.
Bruises, Internal, see Ajuga Reptans, 70; Antirrhinum Elatine, 108; Bupleurum Rotundifolium, 209; Centaurea Cyanus, 276; Conyza Squarrosa, 358; Geum Urbanum, 611.
Burns, see Allium Cepa, 75; Cotyledon Umbilicus, 374; Datura Stramonium, 437; Galium Verum, 591.

C.

Cachexy. See *Debility*.
Cancer, see Atropha Belladonna, 150; Conium Maculatum, 347; Galium Aparine, 593.
Carminatives, see Arethusa Meum, 65; Anethum Graveolens, 100; Bubon Macedonicum, 202; Carum Carui, 261; Juniperus Communis, 773.
Cataplasm, see Curcuma Longa, 411. See *Poultice*.
Cataract, see Hyoscyamus Niger, 724.
Catarrh, see Borago Officinalis, 179; Ephedra Distachya, 492; Hymenœa Courbaril, 724; Juniperus Communis, 773.
Cathartics, see *Aperient* and *Purge*.
Chincough, see Allium Moly, 77.
Chronic Disorders, see Aconitum Napellus, 57; Arnica Montana, 123; Asplenium Scolopendrium, 137; Daphne Mezereum, 433.
Clysters, see Anthemis Nobilis, 103; Cucurbita Langenaria 404.
Coagulated Blood, see Arnica Montana, 123; Geum Urbanum, 611.

Colds, see Adiantum Capillus Veneris, 60; Glechoma Hederacea, 617. See *Cough* and *Sudorific*.
Colic, see Æthusa Meum, 65; Ammi Majus, 89; Amomum Zinziber, 89; Amomum Granum Paradisi, 89; Apium Petroselinum, 111; Anthemis Nobilis, 103; Cuminum Cyminum, 406; Delphinium Consolida, 442; Dorstenia Contrayerva, 469; Hymenæa Courbaril, 724; Jatropa Gossypifolia, 738; Ilex Aquifolium, 743. See *Flatulent Colics*.
Consumption, see Anagallis Arvensis, 93; Arctium Lappa, 116; Datura Stramonium, 437; Eryngium Maritimum, 421.
Contagious Disorders, see Anagallis Arvensis, 93; Angelica Archangelica, 101.
Contusions, see Artemisia Abrotanum, 124.
Convulsions, see Asplenium Scolopendrium, 137; Atropa Belladonna, 150; Citrus Aurantium, 316; Conium Maculatum, 347; Ferula Assafœtida, 557; Hyoscyamus Niger, 724.
Cordials, see Angelica Archangelica, 102; Aquilaria Ovata, 113; Asperula Odorata, 135; Chelidonium Majus, 288; Crocus Officinalis, 386; Galega Officinalis, 588.
Corns, see Drosera Rotundifolia, 475; Hedera Helix, 657.
Corroborants, see Artemisia Pontica, 125; Glechoma Hederacea, 617.
Costiveness, see Amygdalus Communis, 91; Chrysophyllum Crinito, 297. See *Aperients* and *Purge*.
Cough, see Acanthus Mollis, 50; Althæa Officinalis, 82; Artemisia Vulgaris, 125; Asplenium Trichomanes, 137; Asplenium Ruta Muraria, 137; Betonica Officinalis, 168; Borago Officinalis, 179; Chenopodium Ambrosioides, 290; Copaifera Officinalis, 361; Eryngium Maritimum, 521; Erysimum Alliaria, 522; Glechoma Hederacea, 617; Glycyrrhiza Glabra, 623; Hyoscyamus Albus, 725; Hyssopus Officinalis, 733; Jasminum Officinale, 733; Inula Helenium, 752.
Cough, Dry, see Hyoscyamus Niger, 724.
Cough, Tickling, see Amygdalus Communis, 91; Cynoglossum Officinalis, 419.
Cramp, see Artemisia Vulgaris, 125; Hymenæa Courbaril, 724.
Cutaneous Eruptions, see Betula Alba, 167; Erica Vulgaris, 506; Fumaria Officinalis, 585; Galium Aparine, 593; Guaiacum Officinale, 648; Humulus Lupulus, 715; Hypochoeris Maculata, 731.
Cuts, see Centaurea Cyanus, 276; Hypericum Androsœmum, 728; Hyssopus Officinalis, 733.

D.

Debility, see Amomum Zinziber, 98.
Delivery, see Aristolochia Rotunda, and Aristolochia Longa, 122; Bryonia Dioica, 201.
Deobstruent, see Erysimum Alliaria, 522.
Diabetes, see Agrimonia Eupatoria, 67.
Diaphoretics, see Aristolochia Serpentaria, 122; Gnaphalium Stoechas, 625; Juniperinus Communis, 773.
Diarrhœas, see Geum Rivale, 612; Iris Pseudacorus, 760. See *Dysentery* and *Fluxes*.
Digestion, see Amomum Cardamomum, 89; Coriandrum Sativum, 361; Dorstenia Contrayerva, 469; Erysimum Alliana, 522; Gentiana Lutea, 600; Gentiana Centaurium, 603; Imperatoria Ostruthium, 748.
Discutient, see Gnaphalium Stoechas, 625. See *Carminative*.
Diuretics, see Achillea Ageratum, 53; Æthusa Meum, 65; Ajuga Reptans, 70; Amygdalus Communis, 91; Apium Petroselinum, 111; Aristolochia Trilubata, 121; Aristolochia Serpentaria, 122; Arnica Montana, 123; Artemisia Absinthium, 125; Arum Maculatum, 128; Arundo Phragmites, 129; Asarum Europæum, 130; Asclepias Vincetoxicum, 131; Asphodelus Ramosus, 136; Betula Alba, 168; Bryonia Alba, 201; Bryonia Dioica, 261; Bubon Macedonicum, 202; Cactus Cochinillifer, 220; Cardamine Pratensis, 247; Culina Acaulis, 257; Carum Carui, 261; Cassia Occidentalis, 264; Centaurea Cyanus, 276; Chærophyllum Sylvestre, 283; Chelidonium Majus, 288; Chrysanthemum Leucanthemum, 294; Cissampelos Pareira, 307; Clematis Flammula, 322; Cluytia Elateria, 330; Colchicum Autumnale, 340; Conium Maculatum, 347; Convolvulus Jalapa, 353; Convolvulus Soldanella, 356; Cochlearia Officinalis, 333; Cotyledon Umbilicus, 374; Crithmum Maritimum, 386; Cucumis Melo, 400; Cynari Scolymus, 417; Daucus Carota, 438; Dictamnus Albus, 345; Digitalis Purpurea, 454; Dolichos Pruriens, 466; Empetrum Nigrum, 492; Eryngium Maritimum, 521; Erysimum Alliaria, 522; Erysimum Cheiranthoides, 522; Euphrasia Officinalis, 544; Fragaria Vesica, 573; Galium Aparine, 593; Genista Tinctoria, 598; Glechoma Hederacea, 617; Glycyrrhiza Glabra, 623; Helleborus Niger, 677; Heracleum Sphondylium, 680; Herniaria Glabra, 683; Humulus Lupulus, 716; Hyacinthus Nonscriptus, 717; Hypericum Perforatum, 729; Hyssopus Officinalis, 733; Iris Pseudacorus, 760; Juniperus Sabina, 772; Juniperus Communis, 773; Xanthoxylum Fraxineum, 819.
Dropsy, Agrostemma Githago, 67; Anagallis Arvensis, 93; Anthemis Nobilis, 103; Antirrhinum Linaria, 109; Apium Petroselinum, 111; Arctium Lappa, 116; Arnica Montana, 123; Artemisia Absinthium, 125; Arum Seguinum, 129; Asarum Europæum, 130; Asclepias Vincetoxicum, 131; Betonica Officinalis, 168; Betula Alba, 169; Bryonia Dioica, 201; Cambogia Gutta, 230; Chelidonium Majus, 288; Cochlearia Armoracia, 334; Colchicum Autumnale, 340; Convolvulus Arvensis, 351; Convolvulus Jalapa, 351; Convolvulus Soldanella, 356; Cynara Scolymus, 417; Daphne Mezereum, 433; Daphne Laureola, 434; Daphne Cannabina, 435; Daucus Carota, 438; Digitalis Purpurea, 454; Dolichos Pruriens, 466; Dorstenia Contrayerva, 469; Erysimum Alliaria, 522; Eupatorium Cannabinum, 533; Fraxinus Excelsior, 579; Galium Aparine, 593; Glycyrrhiza Glabra, 623; Gratiola Officinalis, 642; Hedera Helix, 657; Helleborus Niger, 677; Imperatoria Ostruthium, 748; Iris Germanica, 756; Juniperus Communis, 773.
Dysentery, see Amyris Ambrosiaca, 92; Artemisia Annua, 125; Artemisia Chinensis, 126; Atropa Belladonna, 150; Brassica Eruca, 194; Brucea Ferruginea, 200; Garcinia Mangostan, 595; Inula Dysenterica, 753; Willughbei Acida, 809.

E.

Elephantiasis, see Bubroma Guazuma, 203.
Emetics. See *Vomits*.
Emollients, see Chenopodium Bonus Henricus, 289.
Epidemic Diseases, see Aristolochia Serpentaria, 122. See *Pestilence*.
Epilepsy, see Atropa Belladonna, 150; Buxus Sempervirens, 213; Cardamine Pratensis, 247; Datura Stramonium, 437; Galium Verum, 592; Hyoscyamus Niger, 724. See *Falling Sickness*.
Errhines, see Glechoma Hederacea, 617; Iris Pseudacorus, 760.
Eructation, see Amomum Cardamomum, 89.
Expectoration, see Allium Sativum, 75; Cochlearia Armoracia, 334; Glycyrrhiza Glabra, 623.
Eyes, Disorders of the, see Amyris Balsamifera, 92; Antirrhinum Elatine, 108; Argemone Mexicana, 120; Chelidonium Majus, 288; Euphrasia Officinalis, 544. See *Cataract* and *Sight*.
Eyes, Inflammations of the, see Antirrhinum Elatine, 108;

Antirrhinum Linaria, 109; Apium Petroselinum, 111; Borago Officinalis, 179; Calendula Officinalis, 224; Centaurea Cyanus, 276; Chelidonium Majus, 288; Conium Maculatum, 347; Erica Vulgaris, 506; Glechoma Hederacea, 617.

Eyes, Spots on the, see Chelidonium Majus, 288; Glechoma Hederacea, 617; Heruiaria Glabra, 683.

F.

Face, Affections of the, see Anthemis Pyrethrum, 104.

Falling Sickness, see Anagallis Arvensis, 93; Betonica Officinalis, 166; Cardamine Pratensis, 247; Conium Maculatum, 347; Digitalis Purpurea, 454. See *Epilepsy*.

Fevers, see Anagallis Arvensis, 93; Andropogon Nardus, 97; Anthemis Nobilis, 103; Arctium Lappa, 116; Aristolochia Serpentaria, 122; Arnica Montana, 123; Artemisia Spicata, 125; Artemisia Annua, 125; Asclepias Vencetoxicum, 131; Berberis Vulgaris, 166; Borago Officinalis, 179; Calendula Officinalis, 224; Cinchona Officinalis, 301; Citrus Aurantium, 316; Cornus Mascula, 367; Cucumis Melo, 401; Daphne Laureola, 434; Dictamnus Albus, 453; Digitalis Purpurea, 454; Dorstenia Contrayerva, 469; Echium Vulgare, 483; Galega Officinalis, 588; Garcinia Mangostan, 595; Gentiana Lutea, 600; Guaiacum Officinale, 648; Hordeum Vulgare, 704; Humulus Lupulus, 716.

Fistula, see Corium Maculatum, 347.

Fits, see Ferula Assafœtida, 557.

Flatulence, see Amomum Galangale, 89; Angelica Archangelica, 102; Carum Carui, 261; Coriandrum Sativum, 365; Cuminium Cyminium, 406; Dorstenia Contrayerva, 469; Hymenæa Courbaril, 724; Kæmpferia Galanga, 781.

Flatulent Colics, see Amomum Zinziber, 89; Anethum Graveolens, 100.

Fluor Albus, see Cinchona Officinalis, 301. See *Whites*.

Flux, see Ajuga Reptans, 70; Cluytia Eluteria, 330; Equisetum Sylvaticum, 503; Fragaria Vesca, 574; Hæmatoxylum Campechianum, 653; Iiex Aquifolium, 743; Juglans Regia, 765; Juniperus Lycia, 774.

Fomentation, see Ægopodium Podagraria, 63; Anthemis Nobilis, 103; Artemisia Abrotanum, 124; Artemisia Maritima, 124; Artemisia Absinthium, 125; Gnaphalium Margaritaceum, 627; Jatropha Curcus, 738; Ilex Aquifolium, 743.

Freckles, see Fumaria Officinalis, 585.

G.

Gangrene, see Chærophyllum Sylvestre, 283; Conium Maculatum, 347. See *Mortification*.

Gargle, see Juglans Regia, 765.

Gleets, see Conium Maculatum, 347.

Gout, see Aristolochia Longa, 122; Athamanta Cervaria, 145; Betonica Officinalis, 168; Fragaria Vesca, 574; Galium Verum, 591; Gentiana Centaurium, 603; Hypericum Perforatum, 729.

Gravel, see Alcæa Rosea, 72; Althæa Officinalis, 82; Amygdalus Communis, 91; Anagallis Arvensis, 93; Anthemis Nobilis, 103; Aphanes Arvensis, 110; Apium Petroselinum, 111; Apium Graveolens, 111; Arbutus Uva Ursi, 116; Arctium Lappa, 116; Arum Maculatum, 128; Arundo Phragmites, 129; Asplenium Ceterach, 137; Betula Alba, 167; Bidens Tripartita, 171; Bryonia Alba, 201; Cotyledon Umbilicus, 374; Crithmum Maritimum, 386; Daucus Carota, 438; Dictamnus Albus, 453; Fraxinus Excelsior, 579; Fraxinus Rotundifolia, 580; Galium Aparine, 593; Glycyrrhiza Glabra, 623. See *Diuretics* and *Stone*.

Gums, see Aquilegia Vulgaris, 114.

H.

Hæmorrhage, Internal, see Achillea Ptarmica, 54; Agrimonia Eupatoria, 67; Alchemilla Vulgaris, 72; Antirrhinum Elatine, 108; Artemisia Chinensis, 126; Chelidonium Majus, 288; Cinchona Officinalis, 301; Cluytia Eluteria, 330; Delphinium Consolida, 441; Fungi, 586; Galium Verum, 591; Geum Rivale, 612; Hyoscyamus Albus, 725; Hypericum Perforatum, 729. See *Bleeding* and *Styptic*.

Headache, see Achillea Ptarmica, and Achillea Moschata, 54; Amomum Galangale, 89; Anthemis Pyrethrum, 104; Betonica Officinalis, 168; Cardamine Pratensis, 247; Cheiranthus Cheiri, 285; Clematis Recta, 322; Coriandrum Sativum, 365; Echium Vulgare, 483; Glechoma Hederacea, 617; Kæmpferia Galanga, 781. See *Nervous Complaints*.

Head, Disorders of the, see Amomum Cardamomum, 89, Anemone Nemorosa, 100; Asarum Europæum, 130; Delphinium Staphisagria, 443; Fumaria Officinalis, 585; Hedera Helix, 657; Hymenæa Courbaril, 724; Juniperus Lycia, 774.

Heartburn, see Amygdalus Communis, 91. See *Stomachics*.

Heat of the Stomach, see Anethum Feniculum Azoricum, 101 See *Stomachics*.

Hectics, see Copaifera Officinalis, 361.

Hoarseness, see Adiantum Capillus Veneris, 60; Allium Sativum, 75; Althæa Officinalis, 82; Amygdalus Communis, 91; Erysimum Officinale, 521: Erysimum Alliaria, 522; Glycyrrhiza Glabra, 623; Hyssopus Officinalis, 733.

Hooping Cough, see Fraxinus Rotundifolia, 580; Inula Helenium, 752.

Humours, see Artemisia Abrotanum, 124; Carlina Acaulis, 257; Glycyrrhiza Glabra, 623.

Hypochondria, see Anthemis Nobilis, 103; Ballota Nigra, 158; Borago Officinalis, 179; Fumaria Officinalis, 585.

Hysterics, see Anthemis Nobilis, 103; Anthemis Cotula, 104; Artemisia Abrotanum, 124; Artemisia Vulgaris, 125; Ballota Nigra, 158; Bryonia Dioica, 201; Bubon Galbanum, 203; Cardamine Pratensis, 247; Carlina Acaulis, 257; Carum Carui, 261; Chenopodium Ambrosioides, 290; Cheopodium Vulvaria, 290; Crocus Officinalis, 386; Dictamnus Albus, 453; Eryngium Fœtidum, 520; Ferula Assafœtida, 557; Galium Verum, 591; Helleborus Niger, 677; Humulus Lupulus, 716; Iris Fœtidissima, 760.

I.

Imposthumes, see Anethum Graveolens, 100.

Inflammations, see Betula Alnus, 170; Citrus Aurantium, 317; Cotyledon Umbilicus, 374; Datura Stramonium, 487; Hydrocharis Morsus Ranæ, 722.

Intermittents, see Arnica Montana, 123; Artemisia Spicata, 124; Athamanta Cervaria, 145; Cinchona Officinalis, 301; Citrus Medica, 315; Citrus Aurantium, 317; Cluytia Eluteria, 330; Gentiana Lutea, 600; Geum Urbanum, 611; Guaiacum Officinale, 648. See *Ague* and *Tertians*.

Issues, see Hedera Helix, 657.

Itch, see Berberis Vulgaris, 166; Conium Maculatum, 347; Conyza Squarrosa, 358; Gentiana Centaurium, 603; Inula Helenium, 752; Inula Dysenterica, 753. See *Cutaneous Eruptions* and *Scabs*.

J.

Jaundice, see Agrimonia Eupatoria, 67; Agrostemma Githago, 68; Aloe Socotorina, 79; Anthemis Nobilis, 103; Antirrhinum Linaria, 109; Aphanes Arvensis, 110; Apium Petroselinum, 111; Aquilegia Vulgaris, 114; Arctium Lappa, 116; Artemisia Absinthium, 125; Asarum Euro-

pæum, 130; Asclepias Vincetoxicum, 131; Asperula Odorata, 135; Betonica Officinalis, 168; Borago Officinalis, 179; Bryonia Dioica, 201; Calendula Officinalis, 224; Cardamine Pratensis, 247; Chelidonium Majus, 288; Convolvulus Arvensis, 351; Crithmum Maritimum, 386; Curcuma Longa, 411; Cuscuta Europæa, 412; Cynara Scolymus, 417; Daucus Carota, 438; Dipsacus Fullonum, 462; Eryngium Maritimum, 521; Erysimum Cheiranthoides, 522; Eupatorium Cannabinum, 533; Fragaria Vesca, 574; Fraxinus Excelsior, 579; Gentiana Centaurium, 603; Gratiola Officinalis, 642; Humulus Lupulus, 715; Hypericum Perforatum, 729.

Jaundice, Black, see Fumaria Officinalis, 585.

Juices, see Glycyrrhiza Glabra, 623.

K.

Kidneys, Disorders of, see Bixa Orellana, 174; Curcuma Longa, 411; Dolichos Pruriens, 466; Humulus Lupulus, 716; Hypericum Perforatum, 729.

L.

Lethargy, see Anthemis Pyrethrum, 104.

Lice, see Delphinium Staphisagria, 443; Euonymus Europæus, 520; Gentiana Centaurium, 603.

Limbs. See *Pains of the Limbs*.

Liver Complaint, see Achillea Ageratum, 53; Anagallis Arvensis, 93; Aphanes Arvensis, 110; Asperula Odorata, 135; Asplenium Ceterach, 137; Dipsacus Fullonum, 461; Eryngium Maritimum, 521; Fraxinus Excelsior, 578; Isatis Tinctoria, 762.

Loathing, see Anthemum Fœniculum Azoricum, 101. See *Loss of Appetite*.

Loss of Appetite, see Centaurea Benedicta, 277.

Lumbago. See *Pains of the Back*.

Lunacy. See *Madness*.

Lungs, Obstructions of, &c. see Adiantum Capillus Veneris, 60; Betonica Officinalis, 168; Borago Officinalis, 179; Carlina Acaulis, 257; Glechoma Hederacea, 617; Hyssopus Officinalis, 733.

Lungs, Ulcerated, see Anagallis Arvensis, 93; Glechoma Hederacea, 617.

M.

Madness, see Datura Stram. 437; Hyoscyamus Niger, 724.

Measles, see Aquilegia Vulgaris, 114; Asclepias Vincetoxicum, 131; Calendula Officinalis, 224.

Menses, see Agrostemma Githago, 68; Anagallis Tenella, 93; Anethum Graveolens, 100; Anthemis Cotula, 104; Aristolochia Clematitis, 122; Artemisia Vulgaris, 125; Arundo Phragmites, 129; Asarum Europæum, 130; Asclepias Vincetoxicum, 131; Asphodelus Ramosus, 136; Ballota Nigra, 158; Bryonia Dioica, 201; Bubon Galbanum, 202; Calendula Officinalis, 224; Carlina Acaulis, 257; Chelidonium Majus, 288; Conium Maculatum, 347; Crithmum Maritimum, 386; Crocus Officinalis, 387; Cupressus Sempervirens, 409; Curcuma Longa, 411; Cynoglossum Officinale, 419; Equisetum Sylvaticum, 503; Galium Verum, 591; Hæmatoxylum Campechianum, 653; Helleborus Niger, 677; Humulus Lupulus, 716; Hyoscyamus Albus, 725; Iris Fœtidissima, 760; Juniperus Sabina, 772.

Menses, Overflowing of the, see Achillea Millefolium, 54; Alchemilla Vulgaris, 72; Citrus Aurantium, 316; Curcuma Longa, 411; Cynoglossum Officinale, 419; Daucus Carota, 438; Equisetum Sylvaticum, 503; Geranium Robertianum, 609; Hieracium Pilosella, 689; Ilex Aquifolium, 743.

Milk, Curdling of Women's, see Apium Petroselinum, 111.

Milk, Nurses', see Anethum Fœniculum Azoricum, 101.

Mortification, see Cinchona Officinalis, 301.

Mushrooms, Poisonous, see Anethum Fœnic. Azoricum, 101.

N.

Nervous Complaints, see Aetæa Spicata, 59; Amomum Zerumbet, 89; Amyris Balsamifera, 92; Artemisia Abrotanum, 124; Ballota Nigra, 158; Bystropogon Suaveolens, 214; Cardamine Pratensis, 247; Carlina Acaulis, 257; Cheiranthus Cheiri, 285; Citrus Aurantium, 316; Dorstenia Contrayerva, 469; Echium Vulgare, 483; Ferula Assafœtida, 558; Geum Urbanum, 611; Helleborus Niger, 677; Hymenæa Courbaril, 724; Iris Fœtidissima, 760.

Nephritic Pains, see Amygdalus Communis, 91; Glechoma Hederacea, 617. See *Gravel, Stone*, and *Strangury*.

O.

Obstructions of the Viscera, see Adiantum Capillus Veneris, 60; Æthusa Meum, 65; Antirrhinum Linaria, 109; Artemisia Absinthium, 125; Asclepias Vincetoxicum, 131; Asperula Odorata, 135; Asplenium Scolopendrium, 137; Asplenium Ceterach, 137; Asplenium Ruta Muraria, 138; Borago Officinalis, 179; Bryonia Alba, 201; Cardamine Pratensis, 247; Chærophyllum Sylvestre, 283; Chelidonium Majus, 288; Cochlearia Officinalis, 333; Convolvulus Arvensis, 351; Crithmum Maritimum, 386; Crocus Officinalis, 387; Curcuma Longa, 411; Daucus Carota, 438; Eryngium Maritimum, 521; Erysimum Cheiranthoides, 522; Fraxinus Excelsior, 578; Fumaria Officinalis, 585; Galium Aparine, 593; Genista Tinctoria, 599; Gentiana Centaurium, 603; Gratiola Officinalis, 642; Helleborus Niger, 677; Humulus Lupulus, 715; Hyssopus Officinalis, 733.

Obstructions of the Liver, see Cuscuta Europæa, 412; Fraxinus Excelsior, 578. See *Liver Complaint*.

P.

Pains in the Side, see Artemisia Spicata, 125.

Pains in the Limbs, see Ægopodium Podagraria, 63; Cheiranthus Cheiri, 285.

Palpitation of the Heart, see Citrus Medica, 315.

Palsy, see Arnica Montana, 123; Asarum Europæum, 130; Betonica Officinalis, 168; Cardamine Pratensis, 247; Cochlearia Officinalis, 333.

Paralytics, see Anthemis Pyrethrum, 104; Arum Maculatum, 128; Caryophyllus Aromaticus, 262; Cochlearia Armoracia, 334; Daphne Mezereum, 433.

Perspiration, see Anagallis Arvensis, 93; Anthemis Nobilis, 103; Artemisia Abrotanum, 124; Artemisia Spicata, 125; Calendula Officinalis, 224; Carlina Acaulis, 257; Chelidonium Majus, 288; Conium Maculatum, 347; Crocus Officinalis, 387; Dorstenia Contrayerva, 469; Echium Vulgare, 483; Fragaria Vesca, 574; Helleborus Niger, 677. See *Sudorific*.

Pestilence, see Anagallis Arvensis, 93; Angelica Archangelica, 102; Calendula Officinalis, 224; Fraxinus Excelsior, 578; Galega Officinalis, 588. See *Epidemic Diseases*.

Phlegm, see Erigerum Acre, 513; Erysimum Officinale, 521. See *Discutients*.

Phthisis, see Angelica Archangelica, 102; Cluytia Eluteria, 330. See *Atrophy* and *Consumption*.

Piles, see Achillea Millefolium, 54; Alisma Plantago, 73; Anthemis Cotula, 104; Antirrhinum Linaria, 109; Buxus Sempervirens, 213; Circæa Lutetiana, 306; Cotyledon Umbilicus, 374; Cynoglossum Officinale, 419; Delphinium Consolida, 441; Hieracium Pilosella, 689; Hyoscyamus Niger, 725.

Pleurisy, see Angelica Archangelica, 102; Artemisia Campestris, 124; Carduus Marianus, 250; Fraxinus Rotundifolia, 580; Hedera Helix, 657.

Poison, see Atropa Belladonna, 150; Cassia Occidentalis,

264; Cicuta Virosa, 301; Conium Maculatum, 346. See *Mushroom.*

Poultice, see Ægopodium Podagraria, 65; Althæa Officinalis, 82; Anthemis Nobilis, 103; Apium Petroselinum, 111; Carum Carui, 261; Cucurbita Lagenaria, 404.

Pulmonary Complaints, see Glechoma Hederacea, 617.

Purge, see Aloe Socotorina, 79; Antirrhinum Linaria, 109; Bryonia Dioica, 201; Cassia Fistula, 264; Cassia Senna, 264; Chelidonium Majus, 288; Colchicum Autumnale, 341; Conium Maculatum, 347; Convolvulus Scammonia, 351; Convolvulus Jalapa, 353; Convolvulus Soldanella, 356; Cucumis Colocinthis, 397; Cucurbita Lagenaria, 404; Cuscuta Europæa, 412; Cynoglossum Officinale, 419; Daphne Mezereum, 433; Daphne Laureola, 434; Delphinium Staphisagria, 443; Eupatorium Cannabinum, 533; Fraxinus Excelsior, 579; Fraxinus Rotundifolia, 580; Genista Tinctoria, 598; Globularia Alypum, 619; Gratiola Officinalis, 642; Guaiacum Officinale, 648; Hedera Helix, 657; Helleborus Niger, 677; Helleborus Fœtidus, 678; Iris Germanica, 758; Iris Fœtidissima, 760.

Purging, Immoderate, see Aconitum Anthora, 57; Alchemilla Vulgaris, 72; Anagallis Tenella, 93; Asarum Europæum, 130; Astrantia Major, 145; Betula Alba, 168; Cambogia Gutta, 230; Coriandrum Sativum, 365; Delphinium Consolida, 442; Filago Germanica, 570; Geum Urbanum, 611; Hieracium Pilosella, 689.

Putrid Sore Throat, see Anthemis Nobilis, 103. See *Throat, Ulcerated Sore.*

Putrid Fevers, see Borago Officinalis, 179. See *Fevers.*

Q.

Quinsey, see Ajuga Reptans, 71; Asperula Cynanchica, 136. See *Putrid Sore Throat.*

R.

Resolvents, see Amygdalus Communis, 91; Hedera Helix, 657.

Reins, Disorders of, see Anagallis Arvensis, 93. See *Kidneys.*

Rheumatism, see Aconitum Napellus, 57; Anthemis Pyrethrum, 104; Arnica Montana, 123; Artemisia Spicata, 125; Arum Maculatum, 128; Betula Alnus, 170; Cinchona Officinalis, 302; Conium Maculatum, 347; Convolvulus Scammonia, 351; Convolvulus Soldanella, 356; Cochlearia Officinalis, 333; Cochlearia Armoracia, 334; Delphinium Staphisagria, 443; Ephedra Distachya, 493; Erysimum Cheiranthoides, 522; Figara Piperita, 547; Galium Verum, 593; Gratiola Officinalis, 642; Guaiacum Officinale, 648; Hedera Helix, 657; Hypericum Perforatum, 729; Ilex Aquifolium, 743; Xanthoxylum Fraxineum, 819.

Rheumatic Fevers, see Daphne Laureola, 434. See *Fevers.*

Ringworm, see Anacardium Occidentale, 92; Atropa Belladonna, 150; Chelidonium Majus, 288. See *Cutaneous Disorders, Shingles*, and *Tetters.*

Ruptures, see Bupleurum Rotundifolium, 209.

S.

Salivation. See *Sialægogue.*

Scabs, see Fraxinus Excelsior, 579; Galium Verum, 592.

Sciatica, see Ægopodium Podagraria, 63; Artemisia Vulgaris, 125; Artemisia Chinensis, 126; Bryonia Dioica, 201; Cuscuta Europæa, 412; Galium Verum, 591; Gratiola Officinalis, 624.

Scorbutic Complaints, see Agrimonia Eupatoria, 67; Bellis Perennis, 165; Canella Alba, 239; Cardamine Pratensis, 247; Cluytia Eluteria, 330; Cochlearia Officinalis, 333; Cochlearia Armoracia, 334; Cuscuta Europæa, 412; Daucus Carota, 438; Eryngium Maritimum, 521; Fumaria Officinalis 585; Humulus Lupulus, 715. See *Antiscorbutic.*

Scrophula, see Anthemis Cotula, 104; Bupleurum Longifolium, 209; Calendula Officinalis, 224; Cinchona Officinalis, 302; Digitalis Purpurea, 454; Galium Aperine, 593; Iris Pseudacorus, 760; Iris Fœtidissima, 760.

Scurvy, see Alsine Media, 81; Arum Maculatum, 128; Betula Alba, 168; Citrus Aurantium, 317; Cochlearia Officinalis, 333; Eupatorium Cannabinum, 533.

Shingles, see Erica Vulgaris, 505. See *Ringworm.*

Shortness of Breath, see Anethum Fœniculum, 101; Angelica Archangelica, 102; Betonica Officinalis, 166; Glycyrrhiza Glabra, 623. See *Asthma.*

Sialægogue, see Imperatoria Ostruthium, 748; Iris Pseudacorus, 760.

Sight, see Anethum Fœniculum, 101. See *Eyes.*

Siphilitic Cases, see Daphne Mezereum, 433. See *Venereal Disorders.*

Small Pox, see Aquilegia Vulgaris, 114; Calendula Officinalis, 224.

Sneezing. See *Errhines.*

Solids, Strengthening the, see Cinchona, 303. See *Debility.*

Sores, see Anemone Nemorosa, 100; Cluytia Eluteria, 330; Conium Maculatum, 347; Digitalis Purpurea, 454; Eupatorium Cannabinum, 533.

Spasms, see Hyoscyamus Niger, 724.

Spleen, Disorders of the, see Anagallis Arvensis, 93; Asplenium Ceterach, 137; Canna Indica, 239.

Spleen, Obstructions of, see Isatis Tinctoria, 762.

Spitting of Blood, see Anagallis Tenella, 93; Centaurea Cyanus, 276; Copaifera Officinalis, 361; Cupressus Sempervirens, 409; Equisetum Sylvaticum, 503; Galium Verum, 592; Geum Urbanum, 611; Juniperus Lycia, 773; Hyoscyamus Niger, 724; Hyoscyamus Albus, 725; Hypericum, 729. See *Styptic.*

Stimulants, see Amomum Sylvestre, 89; Arum Maculatum, 128; Carlina Acaulis, 257; Caryophyllus Aromaticus, 292; Juniperus Sabina, 772.

Stitch, see Betonica Officinalis, 166; Carduus Marianus, 250; Cuminum Cyminum, 406.

Stomachics, see Æthusa Meum, 65; Amomum Zinziber and Sylvestre, 89; Angelica Archangelica, 102; Anthemis Nobilis, 103; Aristolochia Trilobata, 121; Artemisia Santonica, 124; Artemisia Maritima, 124; Artemisia Pontica, 125; Artemisia Absinthium, 125; Artemisia Chinensis, 126; Asperula Odorata, 135; Betonica Officinalis, 168; Calea Lobata, 223; Carum Carui, 261; Citrus Aurantium, 317; Crithmum Maritimum, 386; Dorstenia Contrayerva, 469; Fumaria Officinalis, 585; Gentiana Lutea, 600; Geum Urbanum, 611; Hæmatoxylum Campechianum, 653; Heracleum Sphondylium, 680; Juniperus Communis, 773; Kæmpferia Galanga, 781.

Stone, see Æthusa Meum, 65; Alcea Rosea, 72; Althæa Officinalis, 82; Ammi Majus, 89; Amygdalus Communis, 91; Anagallis Arvensis, 93; Apium Petroselinum, 111; Apium Graveolens, 111; Arbutus Uva Ursi, 116; Arctium Lappa, 116; Artemisia Absinthium, 125; Athamanta Cretensis, 146; Betula Alba, 168; Bidens Tripartita, 171; Cluytia Eluteria, 330; Crithmum Maritimum, 386; Daucus Carota, 438; Fraxinus Excelsior, 578; Hordeum Vulgare, 704.

Strangury, see Acanthus Mollis, 50; Alcea Rosea, 72; Amygdalus Communis, 91; Anthemis Nobilis, 104; Arundo Phragmites, 129; Cotyledon Umbilicus, 374; Curcuma Longa, 411; Fragaria Vesca, 574; Galium Aparine, 593; Hordeum Vulgare, 704.

Styptic, see Cupressus Sempervirens, 409; Hyacinthus Non-scriptus, 717. See *Cuts.*

Subastringent, see Hæmatoxylum Campechianum, 653.

Sudorific, see Achillea Moschata, 54; Anagallis Arvensis, 93; Angelica Archangelica, 102; Aquilegia Vulgaris, 114; Argemone Mexicana, 120; Erysimum Alliaria, 522; Ferula Assafœtida, 557; Galega Officinalis, 588; Guaiacum Officinale, 648; Humulus Lupulus, 715; Imperatoria Ostruthium, 748; Xanthoxylum Fraxineum, 819. See *Perspiration.*

Swellings, Hard, see Allium Sativum, 75; Althæa Officinalis, 82; Atropa Belladonna, 150; Betula Alnus, 170; Cinchona Officinalis, 302; Conium Maculatum, 347; Ervum Lens, 519; Ferula Assafœtida, 557; Geranium Robertianum, 609; Hydrocharis Morsus Ranæ, 722. See *Tumors.*

T.

Tertians, see Æthusa Meum, 65; Carum Carui, 261; Colchicum Autumnale, 340; Geum Rivale, 612. See *Ague.*

Tetters, see Atropa Belladonna, 150; Chelidonium Majus, 288; Hypochoeris Maculata, 731. See *Ringworm, Cutaneous Eruptions*, &c.

Throat, Ulcerated Sore, see Apium Graveolens, 111; Aquilegia Vulgaris, 114; Campanula Medium, 235; Erysimum Officinale, 521; Fragaria Vesca, 573; Juglans Regia, 765. See *Putrid Sore Throat.*

Tongue, Paralysis of the, see Anthemis Pyrethrum, 104.

Tonics, see Arnica Montana, 123; Artemisia Santonicu, 124.

Toothache, see Achillea Ptarmica, 54; Anthemis Pyrethrum, 104; Buxus Sempervirens, 213; Caryophyllus Aromaticus, 262; Hyoscyamus Niger, 724; Imperatoria Ostruthium, 748; Xanthoxylum Fraxineum, 819.

Tremors of the Limbs, see Convallaria Maialis, 349.

Tumors, see Apium Petroselinum, 111; Asclepias Vincetoxicum, 131; Canna Indica, 239; Cinchona Officinalis, 302; Conium Maculatum, 247; Cuscuta Europæa, 412; Daphne Mezereum, 433; Ficus Carica, 562; Iris Pseudacorus, 760.

U.

Ulcers, see Anemone Nemorosa, 100; Anethum Graveolens, 100; Antirrhinum Elatine, 108; Aquilegia Vulgaris, 114; Aristolochia Longa, 122; Artemisia Annua, 125; Artemisia Chinensis, 126; Asclepias Vincetoxicum, 131; Buxus Sempervirens, 213; Centaurea Cyanus, 276; Chenopodium Bonus Henricus, 289; Cinchona Officinalis, 302; Clematis Recta, 323; Copaifera Officinalis, 361; Cynoglossum Officinale, 419; Daphne Mezereum, 433; Daucus Carota, 438; Digitalis Purpurea, 454; Equisetum Sylvatica, 503; Erysimum Alliaria, 522; Eupatorium Cannabinum, 533; Galium Verum, 591.

Urine, Heat of, see Alcea Rosea, 72; Althæa Officinalis, 82; Equisetum Sylvaticum, 503.

Urine, Evacuation by, see Anethum Fœniculum Azoricum, 101; Antirrhinum Linaria, 109; Apium Graveolens, 111; Aquilegia Vulgaris, 114; Arctium Lappa, 116. See *Diuretics.*

V.

Venereal Disorders, see Arctium Lappa, 116; Daphne Mezereum, 433; Daphne Laureola, 434; Delphinium Staphisagria, 443; Euphorbia Tithymaloides, 538. See *Syphilitic Cases.*

Vermifuge, see Cassia Occidentalis, 264; Geoffroya Inermis, 606; Hymenœa Courbaril, 724. See *Worms.*

Viscera, Obstructions of, see Æthusa Meum, 65; Allium Moly, 77; Aloe Socotorina, 79; Anethum Fœniculum Azoricum, 101; Antirrhinum Linaria, 109; Aphanes Arvensis, 110; Aquilegia Vulgaris, 114; Betonica Officinalis, 168; Betula Alba, 169; Bystropogon Suaveolens, 214; Calendula Officinalis, 224; Fumaria Officinalis, 585; Gentiana Lutea, 600. See *Purges.*

Viscid Humours. See *Attenuants.*

Vomits, see Asarum Europæum, 130; Asclepias Curassavica, 131; Betonica Officinalis, 168; Cambogia Gutta, 230; Centaurea Benedicta, 277; Colchicum Autumnale, 340; Cochlearia Armoracia, 334; Colutea Arborescens, 343; Delphinium Staphisagria, 443; Digitalis Purpurea, 454; Eupatorium Cannabinum, 533; Gratiola Officinalis, 642; Hedera Helix, 657; Juglans Regia, 766. See *Emetics.*

Vulneraries, see Achemilla Vulgaris, 72; Geranium Robertianum, 609; Hypericum Androsæmum, 728; Hypericum Perforatum, 729. See *Styptic.*

W.

Warts, see Calendula Officinalis, 224; Drosera Rotundifolia, 475.

Water in the Chest, see Digitalis Purpurea, 454.

Watery Humours, see Anemone Nemorosa, 100; Gratiola Officinalis, 642; Hedera Helix, 657.

Whites, see Convallaria Multiflora, 350; Copaifera Officinalis, 361; Cynoglossum Officinale, 419; Filago Germanica, 570; Hyacinthus Non-scriptus, 717. See *Fluor Albus.*

Wind, see Amomum Cardamomum, 89; Anethum Graveolens, 100; Anethum Fœniculum Azoricum, 101; Artemisia Maritima, 122; Carum Carui, 261; Epidendrum Vanilla, 494. See *Flatulence.*

Worms, see Allium Cepa, 76; Aloe Socotorina, 79; Artemisia Abrotanum, Artemisia Santonica, 124; Artemisia Vulgaris, 125; Asclepias Curassavica, 131; Betonica Officinalis, 168; Bryonia Dioica, 201; Bupleurum Longifolium, 209; Buxus Sempervirens, 213; Cambogia Gutta, 230; Daphne Laureola, 434; Dolichos Pruriens, 466; Erysimum Cheiranthoides, 522; Fucus Palmatus, 584; Gentiana Centaurium, 603; Gratiola Officinalis, 642; Helleborus Fœtidus, 678; Hordeum Vulgare, 704; Hypericum Perforatum, 729; Inula Helenium, 752; Juglans Regia, 765; Juniperus Sabina, 772. See *Vermifuge*

Wounds, Green, see Anagallis Tenella, 93; Artemisia Absinthium, 125; Asclepias Curassavica, 131; Betonica Officinalis, 168; Centaurea Cyanus, 276; Centaurea Benedicta, 277; Equisetum Sylvaticum, 503; Eupatorium Cannabinum, 533; Filago Germanica, 570; Hedvigia Balsamifera, 662; Hieracium Pilosella, 689; Hypericum Androsæmum, 728; Hyssopus Officinalis, 733. See *Cuts.*

N. B. *Medical Terms.* See page 103, Vol. ii.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

END OF VOL. I.

LONDON: PRINTED AT THE CAXTON PRESS, BY HENRY FISHER.

LOCKED
CASE

RETURN TO ➔

MARIAN KOSHLAND BIOSCIENCE AND NATURAL RESOURCES LIBRARY
2101 Valley Life Sciences Bldg. • 642-2531

LOAN PERIOD

1 DAY

ALL BOOKS MAY BE RECALL AFTER 7 DAYS

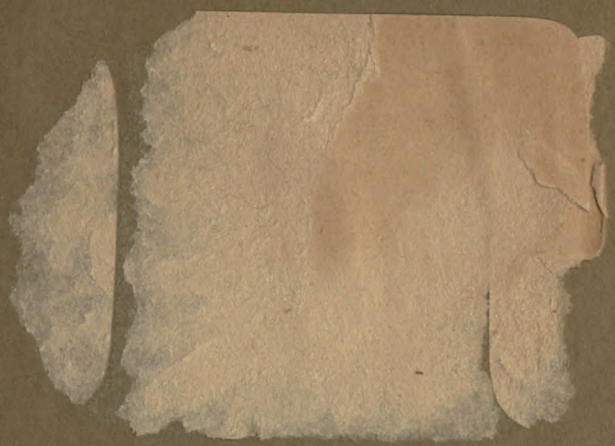
DUE AS STAMPED BELOW

DUE
FEB 04 2000

FORM NO. DD0, 50m, 1/99

UNIVERSITY OF CALIFORNIA, BERKELEY
BERKELEY, CA 94720-6000

cl 6/3/69
w/o cards
card found 5/2

LD 21-100m-7,'40 (6936s)

BIOLOGY LIBRARY